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

Prepared for EMU Limited
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43 Chalton Street
London NW1 1JD
Tel: 020 7383 5784
Fax: 020 7383 4798
london@landuse.co.uk

14 Great George Street
Bristol BS1 5RH
Tel: 0117 929 1997
Fax: 0117 929 1998
bristol@landuse.co.uk

37 Otago Street
Glasgow G12 8JJ
Tel: 0141 334 9595
Fax: 0141 334 7789
glasgow@landuse.co.uk

28 Stafford Street
Edinburgh EH3 7BD
Tel: 0131 202 1616
edinburgh@landuse.co.uk

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1 Introduction

1.1 Mainstream Renewable Power is developing a proposal for the Neart na Gaoithe offshore wind farm in the outer Firth of Forth ('the offshore development'). Mainstream has appointed EMU Limited (EMU) to undertake the environmental impact assessment (EIA).

1.2 In March 2011, Land Use Consultants (LUC) was commissioned by EMU to undertake seascape, landscape and visual impact assessment (SLVIA) of the offshore components of the proposed wind farm. Onshore components of the project are the subject of a separate assessment.

1.3 This document assesses the impacts of the offshore development on the existing seascape, landscape and visual environment of the area around the proposals. It forms a technical appendix to the Environmental Statement (ES), and is summarised in **Chapter 22** of the ES.

1.4 The SLVIA considers effects of the offshore development upon:

- offshore seascape character and resources, including effects on the physical and aesthetic values of the coastal and marine seascape caused by changes in elements and qualities as a result of the development;
- onshore landscape character and resources, including effects on the physical and aesthetic values of the landscape caused by changes in its qualities as a result of the development; and
- visual amenity, including effects upon potential viewers and viewing groups (e.g. residents, employees, tourists etc) caused by introduction of the development into views.

FORTH AND TAY OFFSHORE WINDFARM DEVELOPER GROUP

1.5 The Forth and Tay Offshore Windfarm Developer Group (FTOWDG) was formed to agree strategies and where possible adopt consistent approaches to assessment. It represents the developers of the three offshore wind farms currently proposed in the area (Neart na Gaoithe, Inch Cape, and Firth of Forth Round 3 Zone 2).

1.6 FTOWDG undertook consultation with Scottish Natural Heritage (SNH), Marine Scotland and others, as discussed in **Section 1.25**. A key outcome of this consultation was the agreement of a list of viewpoints, which will be adopted by all developers for the purposes of SLVIA. These viewpoints are listed in **Annexe 1**, and are discussed further at **Section 3.65**.

1.7 A series of 'discussion documents' were prepared, most recently on the *Approach to Assessment of Landscape, Seascape and Visual Cumulative Effects* (FTOWDG, 2011). This set out a methodology and approach to the assessment of cumulative impacts, which will form the basis for SLVIA for all FTOWDG developments.

1.8 A regional seascape character assessment, including an appraisal of sensitivity to offshore wind farm development, was undertaken by landscape consultants

on behalf of FTOWDG. This document is included in **Annexe 2**, and will serve as a baseline for assessing impacts on seascape character for all FTOWDG developments. Seascape character is discussed further at **Section 3.12**.

STUDY AREA

1.9 The study area for the SLVIA has been defined as a radius of 50 km from the development site boundary. This reflects the scale of the proposed turbines, and the potential for effects at greater distances than for onshore wind turbines of *circa* 125 m, for which the standard study area is 35 km radius. For the purposes of cumulative assessment, a search area of 65 km radius has been adopted. These distances have been adopted on the advice of SNH, and agreed with SNH and local authorities. The 50 km study area is illustrated in **Figure 22.1**.

1.10 The 50 km study area covers over 9,800 km^2, 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.

1.11 The 65 km search area additionally includes parts of Edinburgh and Midlothian, and is illustrated in **Figure 22.28**.

NEART NA GAOITHE OFFSHORE WIND FARM

1.12 The offshore development, described fully in Chapter 5: Project Description of the ES, comprises an offshore wind farm and associated offshore infrastructure, located within the outer Firth of Forth. The site boundary defines an area of approximately 105 km^2. At its closest point to shore, the site boundary is approximately 15.3 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.

1.13 The wind farm has an indicative maximum capacity of 450 MW. At this stage, the design of the wind farm, in terms of turbine height, turbine numbers, and layout, has not been finalised. The application is therefore being progressed using a 'Rochdale Envelope' approach, which allows flexibility for the project to evolve during the consenting process.

1.14 A number of potential turbines are being considered by the developer, ranging in output from 3.6 MW to 7 MW. Turbine height varies between these candidate machines, as set out in **Table 1.1**.

Table 1.1 Candidate Turbines

Candidate turbine output	Number of turbines	Tip height above Lowest Astronomical Tide (LAT)	Hub height above LAT*	Rotor diameter
7 MW	64	197 m	115 m	164 m
6 MW	75	175.5 m	115 m	121 m
4.135 MW	109	171.25 m	115 m	112.5 m
3.6 MW	125	175 m	115 m	120 m

1.15 Clearly, the greater the turbine output, the fewer turbines required. Turbine height varies between these potential machines, although neither overall height nor rotor diameter correlates directly with turbine output. Rotor diameter does correlate with turbine spacing, with the minimum distance between turbines being defined as four rotor diameters, although actual spacing is likely to be greater than this.

1.16 In light of this, a layout using a lower-output turbine would have more, smaller, turbines at a denser spacing, while a layout using a higher-output turbine would have fewer, larger, turbines spaced more widely.

1.17 It is desirable to consider a 'maximum effects' scenario for EIA. However, in terms of SLVIA there may be no single such scenario. Initial modelling carried out prior to the SLVIA process (see **Section 4**) indicated that, while larger turbines would be more widely visible, a denser layout of smaller turbines may be less visually balanced.

1.18 For the purposes this SLVIA, two alternative scenarios have been defined, based on the turbine options being considered: a **maximum height** scenario, and a **maximum density** scenario, as defined in **Table 1.2**.

Table 1.2 Assessment Scenarios

Scenario	Number of turbines	Tip height above LAT	Hub height above LAT	Rotor diameter	Indicative Layout	Turbine spacing (as indicative layout)
Maximum height	80	197 m	115 m	164 m	B	795 m
Maximum density	128	175 m	115 m	120 m	A	618 m

Maximum Height Scenario

1.19 The maximum height scenario examines the impacts of an indicative layout using the tallest turbine under consideration, with a maximum tip height of 197 m. This scenario uses indicative layout B.

1.20 In the event that the 7 MW machine is chosen, 64 turbines would be constructed, while if the 6 MW machine is adopted, 75 turbines would be installed. The indicative layout for this scenario includes 80 turbine positions, to allow for variations in detailed layout design. The maximum height

scenario therefore uses a layout which includes a few more turbines than would actually be constructed, in order to assess the maximum effect. The indicative layout for this scenario is shown in **Figure 22.2**.

Maximum Density Scenario

1.21 The maximum density scenario examines the impacts of a layout using the largest number of turbines under consideration. The indicative layout under this scenario would comprise 128 turbines, with a maximum tip height of 175 m. This scenario uses indicative layout A.

1.22 The spacing distance used to generate the indicative128-turbine layout is 618 m. This is greater than the minimum feasible spacing, which is 480 m as specified in the Rochdale Envelope. It is possible that micrositing (potentially up to 500m) will allow closer spacing of individual turbines when constructed, although the average density would not increase. For assessment purposes, this scenario is therefore considered adequate to consider the maximum overall density which is reasonably likely. In the event that the 3.6 MW machine is chosen, 125 turbines would be constructed, while if the 4.1 MW machine is selected, 109 turbines would be installed. The scenario therefore uses a layout which includes a few more turbines than would actually be constructed, in order to assess the maximum effect. The indicative layout for this scenario is shown in **Figure 22.3**.

Substation and Other Features

1.23 The Rochdale Envelope also includes four potential substation locations. Ultimately there will be up to two substations on site. Each substation will comprise a structure with maximum dimensions of 50 m by 50 m, and up to 38 m high, set on a platform up to 60 m above LAT. In order to assess the 'maximum effect', the two locations closest to land were selected. Although it is accepted that for different viewpoints, different locations would be closer, it is also considered that the substations will be a relatively minor component in the view. For the purposes of this assessment, substation locations 1 and 3 have been chosen. These are considered as part of both scenarios (see **Figure 22.2** and **22.3**). Substations have been modelled into all visualisations (**Figures 22.10** to **22.27**)

1.24 Other aspects of the offshore development, and the potential for impacts on seascape/landscape and views, are discussed in **Section 4**.

CONSULTATION

1.25 A Scoping Report was published in November 2009, and a scoping opinion subsequently issued. Recommendations relevant to SLVIA are included in **Table 1.2**.

As described at **Section 1.5 to 1.8**, consultation has been taking place between FTOWDG, SNH, Marine Scotland and local authorities on proposed methodology for SLVIA, particularly as regards cumulative assessment. Recommendations arising from these consultations are included in **Table 1.3**.

Table 1.3: Strategic and site level commitments and requirements – SLVIA

Source	Comment	Relevance/reference
Blue Seas Green Energy - SEA Post Adoption Statement (Marine Scotland)	Offshore wind developments should, in general, take into account the existing character and quality of the seascape, how highly it is valued and its capacity to accommodate change.	Refer to assessment of impacts upon seascapes (**Section 5**).
	Offshore wind development proposals should seek to avoid or mitigate detrimental impacts on the settings of World Heritage Sites.	No World Heritage Sites are located within the study area.
	Offshore wind development should take account of the impacts on the special qualities for which a National Scenic Area is designated. Consideration should be given to factors such as size of offshore wind devices, number of devices or scale of development, distance from the NSA and sensitivity of the NSA setting. Proposals that significantly affect NSAs should normally be permitted where it will not adversely affect the integrity of the area or the qualities for which it has been designated or where any such adverse effects are clearly outweighed by social, environmental, climate change, or economic benefits of national importance.	No National Scenic Areas are located within the study area.
	Offshore wind developments should, where possible, incorporate advice contained in the Offshore Wind and Marine Renewables Licensing Manual in the planning and design stage.	Noted.
Scoping Opinion (SNH advice)	Landscape, Seascape and Visual Assessment chapter needs to be well structured, with the range of significant issues clearly stated.	Noted.
	Refer to SNH Guidance on Siting and Designing Windfarms in the Landscape, and forthcoming SNH guidance on marine renewables and LVIA.	Noted. The marine renewables guidance has not been published at October 2011.
	Chartered Landscape Architects, preferably a team of two, should carry out the landscape and visual impact assessment.	The SLVIA has been carried out by Chartered Landscape Architects.
Scoping Opinion (East Lothian Council Advice)	Recommend assessing visual impacts at long distances - at least 30km.	A 50km study area has been adopted (**Section 1**).
	Assessment of visual impacts combined with climatic (e.g. clear day) should be undertaken.	Visibility is discussed at **Section 3**, though all assessment was carried out under clear conditions with good visibility.

Source	Comment	Relevance/reference
	Suggest viewpoints: Dunbar, summit of North Berwick Law, Doon Hill Scheduled Ancient Monument, road at West Steel, John Muir Way.	Some of these viewpoints are included in the assessment (**Table 3.5).** Doon Hill was omitted, as several other East Lothian viewpoints were already included. All viewpoint locations have been agreed with consultees.
	Cumulative LVIA should take account of established and proposed windfarms on shore (Skateraw, Drone Hill, and possibly Aikengall and Crystal Rig).	Noted. See cumulative baseline (**Section 7**).
	Suggest viewpoint from Rosyth-Europe ferry route.	This ferry route is no longer operational and has not been considered.
	LVIA of cable route onshore needs to be considered on coastline and hinterland. This should include associated infrastructure such as, sub-stations, buildings and pylons, design, screening, mitigation and reinstatement measures.	The onshore part of the works forms a separate application, and will be subject to LVIA. Refer to Environmental Statement for onshore works.
	Shore based electrical infrastructure should be capable of expansion to accept electricity generated by other offshore windfarms and the design, visual and landscape considerations of this should be taken into account.	The onshore part of the works forms a separate application, and will be subject to LVIA. Refer to Environmental Statement for onshore works.
	If a ports study is included the landscape/ visual implications of this should be considered.	No ports study is included.
Scoping Opinion (Fife Council advice)	Suggest viewpoints of St Andrews, Fife Ness and high points in Fife, and in context of Isle of May.	These viewpoints are included in the assessment (**Table 3.5**).
Scoping Opinion (Historic Scotland advice)	Suggest assessment of following assets in terms of seascape and setting: • Tentsmuir Coastal defences (Index no. 9712); • Crail Airfield, airfield 1km E of Kirklands Farm (Index no. 6642);	The SLVIA does not assess impacts on setting of historic features, as this is a cultural heritage issue. Refer to the cultural heritage chapter of the ES. Historic

Source	Comment	Relevance/reference
	• St Andrews Castle (Index no. 90259); • St Andrews Cathedral and adjacent ecclesiastical remains (Index no. 90260); • Crail Airfield, pillbox, Foreland Head (Index no. 6461); • Crail Airfield, airfield 1km E of Kirklands Farm (Index no. 6642); • Isle of May, lighthouse (Index no. 887); • Isle of May Priory (Index no. 883). • St Andrews Harbour (HB no. 40596); • Bell Rock Lighthouse (HB no. 45197). • St Andrews Links; and • Cambo.	character of seascape, landscape and views is considered as part of the baseline.
	Request additional viewpoints at Tentsmuir Coastal defences and Crail Airfield control tower.	The SLVIA does not assess impacts on setting of historic features, as this is a cultural heritage issue. Refer to the cultural heritage chapter of the ES. A viewpoint at Tentsmuir is included (**Table 3.5**).
	Recommend cumulative viewpoints at St Andrews and Tentsmuir.	The SLVIA does not assess impacts on setting of historic features, as this is a cultural heritage issue. Viewpoints at St Andrews and Tentsmuir are included (**Table 3.5**).
Advice to FTOWDG (SNH)	Strongly recommend a cumulative seascape, LVIA and that a coastal characterisation is required at a local/regional scale by FTOWDG.	A regional seascape characterisation has been carried out. See **Section 3.**
	Guidance available: GLVIA, SDWL, VRW, SNH's Seascapes Report.	Noted.

Source	Comment	Relevance/reference
	There is a need for agreement on a common methodology among developers for cumulative LVIA.	A common methodology has been agreed. See **Section 2.**
Advice to FTOWDG (Fife Council)	Guidance: Fife wind energy supplementary planning guidance.	Noted. See **Section 3.**
Advice to FTOWDG (Historic Scotland)	Suggest potential cumulative impacts on terrestrial historic environment assets are assessed in individual project ES seascape, LVIA chapters.	The SLVIA does not assess impacts on historic environment assets, as this is a cultural heritage issue. Impacts on views from sites of historic importance are included, eg St Andrews, Arbroath Signal Tower, etc. See **Table 3.5.**
Marine Scotland/SNH Advice Note: *Offshore Windfarm Landscape / Seascape, Visual and Cumulative Assessment: Recommended Outputs*	Map of search and study areas, and preliminary ZTV	Noted. See cumulative baseline (**Section 7**) and **Figures 22.28** to **22.30.**
	Coastal and "seascape" / landscape character assessment baseline information in agreed study area (map and text)	Noted. A regional assessment of seascape character and sensitivity has been undertaken (**Section 3**), shown in **Figure 22.8.**
	Viewpoint selection (map and text)	Viewpoints, and 'key design viewpoints' have been agreed with consultees.
	Baseline photographs	Viewpoint photography will be shared by all FTOWDG developers.
	Constraints (map and text)	Design constraints are discussed in Chapter 4 of the ES.
	Design concept (plan(s) and text)	A design sensitivity analysis was carried out to consider visual layout issues. See **Section 4.**

Source	Comment	Relevance/reference
	Visualisations for design viewpoints (photomontages, wirelines, photographs)	Both indicative layout scenarios are illustrated for all viewpoints, with photomontages included for 'design viewpoints'. See **Figures 22.10** to **22.27.**
	Worst case scenario	Two alternate scenarios are considered by the SLVIA, to cover the potential range of 'maximum effect'. See **Section 1.12**.
	Post-consent process	Noted.

STRUCTURE OF THE REPORT

1.26 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 seascape and landscape resources;
- **Section 6** presents the assessment of impacts on visual amenity;
- **Section 7** presents the assessment of cumulative impacts on seascape, landscape and visual resources;
- **Section 8** summarises the findings of the SLVIA; and
- **Section 9** lists references used.

GLOSSARY

1.27 Abbreviations used in this technical appendix:

AGLV	Area of Great Landscape Value
AOD	Above Ordnance Datum
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
ES	Environmental Statement
FTOWDG	Forth and Tay Offshore Windfarm Developer Group
GDL	Garden and Designed Landscape
LAT	Lowest Astronomical Tide
LCA	Landscape Character Assessment
LCT	Landscape Character Type
LVIA	Landscape and Visual Impact Assessment
NCN	National Cycle Network
OD	Ordnance Datum (Newlyn)
OS	Ordnance Survey
SLA	Special Landscape Area
SLVIA	Seascape, Landscape and Visual Impact Assessment
SNH	Scottish Natural Heritage
ZTV	Zone of Theoretical Visibility

2 Methodology

GUIDANCE

2.1 The seascape, landscape and visual impact assessment (SLVIA) has been carried out by a team of Chartered Landscape Architects, following the approach set out in the *Guidelines for Landscape and Visual Impact Assessment* (2nd edition), produced jointly by the Landscape Institute and the Institute of Environmental Management and Assessment.

2.2 Reference has been made to a number of other guidance documents and relevant publications, as noted below:

- Marine Scotland (2011) *Blue Seas Green Energy: A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters*;
- Scottish Natural Heritage and Marine Scotland (2011) *Advice Note: Offshore Windfarm Landscape / Seascape, Visual and Cumulative Assessment: Recommended Outputs*;
- Landscape Institute (2011) *Photography and photomontage in landscape and visual assessment.* Advice Note 01/2011.;
- Scottish Natural Heritage (2009*) Siting and designing windfarms in the landscape* Version 1;
- Scottish Natural Heritage (2008) *Guidance on Landscape/Seascape Capacity for Aquaculture*;
- H+M and Envision (2006) *Visual Representation of Windfarms: Good Practice Guidance*. Report for Scottish Natural Heritage, The Scottish Renewables Forum and the Scottish Society of Directors of Planning;
- Enviros (2005) *Guidance on the Assessment of the Impact of Offshore Wind Farms: Seascape and Visual Impact Report*. DTI;
- Scottish Natural Heritage (2005) *Guidance: Cumulative Effect of Wind Farms* Version 2 (and consultative draft of Version 3, 2009)
- Countryside Agency and Scottish Natural Heritage (2004) *Landscape Character Assessment: Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity*;
- Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment: Guidance for England and Scotland*;
- Countryside Council for Wales, Brady Shipman Martin, University College Dublin (2001) *Guide to best Practice in Seascape Assessment.* Maritime Ireland / Wales INTERREG Report No. 5; and

TIDAL RANGE AND TURBINE HEIGHT

2.3 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 tower is exposed.

2.4 Heights for wind turbines and other infrastructure, in **Table 1.1** and elsewhere, 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).

2.5 At Leith, the closest major port, Chart Datum (and therefore LAT) is 2.9 m below Ordnance Datum (OD, Newlyn).[1] The ZTV 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 192 m above LAT would be 189.1 m above OD.

2.6 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. In any case the stated accuracy of the Land-Form Profile data is ±3 m, greater than the difference between CD and OD.

VISIBILITY

2.7 The Met Office records atmospheric visibility on a regular basis. Data were obtained from the Met Office, giving average visibility, recorded at Leuchars, Fife, over a ten-year period from January 2001 to December 2010.

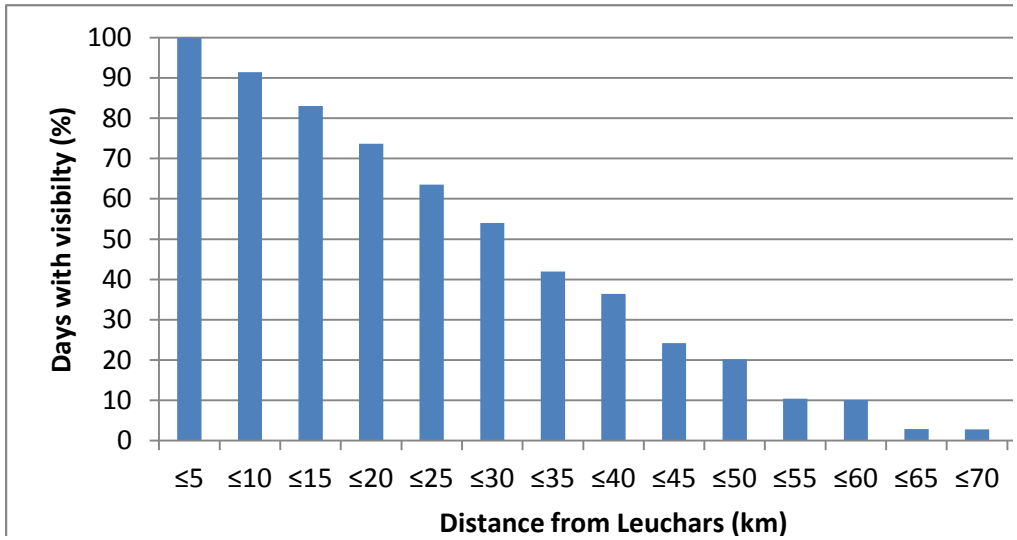
2.8 These data are presented in **Table 2.1**. They show that visibility reduces steadily with distance from the observation point. The following observations can be made:

- there is no visibility beyond 15 km for 17% of the time, suggesting that the wind turbines would not be visible from Fife Ness on 62 days per year;
- there is no visibility beyond 30 km for 46% of the time, suggesting that the turbines would not be visible from Angus or East Lothian on 168 days per year; and
- there is no visibility beyond 50 km for 80% of the time, suggesting that the turbines would not be visible from the outer edge of the study area on 292 days per year.

2.9 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.

[1] "Chart Datum and Ordnance Datum" National Oceanography Centre (http://www.pol.ac.uk/ntslf/tides/datum.html) Accessed 22 February 2012.

Table 2.1 Visibility from Leuchars



DESIGN SENSITIVITY ANALYSIS

2.10 In July 2011, a 'Design Sensitivity Analysis' was undertaken by SLR Consulting on behalf of FTOWDG, with input from LUC and Pegasus Planning Group. Generic layouts for each of the three proposed offshore wind farms (Neart na Gaoithe, Inch Cape and Firth of Forth Round 3 Zone) were compared in terms of their potential impacts. The results of the Design Sensitivity Analysis were provided to SNH, Marine Scotland, and local authorities.

2.11 For each of the three developments, three different turbine dimension scenarios were provided by the respective developers, as follows:

- maximum height of turbine, with related maximum spacing requirements;
- intermediate height of turbines, with intermediate spacing requirement; and
- minimum height of turbine, with minimum spacing requirements.

2.12 Layouts were generated on the basis of these turbine dimension scenarios based on three different generic design concepts, as follows:

- regular grid;
- offset grid; and
- series of arcs.

2.13 A range of wireline visualisations were generated, illustrating views of the various scenarios from each of the three 'design viewpoints' (see **Section 3.72**). 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.

2.14 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 appear better in some views than others.

2.15 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.

KEY STEPS

2.16 The key steps in the methodology are as follows:

- production of a zone of theoretical visibility (ZTV) for the study area according to the methodology described in **Section 2.19**, using computer modelling to predict the extent of potential visibility of the turbines within the 50 km study area;
- baseline studies (**Section 3**), including:
    - identification of policies and designations which are of relevance to landscape character and visual amenity;
    - description of the landscape character types present in the study area, informed by the relevant landscape character assessments and field surveys, taking into account geology, topographical structure, vegetation, forms of landscape importance (eg archaeological, ecological, hydro-geological), existing condition, quality and given value (reflecting landscape designations);
    - description of the seascape character areas present in the study area;
    - identification of potential visual receptors across the ZTV; and
    - selection of viewpoints across the ZTV which are representative of the range of views and types of visual receptors likely to be affected by the offshore development, in consultation with SNH and the local authorities, and determination of the sensitivity of each view to change;
- production of wireline and photomontage images of the development from various viewpoints according to the methodology described in **Section 2.22**;
- determination of the sensitivity of each landscape and seascape character area, and each visual receptor, to the offshore development;
- prediction of the magnitude of effect arising from the introduction of the offshore development, for each identified landscape and seascape unit, and for each visual receptor and viewpoint;
- identification of measures to mitigate impacts;
- evaluation of the level of significance of residual impacts (assuming the identified mitigation measures are adopted) upon each landscape/seascape unit and each viewpoint; and
- undertaking of a cumulative assessment to judge the additional impacts of Neart na Gaoithe when considered in combination with other existing and consented wind farms, plus those proposals in the planning system.

Field Surveys

2.17 A series of site visits were undertaken by the assessment team between May and October 2011, to potential viewpoint locations across the study area. The aims of these visits were to identify viewpoints and receptors; to determine landscape/seascape character and sensitivity; and to identify and assess potential impacts. Following these site visits, the finalised list of viewpoint locations was agreed with SNH and local authorities.

2.18 Photography was undertaken by a specialist team between June and September 2011.

VISUALISATIONS

Zone of Theoretical Visibility

2.19 A zone of theoretical visibility (ZTV) was generated for the proposed wind farm. The ZTV is the area within which a proposed development is theoretically visible, and therefore where it may have an effect upon visual amenity and/or landscape character. Theoretical visibility does not imply visual impact. The ZTV map was produced based on the following assumptions:

- all ZTV analysis was calculated using landform based on a digital terrain model derived from the Ordnance Survey 'Landform Panorama' 50 m DTM data, which provides height data for each point on a 50 m by 50 m grid, and has a stated accuracy of ±3 m;
- two ZTVs were generated, based on the tip heights of the wind turbines considered under each scenario (see **Table 1.1**), ie 197 m for the maximum height scenario, and 175 m for the maximum density scenario;
- although these heights are referenced to LAT, they were treated as if they were above Ordnance Datum (OD), as the resulting discrepancy will make no discernible difference, as discussed at **Section 2.3**;
- ArcGIS software was used for the calculation of the ZTV. The software incorporates earth curvature and atmospheric refraction in calculating intervisibility;
- for the purpose of the model used, the term 'intervisibility' indicates mutual visibility between the 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 or buildings and atmospheric conditions.

2.20 ZTVs were generated for each of the two alternative scenarios (see **Table 1.2**), to illustrate the potential range of visibility for scenarios considered as part of the Rochdale Envelope:

- **Figure 22.4** illustrates the ZTV of the 'maximum height scenario', which uses the largest turbine proposed. This turbine would be 197 m to tip, 115 m to hub, and the indicative layout comprises 80 turbines;

- **Figure 22.5** illustrates the ZTV of the 'maximum density scenario', which uses a smaller turbine. This turbine would be 175 m to tip, 115 m to hub, and the indicative layout comprises 128 turbines; and
- **Figure 22.6** illustrates a comparison between these two scenarios, showing areas where turbine tips would be visible under one scenario but not the other.

2.21 The ZTVs are discussed in detail in **Section 3**.

Wirelines and Photomontages

2.22 Visualisations are illustrations that aim to represent an observer's view of a proposed development. The SNH guidance *Visual Representation of Wind Farms: Good Practice Guidance* (H+M and Envision, 2006) stresses that "*visualisations, whether they are hand drawn sketches, photographs or photomontages will never appear 'true to life'. Rather they are merely tools to inform an assessment of impacts, and like any tool, their application requires careful use.*" They are not a substitute for a review of likely visual changes in the field by a professional landscape architect, which also formed a key part of the assessment methodology.

2.23 Visualisations (wirelines and photomontages) were generated to illustrate potential views of the offshore development from each of the assessment viewpoints. Wireline views are provided for all viewpoints, with photomontages for selected viewpoints, as discussed at **Section 3.75**.

2.24 The methodology for production of the visualisations was based on the *Guidelines for Landscape and Visual Impact Assessment* (Landscape Institute, 2002) and the SNH guidance *Visual Representation of Wind Farms: Good Practice Guidance* (H+M and Envision, 2006). Further information about the approach is provided below.

Location of Viewpoint and Photography

2.25 The location of the viewpoint was recorded in the field in accordance with page 63, paragraph 111, Table 8 of the SNH guidance (H+M and Envision, 2006).

2.26 The camera used for the photography is a Nikon D70s digital SLR with a fixed 35 mm focal length lens (equivalent to a 52.5 mm focal length lens on a 35 mm film camera). These focal lengths are in accordance with recommendations contained in the guidance.

2.27 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.[2] The camera was moved through increments of 15 degrees and rotated through a full 360 degrees at each viewpoint. 24 photographs were taken for each 360 degree view. This enabled a 90 degree angle, centred on the view towards the proposed wind turbines, to be cut

[2] Parallax is the difference between what is seen through the viewfinder and what the camera records on film.

from the overall 360 degrees in accordance with page 63, paragraph 121, of the SNH guidance.

Weather Conditions

2.28 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 then visited according to the time of day to ensure that the sun lit the scene from behind, or to one side of the photographer as far as possible. South facing viewpoints can present problems particularly in winter when the sun is low in the sky. Photographs facing into the sun were avoided where possible to prevent the wind turbines appearing as silhouettes. Adjustments to lighting of the turbines were made in the rendering software to make the turbines appear realistic in the view under the particular lighting and atmospheric conditions present at that time.

Photo Stitching

2.29 Photograph stitching software was used to piece together the adjoining images. An image with an angle that best represents the viewpoint was chosen.

Wirelines

2.30 The software package ReSoft WindFarm was used to model and view the proposed turbines from selected viewpoints in wireline format.[3] Ordnance Survey Landform Panorama data (equivalent to 1:50,000 scale mapping with 10 m contour intervals) was used to model the landform seen in the wireline view. Turbine locations, type and size, and viewpoint location coordinates were entered. The WindFarm software includes a default viewer height of 2 m above ground level. The pre-prepared 90 degree photos were imported into the WindFarm software and the wireline views overlaid onto the photographs.

Producing Fully Rendered Photomontages

2.31 The presentation of fully rendered photomontages involved a number of additional stages as follows.

2.32 The software rendered the turbines based on sunlight 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 as to represent a realistic situation before rendering the image. Fixed features on the ground, for example buildings and roads, were located in the wireline model and used as markers to help line up the wireline ground model with the photograph.

2.33 The final stage required the rendered turbines to be blended into the actual view. This was carried out using Photoshop software and allowed the

[3] A wireline (or wireframe) model is a visual presentation of a three dimensional or physical object in 3D computer graphics. It is created using lines to reveal the structure of a 3D model and is therefore relatively simple and quick to produce.

turbines to be located behind any foreground elements that appeared in the original photograph.

Presentation of Visualisations

2.34 Autodesk AutoCAD software was used to present the resulting images. For each view the first page shows a location plan indicating the viewpoint and viewing angle. The second page presents the original photograph from the viewpoint, wireline image, and photomontage for the full 90 degree view to show the context. Although this arrangement is not able to meet the recommended image height and viewing distances set out in the SNH guidance, it is included for context.[4] The third page contains a 50 degree wireline and 50 degree photomontage, at image heights and viewing distances above the minimum recommended in the SNH guidance.

ASSESSMENT OF SENSITIVITY, MAGNITUDE OF EFFECT, AND SIGNIFICANCE OF IMPACT

2.35 The approach to SLVIA is prescribed by the *Guidelines for Landscape and Visual Impact Assessment* (Landscape Institute, 2002). The SLVIA methodology therefore follows this model rather than that used elsewhere in the ES. As such, the term 'sensitivity' has been used, rather than 'vulnerability' as elsewhere in the ES. The term 'magnitude of change' is used, but is defined in a slightly different way.

2.36 The assessment of landscape and visual impacts is typically based on three stages:

- classification of the **sensitivity** of the landscape/seascape and visual receptors to the offshore development;
- prediction of the **magnitude of effect** resulting from the change in the landscape or the view; and
- evaluation of the **significance** of landscape and visual impacts based on the sensitivity of the receptor and the magnitude of effect.

Receptor Sensitivity

2.37 The sensitivity of a landscape or seascape is dependent upon the location and characteristics of the area, and its proximity to, and intervisibility with, the offshore development. It may also depend on any specific values or qualities represented by landscape designations. It is relevant to consider how widespread the type of landscape/ seascape that is affected is in the wider area, and the degree to which any impact would affect a unique or valued resource. Sensitivity also takes account of the nature, quality and condition of the seascape/landscape, and its capacity to accommodate change of the type envisaged without adverse impacts on its character.

2.38 The sensitivity of a viewer (or visual receptor) depends on their viewing opportunities and the activities in which they are engaged. Hence a person partaking in an outdoor recreation of a type where the view contributes

[4] Viewing distance is the distance at which the image should be viewed to provide a representation of the 'real life view'.

towards enjoyment, such as walking, and residents with a permanent view are considered to be of higher sensitivity than office workers or travellers with only a passing interest in the environment. The number of people who may be affected is also relevant and this must be considered in the context of the numbers of people in the wider area and their frequency of viewing opportunity, for example, how often and how many people visit a particular location, or make use of a particular footpath. The sensitivity of a viewer also varies with the type and nature of the existing view, and the extent to which it may be affected by the offshore development.

2.39 In the visual assessment, viewpoints are used as a proxy for viewers. The viewpoints themselves are not considered inherently sensitive, since sensitivity resides in the viewer. Viewpoint sensitivity is based on the likely sensitivity of the people who visit each location, considering the activities in which they are engaged as set out above.

2.40 Sensitivity, as judged in this report, is specific to the particular type of change envisaged as a result of the offshore development.

2.41 Sensitivity is described as *low*, *medium* or *high* and these definitions are illustrated by the examples in **Tables 2.2** and **2.3**.

Table 2.2 Sensitivity of Seascape/Landscape Resources

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

Table 2.3 Sensitivity of Visual Resources

Sensitivity of Receptor	Visual Resource / Amenity
High	Locations which are frequented by viewers with proprietary interest and prolonged viewing opportunities such as at residential properties or at popular recreational destinations, particularly where there are open marine views For example: a coastal settlement; a popular beach
Medium	Locations which are frequented by viewers with a moderate interest in their environment such as occasional travellers or at recreational facilities when the main focus of activity is not on the surroundings, or, locations frequented by viewers with more prolonged viewing opportunities, but where marine views are less important For example: a panoramic view in which the sea forms a small part; a less frequented coastal location
Low	Locations which are frequented by viewers with a passing interest in their surroundings and whose interest is not specifically focussed on the scenery, *eg* at working premises or at locations on roads or railways passed through when travelling, or, locations frequented by viewers with moderate interest, but where marine views are a minor part of the view For example: a coastal industrial estate; an inland location with only glimpses of the sea

Methodology for Judging Seascape Sensitivity

2.42 The sensitivity of seascape areas to offshore wind farm development has been assessed as part of the baseline seascape character assessment carried out on behalf of FTOWDG. This is discussed further in **Section 3**.

Methodology for Judging Landscape Sensitivity

2.43 The assessment of landscape sensitivity is based on a review of the key characteristics of each landscape character type, as set out in published assessments. Particular attention was paid to the apparent importance of coastal and marine elements in contributing to landscape character. Landscapes with no coastal influence were scoped out of the baseline (**Section 3**). Landscapes with open marine views were considered to be more sensitive to changes in the marine environment than those with more limited marine views. This process is set out in more detail in **Section 5**.

2.44 *Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity* states that:

"*Judging landscape character sensitivity requires professional judgement about the degree to which the landscape in question is robust, in that it is able to accommodate change without adverse impacts on character. This means making decisions about whether or not significant characteristic elements of the landscape will be liable to loss... and whether important aesthetic aspects of character will be liable to change*" (SNH and the Countryside Agency, 2004).

Magnitude of Effect

2.45 In the SLVIA, magnitude of effect is defined in terms of the *Guidelines for Landscape and Visual Impact Assessment* (Landscape Institute, 2002), and may be slightly different to the magnitude of effect defined for other topics. The magnitude of effect in a landscape/seascape or view depends on the nature and scale of the development, and its duration.

2.46 In the case of landscape/seascape impacts, other factors relevant to magnitude would include the extent of change in important landscape/ seascape characteristics, the degree of fit or contrast between any new features and those existing, and the effect on the character and setting of neighbouring character areas.

2.47 The magnitude of effect on a view would depend on the proportion of the view that is affected and the prominence of the new features, taking into account distance and contrasts in form, colour, scale and movement. It would also depend on the nature and content of the existing view, and the extent of the view, ie glimpsed, framed, panoramic, etc.

2.48 Magnitude of effect is described as *high*, *medium*, *low* or *negligible* and these definitions are illustrated by the examples in **Table 2.4** and **2.5**.

Table 2.4 Magnitude of Effect: Seascape/Landscape

Magnitude of effect	Landscape/Seascape Resource
High	Clearly perceptible changes in key characteristics and character; for example introduction of new large scale features into views from a character area where these are not typical
Medium	Perceptible changes in key characteristics, but which result in only relatively subtle changes in character; for example introduction of new large scale features into intermittent views from a character area, or where these are not out of character
Low	Limited changes in key characteristics, which result in very subtle changes in character; for example, introduction of large scale features into distant views from a character area, where these will not be out of character
Negligible	No change, or almost imperceptible change, in landscape/seascape character and characteristics

Table 2.5 Magnitude of Effect: Visual

Magnitude of effect	Visual Resource / Amenity
High	Notable change, affecting a substantial part of the view, and introducing clearly visible new features into an open marine view
Medium	Clearly perceptible change in a view introducing clearly visible new features into part of the view, or a more extensive view of a less obvious change
Low	Perceptible changes across a small area of the view
Negligible	No change, or almost imperceptible change, in the view

Significance of Impact

2.49 In this assessment, levels of significance range from *major* to *none*. There is a gradual, blurred transition between levels of significance. A higher level of significance is generally attached to a greater magnitude of effect, affecting receptors of higher sensitivity.

2.50 Impacts which are graded as being major are those which should be given greatest weight in decision making. They usually concern the immediate landscape around the development area and close views from sensitive locations. Moderate levels of impact are also significant in EIA terms, but they are of progressively reducing importance. Impacts graded as minor are those which the decision maker should be aware of, as they constitute noticeable changes in the landscape or views, but are unlikely to warrant much weight in the decision making process and in this SLVIA are not considered significant.

2.51 The determination of levels of significance 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 and location specific considerations in every instance.

2.52 Judgements are made on a case by case basis, as required by the *Guidelines for Landscape and Visual Impact Assessment*. Paragraph 7.45 (page 95) includes the statement:

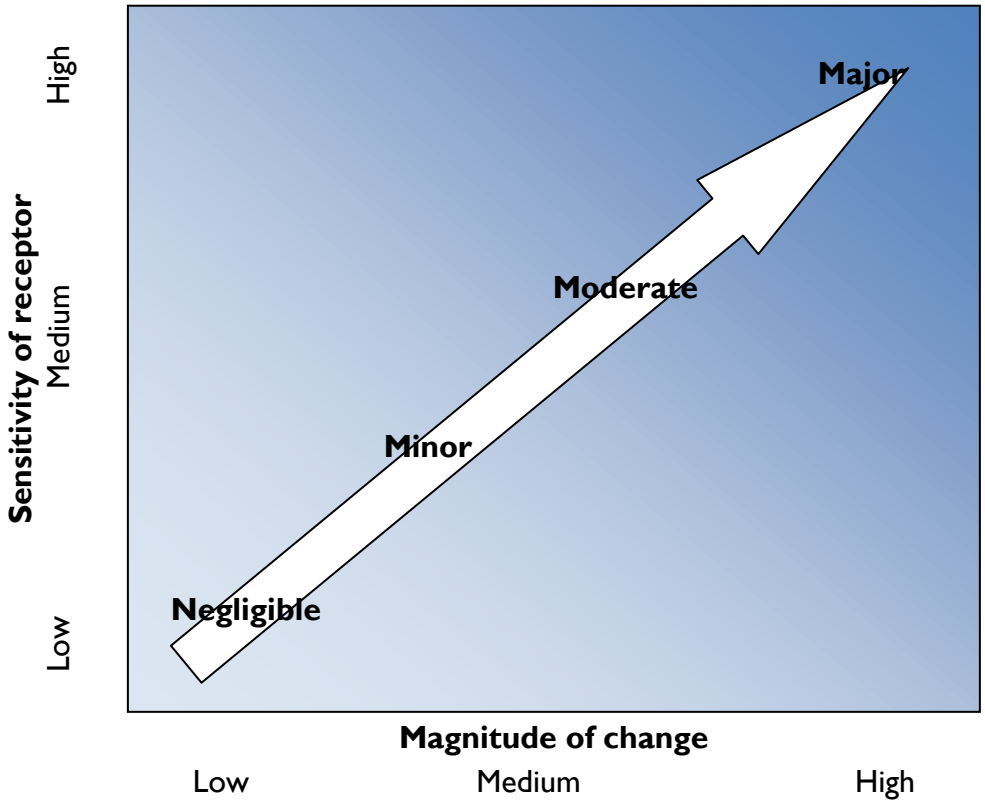
"*It will be evident that the analysis of criteria involves considerable judgement in balancing the complex relationships between the different components of the landscape*."

2.53 Paragraph 7.47 states:

"*The relationship between the sensitivity of the receptor and the nature and scale or magnitude of the effect is sometimes presented in the form of a simple matrix. However, in such a matrix the relationship between the two axes is not linear....the sensitivity and values of a landscape resource is largely derived from subjective judgements*."

2.54 The same is true of impacts on views. A rigid matrix-type approach, where significance is defined simply based on the level of sensitivity combined with the magnitude of effect, is therefore not used. As such, the conclusion on significance is not always the same. For example, a medium magnitude of change experienced by a high sensitivity receptor may be considered a major impact in some cases, and a moderate impact in others, depending on the balance of variables noted above. Each impact is evaluated on a case by case basis using the diagram shown in **Table 2.6** as a guide.

Table 2.6 Guide to Levels of Significance of Landscape and Visual Impacts



Nature of Impacts and Acceptability

2.55 Impacts arising from the offshore development can be:

- direct, i.e. a physical change affecting a seascape/landscape, such as the removal of a feature, or the addition of a new structure; or
- indirect, i.e. perceived changes in views or in seascape/landscape character, which arise from physical changes occurring at a distance.

2.56 Impacts can be short term (i.e. those occurring during construction of a development or during the restoration period) or long term (i.e. those lasting for the life time of the scheme). They can be widespread or localised, and intermittent or continuous.

2.57 It is a requirement of the Environmental Impact Assessment (Scotland) Regulations 1999 to state whether impacts are beneficial or adverse, or in some instances neutral. In undertaking an assessment on impacts on views it is necessary to acknowledge that varying attitudes to wind energy development are expressed by different individuals and constituencies. Aesthetic perceptions can be positive or negative depending on individual attitudes to the principle and presence of wind generation. There is also evidence that negative attitudes can reduce with time particularly for those living in proximity to wind farms. It is therefore not possible to arrive at a single collective view relevant for all, on the direction and duration of impacts resulting from a scheme.

2.58 Taking a precautionary stance, changes to coastal landscapes, involving the construction of large-scale man-made objects offshore, are taken as being adverse. Where the level of significance of impacts on the landscape is stated throughout this assessment, then these are taken to be adverse.

2.59 Impacts upon views are more subjective in terms of their direction, as whether people like or dislike what they see depends upon their tastes, the context in which they see the view and, to an extent, upon their individual attitude towards wind power. Offshore wind farms are a new feature in Scotland's seascapes. In this assessment a precautionary stance is adopted, and impacts upon visual amenity are taken as being adverse.

2.60 *Acceptability* is a matter for the decision maker to determine as part of the overall planning balance, and in this case is a decision to be made by the consenting authority, who will make a judgement on the basis of the evidence available. An ES is a document which sets out the nature and extent of impacts likely to result from a development, and its purpose is not to draw conclusions as to acceptability. Unlike other EIA disciplines there are no specific accepted, legal requirements or published criteria to use as a basis on which to judge whether a change in the landscape, or in a view, is 'acceptable'. There is no published guidance on establishing a threshold, beyond which a change should not go, and would be 'unacceptable'. In assessing predicted impacts, judgements as to acceptability are not made, as these judgements need to be weighed up in the overall planning balance.

CUMULATIVE IMPACT ASSESSMENT

2.61 The cumulative methodology has been developed by FTOWDG in consultation with SNH and other consultees (see **Section 1.25**). The discussion document *Approach to Assessment of Landscape, Seascape and Visual Cumulative Effects* (FTOWDG, March 2011), and subsequent meetings, forms the basis of the methodology set out in this section.

2.62 Cumulative seascape/landscape and visual impact assessment is concerned with identifying the *additional* effects that may arise as the result of a development being added into a situation where one or more other developments are also present or proposed. The purpose of cumulative impact assessment is not to examine the total significance of all effects, but is focussed upon identifying additional effects resulting from the wind farm in question, as well as discussing the relationship between different developments. For example:

- two wind farms seen together may complement one another, meaning that the level of significance of the effects which is predicted to arise as a result of adding the proposed wind farm may be less than the sum of the effects from the two wind farms; or
- conversely, two wind farms may be at odds with one another, perhaps because their layout and form or design is very different, which may mean that the level of significance which is predicted to arise as a result of adding the proposed wind farm is more than the sum of the effects from the two wind farms.

2.63 Current guidance (SNH, 2005) distinguishes cumulative landscape effects (which can also be taken to include seascape) and cumulative visual effects.

2.64 The potential cumulative effects on the landscape and seascape resources that are assessed include:

- indirect effects on landscapes (as development is offshore); and
- direct and indirect effects on seascapes.

2.65 The cumulative impact assessment guidance (SNH, 2005) describes three types of potential visual effects:

- simultaneous (or combined) visual effects – where two or more wind farms are visible from a fixed viewpoint in the same arc of view;
- successive visual effects – where two or more wind farms are visible from a fixed viewpoint, but the observer needs to turn to see the different sites; and
- sequential visual effects – where one or more wind farms will be seen in sequence as the observer moves along a linear route, for example, a road or long-distance footpath.

Consideration of existing and proposed wind farms

2.66 For SLVIA, the baseline is the existing seascape and landscape, which includes any existing wind farms. This is a fixed baseline that is clearly defined. For cumulative SLVIA, the baseline is to some extent uncertain, and is partially speculative. This is because wind farms considered may include not only those existing in the landscape, but also those which are consented but not yet built, and also those in the process of being determined by the relevant planning authority.

2.67 All proposed offshore wind energy projects are included in the cumulative baseline. Onshore wind energy projects in the baseline (in addition to existing wind farms) include:

- wind farms currently under construction;
- wind farms which were granted planning consent but are not yet constructed; and
- undetermined wind farm applications.

2.68 Projects at scoping stage were also identified. SNH guidance (SNH, 2005) states that "*The location of proposals that are at the scoping stage may helpfully be identified in baseline information but generally scoping proposals will not form part of the assessment process.*"

2.69 Within the search area, agreed as a 65 km radius of the Neart na Gaoithe boundary, the following projects were identified:

- proposed wind farms with 1 or more turbine(s); and
- proposed wind farms with turbines 65 m in height or higher.

2.70 A scoping exercise was then undertaken, aimed at focusing attention on wind farms likely to have visual interaction with the proposed offshore

developments, and which would potentially result in significant impacts. This sifting was based on the following aspects:

- turbine size;
- number of turbines;
- distance from Neart na Gaoithe and intervening landform; and
- proximity to or relationship with the coast.

Visualisations

Cumulative zone of theoretical visibility

2.71 A cumulative zone of theoretical visibility (CZTV) was generated to inform an initial understanding of areas where cumulative effects may occur. The CZTV shows those areas from which Neart na Gaoithe and one or more existing or proposed developments is theoretically visible, and therefore where developments may have a cumulative effect upon visual amenity and/or landscape character.

2.72 To construct the CZTV, the ZTVs to blade tip height for each of the onshore wind farms included in the assessment were generated to a radius of 35 km (as recommended for turbines over 100m by SNH guidance (SNH, 2006). ZTVs to blade tip height for each of the offshore wind farms were generated to a radius of 50 km, reflecting the higher turbines proposed. Component ZTVs were generated according to the methodology set out in **Section 2.13**.

2.73 These were then combined with the ZTV to blade tip height for the Neart na Gaoithe maximum height scenario, ie 80 turbines at 197 m to tip height (see **Table 1.1**). The maximum height scenario has the more extensive ZTV (see **Section 3.54**) and represents the maximum effect scenario in terms of overall visibility.

2.74 The CZTV was constructed to show the number of wind farms (rather than the number of turbines) visible. It was then colour coded to distinguish between areas where Neart na Gaoithe is predicted to be visible (either on its own, or in conjunction with other wind farms), and areas where other wind farms will be visible but Neart na Gaoithe will not. The CZTV does not identify which other wind farms will be visible. The CZTV is illustrated in **Figure 22.30**.

2.75 The CZTV was overlaid onto seascape/landscape character areas, designated areas, and key transport routes, to inform the assessment of sequential effects from these receptors (**Figures 22.31** to **22.34**).

Wirelines

2.76 Cumulative wireline diagrams were generated for each of the 18 representative viewpoints considered in the SLVIA (see **Table 3.5**). The cumulative wirelines were set up in the same way as for the SLVIA, except that the included angle was increased to illustrate all of the wind farms in the panorama. Cumulative wirelines therefore extend across one or more image, to include wind farms located outside the angle of the SLVIA wireline.

2.77 The Neart na Gaoithe maximum density scenario (128 turbines at 175 m to tip, see **Table 1.1**) is illustrated in the cumulative wireline views. This scenario was selected to represent the maximum effects likely to arise in terms of the overall number of turbines visible from each viewpoint. Though it is acknowledged that these turbines are slightly lower, the viewpoint assessment concluded that the perceived difference is slight (see **Section 6.6**).

Assessment of magnitude of cumulative change and significance of cumulative impact

2.78 The assessment of cumulative impacts is similar to the assessment of the impacts of the individual proposal, and assessed on the basis of three stages:

- classification of the sensitivity of the seascape/landscape and visual receptors to the proposed development;
- prediction of the magnitude of additional effect resulting from the change in the landscape or the view; and
- evaluation of the significance of cumulative impact based on the sensitivity of the receptor and the magnitude of effect.

Sensitivity

2.79 Receptor sensitivity in relation to cumulative effects will be the same as in relation to the standalone effects of the proposed development, as set out in **Section 2.37** and illustrated by the examples in **Tables 2.2** and **2.3**.

Magnitude of Cumulative Effect

2.80 Magnitude of effect was assessed by considering the relationship between the other developments in the baseline, and the potential effects arising from the addition of Neart na Gaoithe. Assessment takes into account the following:

- the arrangement of wind farms in the view, e.g. developments seen in one direction or part of the view, or seen in all directions;
- the relationship of scale of the wind farms, including turbine size and number of turbines;
- the position of the wind farms in the view, e.g. on the skyline, against the backdrop of land; and
- the apparent distances, from the viewer, and between wind farms.

2.81 Magnitude of effect is described as *high*, *medium*, *low* or *negligible* and these definitions are illustrated by the examples in **Table 2.7** and **2.8**.

Table 2.7 Magnitude of Cumulative Effect: Seascape/Landscape

Magnitude cumulative of change	Landscape/Seascape Resource
High	Considerable additional change in seascape or landscape key characteristics
Medium	Moderate additional changes in seascape or landscape key characteristics
Low	Small additional changes in seascape or landscape key characteristics
Negligible	No perceptible additional changes in seascape or landscape key characteristics

Table 2.8 Magnitude of Cumulative Effect: Visual

Magnitude of cumulative change	Visual Resource / Amenity
High	Notable additional changes in view, which may be visible for a long duration, facing the change, or which may be in stark contrast with the existing view, or obstruction of a substantial part or important elements of views towards the development area
Medium	Clearly perceptible additional changes in views, or visible for a moderate duration, perhaps at a slight angle, where changes may be in contrast with the existing view, or obstruction of a noticeable part or elements of views towards the development area
Low	Perceptible additional changes in views, or visible for a short duration, perhaps at an oblique angle, or which may blend to an extent with the existing view
Negligible	Additional change which is barely visible, or visible for a very short duration, perhaps at an oblique angle, or which may blend with the existing view, usually at some distance from the development

Significance of Impact

2.82 As with the stand-alone assessment, the assessment of significance of cumulative impacts considered the receptor sensitivity and the magnitude of cumulative change. The same levels of significance are employed (see **Section 2.49**).

2.83 The level of significance of cumulative impact was judged on the basis of information from the CZTVs, wirelines and fieldwork. Overall, the cumulative impact was judged using a multifaceted assessment based on the magnitude of change and the relationships between the wind farms (illustrated by the computer modelling), consideration of potential sensitivity of the receptor, and professional judgement. It is important to note that the levels of significance should be understood as continuous scale. The given grade is based on many variables, weighed up by the application of professional judgement and experience, on a case by case basis.

2.84 Cumulative landscape and seascape impacts were assessed with respect to seascape and landscape character areas and designated landscapes. Cumulative visual impacts were assessed with respect to the 18

representative viewpoints selected through consultation for the SLVIA, as well as key visual receptors and routes across the study area, as set out in the visual baseline (**Section 3**). Each impact is evaluated on a case by case basis using the diagram shown in **Table 2.6** as a guide.

3 Baseline

3.1 This section sets out the existing conditions of 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 seascape character of the coastal part of the study area;
- the landscape character of the landward part of the study area;
- landscape designations within the study area; and
- existing visual amenity.

3.2 The baseline seascape/landscape resources considered in this assessment include landscape designations and seascape/landscape character. Due to the offshore location of the proposed turbines, there will be no direct effects on landscape features, and only indirect effects on designated and undesignated seascapes/landscapes.

SEASCAPE RESOURCES

3.3 Seascape has been defined as including:

- "*Views from land to sea*
- *Views from sea to land*
- *Views along coastline*
- *The effect on landscape of the conjunction of sea and land*" (Hill et al., 2001)

3.4 The 2005 study *An assessment of the sensitivity and capacity of the Scottish seascape in relation to offshore windfarms*, used the following definition:

"*An area of any extent or scale which includes the sea as a key feature. Seascape has physical and experiential attributes, and encompasses the interrelationship between the sea and the sky, and may include land*." (Scott *et al*., 2005)

3.5 The marine environment is therefore seen to be an integral part of the experience of seascape. It follows that changes within the visual marine environment, such as the introduction of an offshore wind farm, may result in changes in the perception of seascape. Seascape, as represented by the coastal edge, is therefore the most vulnerable part of the landscape to the offshore development.

3.6 The following sections outline existing baseline material relating to the seascape of the study area, together with the results of a specific sensitivity study undertaken for wind farms off the east coast of Scotland.

National Seascape Character

3.7 The SNH report (Scott *et al*., 2005) was published to assist with the assessment of offshore wind energy proposals, and offers strategic guidance on areas where the impacts of offshore wind energy development on Scottish seascapes are likely to be of least significance.

3.8 The study identified a number of seascape units and seascape character types, and carried out sensitivity and capacity analyses of these areas.

Seascape Units

3.9 The study identified 33 geographical seascape units around the Scottish coastline. Four of these are within the 50 km study area:

- Berwick upon Tweed;
- Firth of Forth;
- East Fife / Firth of Tay; and
- North East Coast.

3.10 Neart na Gaoithe lies on the boundary between the Firth of Forth and Firth of Tay seascape units, as shown in **Figure 22.8**.

3.11 A series of ratings were assigned to each area, for sensitivity, visibility, value, and capacity. The Firth of Forth and Firth of Tay seascape units were both assigned a medium sensitivity rating, and a medium-high capacity rating in the SNH report.

Regional Seascape Character

3.12 To ensure consistency between SLVIA for offshore wind farms in the Forth and Tay area, a seascape character and sensitivity assessment was developed jointly by the involved landscape consultants. This assessment was undertaken following discussions between FTOWDG, SNH and local authorities. It provides an assessment of the sensitivity of the east coast seascape to offshore wind farm development, and will form part of the baseline for all LVIAs of offshore wind farms in the Forth and Tay area.

3.13 This document, entitled *Seascape Character Assessment: Aberdeen to Holy Island* is included in **Annexe 2**, and its relevant findings are set out below.

3.14 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 Neart na Gaoithe study area. These are set out in **Table 3.1** and illustrated in **Figure 22.8**. Descriptions are included in the assessment document in **Annexe 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

No.	Regional Seascape Unit Name
SA10	Inner Firth of Tay
SA11	St Andrews Bay
SA12	St Andrews to Fife Ness
SA13	East Neuk of Fife
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

Local Seascape Character

3.15 As part of a wind farm capacity study of Fife (ASH Design + Assessment, 2006), a local seascape characterisation exercise was undertaken in 2006. This divided the coastline of Fife into 47 local seascape units, each between 1 km and 16 km across. These formed the basis for an assessment of the sensitivity of the Fife seascapes to offshore wind farm development. The assessment concludes that "*there is no part of the Fife Coast which would receive significant adverse effects from a large scale wind farm located 15-20 km offshore*" (ASH Design + Assessment, 2006). This conclusion is based on consideration of a wind farm of 100 turbines, 150 m to tip.

3.16 The local seascape units identified in the Fife study have informed the regional seascape characterisation described above, though they have not been considered as part of the SLVIA baseline. The conclusions of the study have not influenced the findings of this SLVIA, which is an independent assessment.

LANDSCAPE CHARACTER

3.17 Scottish Natural Heritage (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, 1998); and
- The Borders (ASH Consulting, 1998).

3.18 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.

3.19 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.

3.20 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.

3.21 A total of 30 Level 2 LCTs are present in the study area. These are illustrated in **Figure 22.8.**

3.22 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, and is also illustrated in **Figure 22.8**.

Potential Effects on Landscape Character

3.23 Due to the offshore location of the proposed turbines, there will be no direct (ie physical) effects on landscape character. Indirect effects may result in changes to the perceived character of landscapes due to the introduction of new structures within views. However, this change is only likely to be perceived as a significant effect where coastal and marine views are an important part of landscape character.

3.24 In order to focus on potentially significant effects, it was necessary to examine all the landscape character units to identify those in which marine views are important. This has involved a review of the written descriptions in the published LCA reports to ascertain whether marine or coastal views are identified as a key characteristic of each unit, followed by verification in the field. A further cross-check was undertaken with the ZTV (see **Section 3.48** and **Figure 22.4a**), to identify any units which have only limited visibility of the offshore development.

3.25 In addition, four of the Level 2 LCTs are not described in the published reports. These are *Coastal Island*, *Inland Loch*, *Loch Island* and *Urban*. Of these, areas of *Coastal Island* are subsumed within regional seascape units, while lochs and loch islands within the study area are removed from the coast. Urban areas are excluded from the published assessments and have not been considered further, except where they have been included within a regional seascape unit.

3.26 **Table 3.2** sets out the results of this review, and indicates that 15 landscape character units have been identified as potentially subject to significant effects arising from offshore wind farm development. These areas form the baseline for the assessment of effects on landscape resources, and are examined further in **Section 5**.

3.27 There may be potentially significant effects on views from locations within other landscape character units, as a result of the development. However,

these will not extend to effects upon the perceived character of the landscape, and as a consequence these areas are not considered further in this assessment. Potential effects on views from these areas are considered within the visual assessment (**Section 6**).

Table 3.2 Landscape Character Types and Areas included in the Assessment

Level 2 LCT	Component landscape character types and areas, with notes on coastal characteristics from LCA descriptions					ZTV Coverage	Included in Assessment
	Aberdeenshire	Tayside	Fife	Lothian	Scottish Borders		
Coastal Hills Headlands Plateaux and Moorlands			*Type 11 Coastal hills* "close association with the coast", "extensive seaward views"		*Type 21 Coastal moorland* "dramatic open views to the North Sea"	Areas of this LCT lie within the ZTV in Fife and Borders	**Yes**
Coastal Margins				*Area 23 Dunbar Plain* views "dominated by horizon-line of the open sea" *Area 24 North Berwick Plain* "views across the sea are common to most of the area"		Large areas of this LCT lie within the ZTV	**Yes**
Coastal Raised Beaches and Terraces			*Type 12 Coastal terraces* "extensive views of the coast", "coastal landscape where the character is always influenced by the sea"			Large areas of this LCT lie within the ZTV, particularly around Fife Ness	**Yes**
Dipslope Farmland		*Type 13 Dipslope farmland* No reference to coastal views				Relatively large areas of this LCT between Arbroath and Dundee are within the ZTV	**Yes**
Drumlin Lowlands					*Type 15 Lowland with Drumlins* No reference to coast or coastal views	Limited area of this LCT within study area, none within ZTV	No

Level 2 LCT	Component landscape character types and areas, with notes on coastal characteristics from LCA descriptions					ZTV Coverage	Included in Assessment
	Aberdeenshire	Tayside	Fife	Lothian	Scottish Borders		
Farmed River Valleys of the North East		*Type 10 Broad valley lowlands* No reference to coast or coastal views				Very limited area within the study area, of which only a small section is within the ZTV	No
Fife Lowland Farmland			*Type 5 Lowland hills and valleys* No reference to coast or coastal views *Type 6 Lowland open sloping farmland* "sometimes extensive seaward and landward views", "distant or occasional views of the sea"			Relatively extensive areas of this LCT lie within the ZTV, in the East Neuk	**Yes**
Flatter Wider Valleys and Floodplains of the Lowlands			*Type 9 Lowland River Basin* No reference to coast or coastal views			This LCT only occurs at the edge of the study area, and only limited sections are within the ZTV	No
Foothills			*Type 3 Upland foothills* No reference to coast or coastal views			Some areas are within the ZTV	**Yes**
Intensive Agricultural Landscapes of the North East	*Area 9 Garnock and Glenbervie* No reference to coast or coastal views					Only a very small area of this LCT is within the study area	No

Level 2 LCT	Component landscape character types and areas, with notes on coastal characteristics from LCA descriptions					ZTV Coverage	Included in Assessment
	Aberdeenshire	Tayside	Fife	Lothian	Scottish Borders		
Low Coastal Farmlands					*Type 19 Coastal farmland* "dramatic distant views along the rugged coastline and over the north sea" *Type 20 Coastal pasture* "dramatic coastal views" *Type 30 Coastal valley* "historic harbour town of Eyemouth contributes a distinctive maritime flavour"	Relatively extensive areas of this LCT within the ZTV, particularly to the north	**Yes**
Lowland Coastal Flats Sands and Dunes			*Type 15 Coastal flats* "a coastal landscape where the character is always influenced by the sea", "seaward views are invariably extensive"			Extensive areas of this LCT within the ZTV at Tentsmuir	**Yes**
Lowland Glacial Meltwater Valleys			Type 8 Lowland Glacial Meltwater Valleys No reference to coast or coastal views			Only a small area of this LCT is within the study area, and is largely outside the ZTV	No
Lowland Hill Margins and Fringes					*Type 16 Rolling lowland margin* No reference to coast or coastal views	Only a very small area of this LCT within the ZTV	No
Lowland Hills (South)				*Area 18 Garleton Hills* No reference to coast or coastal views		Scattered areas within the ZTV	**Yes**

Level 2 LCT	Component landscape character types and areas, with notes on coastal characteristics from LCA descriptions					ZTV Coverage	Included in Assessment
	Aberdeenshire	Tayside	Fife	Lothian	Scottish Borders		
Lowland Loch Basins		*Type 15 Lowland basins* "expanse of mudflats, water, distant shores, and sky" within the basin, but no reference to marine or coastal views as a characteristic	*Type 10 Lowland loch basin* no reference to coast or coastal views			Only a very small area of this LCT within the ZTV	No
Lowland Plains				*Area 22 Haddington Plain* "views are wide-reaching... Encompassing coast to the north"		Scattered areas within the ZTV	**Yes**
Lowland River Valleys				*Area 9 Whittingehame Water* "along the open valley slopes [...] views of the surrounding coast and hills" *Area 10 Gifford Water* No reference to coast or coastal views		Relatively large areas of the east end of the Whittingehame Water within the ZTV	**Yes**
Narrow Wooded River Valleys			*Type 7 Lowland Dens* Although occurring in coastal areas, these areas are described as wooded and enclosed, with no reference to marine or coastal views			Some areas of this type fall within the ZTV	**Yes**
Platform Farmland					*Type 9 Platform farmland* No reference to coast or coastal views	Very limited areas within the ZTV	No

Level 2 LCT	Component landscape character types and areas, with notes on coastal characteristics from LCA descriptions					ZTV Coverage	Included in Assessment
	Aberdeenshire	Tayside	Fife	Lothian	Scottish Borders		
Pronounced Hills			*Type 4 Pronounced volcanic hills* No reference to coastal views as a characteristic			Some areas of this LCT in the east of Fife are within the ZTV	**Yes**
Smooth Moorland		*Type 12 Low Moorland Hills* No reference to coast or coastal views				Some areas within the ZTV, but at the outer edge of the study area	No
Upland Fringe Moorland and Grassland The Lammermuir, Pentland and Moorfoot Hills				*Area 8 Eastern Lammermuirs* "extensive views towards the coast"	*Type 11 Grassland with Hills* No reference to coast or coastal views *Type 14 Moorland* No reference to coast or coastal views	Relatively extensive areas of the eastern Lammermuirs within the ZTV, but not the areas within the Borders	**Yes**
Upland Fringe Valleys					*Type 26 Pastoral Upland Fringe Valleys* No reference to coast or coastal views *Type 28 Wooded Upland Fringe Valleys* No reference to coast or coastal views	A small area of the northern end of this LCT within the ZTV	No
Upland Hills and Hill Slopes, The Ochils and Sidlaw Hills		*Type 8 Igneous Hills* No reference to coast or coastal views				Some areas within the ZTV, this LCT occurs at the edge of the study area	No

Level 2 LCT	Component landscape character types and areas, with notes on coastal characteristics from LCA descriptions					ZTV Coverage	Included in Assessment
	Aberdeenshire	Tayside	Fife	Lothian	Scottish Borders		
Upland Hills, The Lammermuir, Pentland and Moorfoot Hills				*Area 1 Lammermuir Plateau* "*panoramic views can be obtained across the hill fringes and coastal plain towards the Forth estuary and Fife*"	*Type 1 Dissected plateau moorland* No reference to coast or coastal views	ZTV extends over the eastern fringes of this LCT	**Yes**
Upland Valleys or Dales					*Type 24 Upland valley with farmland* No reference to coast or coastal views	No part of this LCT is within the ZTV	No
National Character Areas	**Coastal characteristics from NCA description**					**ZTV Coverage**	**Included in Assessment**
Northumberland Coastal Plain	*"Narrow, low lying, windswept coastal plain with wide views east towards the sea and west to the Cheviots. Particularly striking lateral coastal views."*					Very limited. ZTV only covers a small area at the summit of Halidon Hill which screens the remaining area.	No

LANDSCAPE DESIGNATIONS

3.28 The seascape of the study area is not designated for visual or aesthetic reasons. This section therefore only deals with onshore landscape designations. Onshore and offshore ecological and cultural heritage designations will be addressed elsewhere in the Environmental Statement (ES). Designated routes, including tourist drives, cycleways and long-distance footpaths, are discussed as viewers in **Section 3.55**.

3.29 All landscape designations are illustrated in **Figure 22.7**.

3.30 Landscape designations have been included or excluded within the baseline according to their location within or outside the ZTV (see **Section 3.48** and **Figure 22.4a**).

National Designations

National Scenic Areas

3.31 There are no National Scenic Areas (NSA) within the study area. The closest NSA is Eildon and Leaderfoot in the Scottish Borders, 85 km to the south-east of the offshore development.

Areas of Outstanding Natural Beauty

3.32 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 proposed turbines.

Gardens and Designed Landscapes

3.33 The *Inventory of Gardens and Designed Landscapes in Scotland* lists nationally significant parks and gardens in Scotland. There are 53 Inventory-listed Gardens and Designed Landscapes (GDL) within 50 km of the proposed wind farm, although 23 of these are wholly outside the ZTV (see **Section 3.48** and **Figure 22.4a**) and have not been considered further. All GDLs within 50 km are illustrated on **Figure 22.7**, differentiating those included in the assessment.

3.34 In England, the *Register of Historic Parks and Gardens* is maintained by English Heritage. There are no registered sites within the study area.

3.35 As with LCTs, change arising from views of offshore wind turbines are only likely to be perceived as a significant effect on a GDL where coastal and marine views are an important part of their character (see **Section 3.25**). An exercise was undertaken to identify those GDLs in which marine views are important, as described in the Inventory. **Table 3.3** sets out the results of this review, and indicates that 15 GDLs have been identified as potentially subject to significant effects arising from offshore wind farm development. These GDLs have therefore been considered in the assessment of impacts (**Section 5**).

Table 3.3 Gardens and Designed Landscapes

Name	Council area	Distance from site (km)	Marine views, as noted in the site descriptions included in the Inventory of Gardens and Designed Landscapes in Scotland	Included in the assessment
Dunninald	Angus	41	"the site is self-contained"	No
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
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
Balgay Park	Dundee	47	"panoramic views of the city of Dundee including Dundee Law and the Firth of Tay, and Camperdown Park"	**Yes**
Hill of Tarvit	Fife	42	No reference to marine views	No
Earlshall	Fife	35	"There are no views out from Earlshall"	No
St Andrews Links	Fife	30	"uninterrupted views from all the courses eastwards to St Andrews Bay"	**Yes**
Craigtoun	Fife	31	Significant views over Tentsmuir, but no reference to marine views	No
Cambo	Fife	19	"A series of significant coastal views have been created across Kingsbarns Golf Course"	**Yes**
Balcaskie	Fife	27	"axial view focussing on Bass Rock in the Firth of Forth"	**Yes**
Kellie Castle	Fife	28	"views from the Castle south across the Firth of Forth to the Bass Rock and beyond to the Pentland Hills"	**Yes**
Balcarres	Fife	31	"panoramic views over the surrounding countryside and southwards across the Firth of Forth"	**Yes**
Charleton	Fife	33	"two shallow earth terraces […] provide viewing platforms to the Firth of Forth and Bass Rock"	**Yes**
Lahill	Fife	35	"Panoramic views from the south garden terraces of Lahill extend over the Firth of Forth"	**Yes**
Wemyss Castle	Fife	48	No reference to marine views, but the GDL occupies an elevated coastal position	**Yes**
Archerfield	East Lothian	38	"Views into the designed landscape are limited by the surrounding policy woodlands"	No
Grey Walls	East Lothian	39	"panoramic sea views with the coastal links and dunes to the north"	**Yes**
Dirleton Castle	East Lothian	37	Enclosed within Dirleton village, no reference to marine views	No

Name	Council area	Distance from site (km)	Marine views, as noted in the site descriptions included in the Inventory of Gardens and Designed Landscapes in Scotland	Included in the assessment
Gosford House	East Lothian	44	Views directed westwards, and limited by coastal walls	No
Elvingston	East Lothian	47	No reference to marine views	No
St Mary's Pleasance	East Lothian	43	Enclosed walled garden within Haddington	No
Lennoxlove	East Lothian	44	No reference to marine views	No
Pilmuir	East Lothian	47	No reference to marine views	No
Balgone House	East Lothian	34	Important view to North Berwick Law, but no reference to marine views	No
Leuchie	East Lothian	32	"Views to the coast of Fife, beyond the Firth of Forth, can be gained on a clear day"	**Yes**
Tyninghame	East Lothian	30	"panoramic views north-east across the estuary to the rocky promontory of Dunbar"	**Yes**
Biel	East Lothian	33	"the Bass Rock in the Firth of Forth and the Fife Coast can be seen from Biel"	**Yes**
Whittinge-hame	East Lothian	37	No reference to marine views	No
Yester House	East Lothian	45	No reference to marine views	No
Broxmouth Park	East Lothian	28	"views out northwards to the Isle of May and […] over to the Bass Rock"	**Yes**
Dunglass	East Lothian	31	"Views out to the North Sea are obtainable, particularly from high points"	**Yes**

Local Landscape Designations

3.36 A number of local landscape designations lie within the study area. These are described below with reference to the local authorities who define them. **Table 3.4** lists the local landscape designations which form part of the assessment baseline. All landscape designations are shown in **Figure 22.7**.

Aberdeenshire

3.37 The Aberdeenshire Local Plan (2006) identifies Areas of Landscape Significance (ALS). These areas are considered to be important "*not only for their physical landforms and for the flora and fauna which they support, but also for the environmental assets that they represent.*" The local plan map confirms that a narrow strip of coastline between the southern Council boundary and Johnshaven is designated as an Area of Landscape Significance. At its closest, this area is 47 km from the proposed turbines.

3.38 The Proposed Aberdeenshire Local Development Plan (2010) indicates that Areas of Landscape Significance will not be taken forward in the LDP. This designation is therefore not considered further in the SLVIA.

Angus

3.39 The Angus Local Plan Review (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. Landscape character is discussed in more detail at **Section 3.17**.

Fife

3.40 The St Andrews and East Fife Local Plan (2009) and the Mid Fife Local Plan (2009) indicate that large areas of eastern Fife are currently designated as the East Fife Area of Great Landscape Value (AGLV). These areas include Tentsmuir Forest, the whole of the East Neuk coast and, further inland, large areas to the north and south of Cupar.

3.41 In 2008, a review of AGLVs in Fife was carried out, which recommended the designation of Special Landscape Areas (SLA) (Land Use Consultants *et al*., 2006). These will not have any planning status until published in adopted local plans, although they are referred to in the Finalised St Andrews and East Fife Local Plan (2009). The proposed SLAs include several coastal areas within the East Fife AGLV, including Tentsmuir, St Andrews Links, and the East Neuk. However, as their adoption is uncertain, only the existing AGLV is considered as part of the baseline.

East Lothian

3.42 The East Lothian Local Plan (2008) identifies 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*."

3.43 The proposals map indicates that several areas of East Lothian within the study area are designated as AGLV:

- Longniddry to North Berwick Coast;
- North Berwick to Dunbar Coast;
- Barns Ness Coast;
- Thorntonloch Coast;
- Garleton Hills and Kilduff Hill;
- Traprain Law;
- North Berwick Law;
- Balgone; and
- Lammermuir Hills.

Scottish Borders

3.44 The Scottish Borders Consolidated Local Plan (2010) identifies six AGLVs within the Council area. Two AGLVs lie within 50 km of the proposed wind farm: the Berwickshire Coast AGLV, which covers almost the whole of the

coastline of the Scottish Borders Council area; and the Lammermuir Hills AGLV, which is contiguous with the East Lothian AGLV of the same name, but lies largely outside the ZTV.

3.45 Draft Supplementary Planning Guidance published by Scottish Borders Council in 2011 sets out new SLAs which will replace the existing AGLVs (Scottish Borders Council, 2011). These have been developed to address the lack of written justification associated with the AGLVs. These SLAs are not yet adopted, although the draft document indicates that the two AGLVs within the study area will be largely retained. Only the present AGLVs are considered as part of the baseline.

Northumberland

3.46 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 3.4 Local Landscape Designations

Designation	Local authority	Distance from site boundary (km)
East Fife AGLV	Fife	15
Longniddry to North Berwick Coast AGLV	East Lothian	34
North Berwick to Dunbar Coast AGLV	East Lothian	28
Barns Ness Coast AGLV	East Lothian	27
Thorntonloch Coast AGLV	East Lothian	28
Lammermuir Hills AGLV	East Lothian	31
Garleton Hills AGLV	East Lothian	38
Traprain Law AGLV	East Lothian	36
North Berwick Law AGLV	East Lothian	32
Balgone AGLV	East Lothian	33
Lammermuir Hills AGLV	East Lothian / Scottish Borders	35
Berwickshire Coast AGLV	Scottish Borders	31

VISUAL AMENITY

3.47 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 development are generated for a number of viewpoints considered to be representative of the views available.

Zone of Theoretical Visibility

3.48 ZTVs were generated to tip and hub heights for each of the two alternative scenarios (see **Table 1.1**) to illustrate the potential range of visibility across the Rochdale Envelope. A comparative ZTV has also been produced. These are described below.

3.49 **Figure 22.4a** shows the tip-height ZTV for the maximum height scenario. This 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 north of Dundee, Monifieth and Carnoustie, and west of Arbroath. There are areas of theoretical visibility further inland, most notably from a large area around Montreathmont Moor. Across Fife, the ZTV covers the coast between Tayport and Earlsferry, extending up to 10 km inland west of Tentsmuir, and up to around 20 km west of Fife Ness across the East Neuk. There is also an area of theoretical visibility along the coast between Leven and Kirkcaldy, extending inland to the study area boundary. To the southeast, the ZTV includes the coastline between Eyebroughy and Berwick upon Tweed. There is theoretical visibility from the East Lothian coastal plain, at up to 10 km inland, as well as from the edge of the Lammermuir Hills. Further south, the high ground along the coast shields inland areas of the Scottish Borders, with theoretical visibility only from isolated high points.

3.50 **Figure 22.4c** shows the hub-height ZTV for the maximum height scenario. This indicates a similar pattern to that described for **Figure 22.4a**, but the ZTV is less extensive. At sea level, there would be no visibility of the hubs from over 46 km.

3.51 **Figure 22.5a** shows the tip-height ZTV for the maximum density scenario. This indicates a similar pattern to that described for **Figure 22.4a**, but the ZTV is slightly less extensive.

3.52 **Figure 22.5c** shows the hub-height ZTV for the maximum density scenario. The hub heights are the same as for the maximum height scenario (115 m), with the different arrangement of turbines resulting in almost imperceptible differences in the ZTV, as compared to **Figure 22.4c**.

3.53 **Figure 22.6a** shows a comparative tip-height ZTV, illustrating areas where turbine tips would be visible under one scenario but not the other. The comparative ZTV confirms that differences between the two ZTVs are very small. Generally, the ZTV of the maximum height scenario is slightly more extensive, though there are few substantial additional areas within the study area. These additional areas tend to be larger at greater distances from the offshore development.

3.54 The tip-height ZTV for the maximum height scenario (**Figure 22.4a**) has therefore been considered to illustrate the 'maximum effect' in terms of the extent of visibility, and has been referred to in selecting viewpoints.

Visual receptors

3.55 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 settlements residences 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.

3.56 The following sections discuss the locations where potential viewers of the offshore development 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 development 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.

Residents

3.57 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; and
- Berwick upon Tweed.

Recreational Receptors

3.58 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.

3.59 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; and
- John Muir Country Park, East Lothian.

3.60 Other recreational destinations where the seascape and landscape is a key part of the experience, within the 50 km study area, and within the ZTV, include:

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

3.61 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

3.62 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. 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.

3.63 While there are no long-distance 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. Overhead, aeroplanes approaching Edinburgh Airport frequently fly over the Forth.

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

- 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 and A198 (Berwick to North Berwick);
- Fife Tourist Route (Kincardine to Dundee: A921/A955/A915/A917/ A91/A914/A92);
- Angus Tourist Route (Dundee to Stonehaven: A930/A92);
- Isle of May ferry (Anstruther to Isle of May);
- cruise ships entering and leaving the Firth of Forth; and
- aeroplanes approaching Edinburgh Airport over the study area.

Viewpoints

3.65 Assessment viewpoints were selected to be representative of the landward, coastal and, to a lesser extent, seascape areas within the 50 km radius study area, reflecting places and routes frequented by the public. They were chosen through field work and a study of maps, to represent key locations where the public may view the offshore development, including the locations listed in the preceding sections.

3.66 The viewpoints used for this assessment were chosen according to the following criteria[5]:

[5] Not all selection criteria apply to all viewpoints selected. The selection criteria are in accordance with: SNH (2006) *Visual Representation of Wind Farms, Good Practice Guidance*

- 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 development in conjunction with other onshore and offshore wind farms.

3.67 The viewpoints were selected in consultation with FTOWDG and with the input of interested statutory and local authorities including SNH, initially as cumulative viewpoints. Each of the FTOWDG wind farm SLVIAs will utilise the same viewpoints for comparison. A total of 21 viewpoints were selected across the overlapping study areas of the three proposed offshore developments. These viewpoints are listed in **Annexe 1**.

3.68 After agreement of these cumulative viewpoints with FTOWDG and SNH, it was considered that they were sufficient, in number and in distribution, to be representative of potential stand-alone impacts of the wind farm. The same set of viewpoints has therefore been adopted for both the stand-alone and cumulative assessment.

3.69 Three of the 21 viewpoints have not been considered in this SLVIA, as follows:

- Viewpoint 1 Garron Point, which is located 72 km north of Neart na Gaoithe, and is therefore outside the study area;
- Viewpoint 3 Montrose, which is outside the ZTV of Neart na Gaoithe (**Figure 22.4**); and
- Viewpoint 4 White Caterthun, which is located 57 km northeast of Neart na Gaoithe, and is therefore outside the study area.

3.70 For ease of reference, the original numbering of the viewpoints has been retained, and viewpoint numbers 1, 3 and 4 are not used.

3.71 The 18 remaining viewpoints will form the basis for the assessment, and are listed in **Table 3.5**. The locations of each of the viewpoints are shown on **Figure 22.4** and photographs of the existing view from each location are included in **Figure 22.10** to **22.27**.

Design Viewpoints

3.72 Following discussions with FTOWDG, SNH and Marine Scotland produced an advice note on 'recommended outputs' of the SLVIA process. This recommends the use of 'key design viewpoints', to be "*used to present the full range of design options being considered.*" (paragraph 3b).

3.73 The following viewpoints have been adopted by all FTOWDG developments as 'key design viewpoints':

- Viewpoint 7 Arbroath;
- Viewpoint 13 Fife Ness; and
- Viewpoint 21 St Abb's Head.

3.74 These viewpoints were used for the 'Design Sensitivity Analysis' carried out prior to the SLVIA process (see **Section 2.10**).

Visualisations

3.75 Wireline visualisations of each of the two scenarios have been prepared for all viewpoints. In addition, rendered photomontages have been produced for each of the two scenarios for seven viewpoints: the three 'design viewpoints' (7, 13, and 21), and the four other viewpoints which are located 30 km or less from the site boundary (12, 14, 16, 18). These seven locations are highlighted in bold in **Table 3.5**. Visualisations are included in **Figures 22.10** to **22.27**.

Table 3.5 Assessment Viewpoints

No.	Viewpoint	Easting	Northing	Distance from site boundary (km)	Reason for selection
1	Garron Point	388587	787597	72.0	*Not included in this assessment*
2	Beach Road, Kirkton, St Cyrus	375195	764644	49.0	Car park offering beach access, and wide elevated views over Montrose Bay, on a coastal footpath
3	Montrose	372689	757962	42.4	*Not included in this assessment*
4	White Caterthun Hill Fort	354818	766084	57.0	*Not included in this assessment*
5	Dodd Hill	345897	740184	43.9	Inland location on walking route offering views across Angus to the coast
6	Braehead of Lunan	368987	752602	39.0	Representative of views from a hamlet, located on NCN Route 1, enables views south over Red Head
7	**Arbroath**	364050	740447	30.8	Listed building with an elevated platform and historic connection to the Bell Rock, now a museum
8	Carnoustie	356249	734093	31.7	Recently upgraded promenade with car parking and beach access
9	Dundee Law	339157	731273	44.9	Most prominent viewpoint in Dundee, a popular recreational location with large numbers of visitors, and long views down the Firth of Tay
10	Tentsmuir	349971	724249	31.8	Forestry Commission car park in a popular recreational area. Views across sandbanks. Located on Fife Coastal Path and NCN Route 1
11	Strathkinness	346605	716418	33.1	Within coastal hills, small settlement overlooking St Andrews and the Firth of Tay
12	**St Andrews, East Scores**	351560	716676	28.2	Popular location within the town, by the abbey, overlooking St Andrews Bay, on the Fife Coastal Path
13	**Fife Ness, Lochaber Rock**	363842	709766	15.5	Easternmost point of Fife, unobstructed views across the outer Firth and Tay, on the Fife Coastal Path
14	**Anstruther Easter**	357901	704166	21.8	Representative of views from coastal settlement at a local play park with foreshore access, on the Fife Coastal Path

No.	Viewpoint	Easting	Northing	Distance from site boundary (km)	Reason for selection
15	Largo Law	342710	704978	36.8	Elevated location, enabling wide views across the Firth of Forth, on a locally-signposted footpath
16	**Isle of May**	365632	699341	16.3	The island is a popular day-trip destination, and a useful proxy for marine views
17	North Berwick Law	355642	684234	33.0	Popular walking destination close to North Berwick, enabling wide views over the Firth of Forth
18	**Dunbar**	367129	679358	28.0	Marked as a viewpoint on OS map, representative of views from coastal settlement, on John Muir Way
19	West Steel	368833	670540	34.9	Elevated viewpoint enabling views across the coastal plain to the Firth of Forth
20	Coldingham Moor	383492	669342	32.8	Elevated headland with wide seaward views, enabling northward views over the Firth of Forth
21	**St Abb's Head**	391235	669167	33.0	Marked as a viewpoint on OS map, within National Trust for Scotland access land, offering extensive coastal views

Note: **Bold text** indicates viewpoints illustrated with photomontages

4 Impacts and Mitigation

4.1 This section identifies potentially significant impacts on landscape and visual amenity which are likely to arise from the offshore development, during construction, operation, and decommissioning. Mitigation measures which have been applied to reduce the level of significance of potential adverse impacts are set out.

IMPACTS DURING CONSTRUCTION

4.2 During the construction period (estimated to take place over up to two seasons), a number of activities will take place at the wind farm site, as described elsewhere in the ES. Impacts on seascape/landscape and visual amenity may arise as a result of the following construction activities:

- movement of boats, cranes and other equipment visible in and around the site area; and
- views of turbines and other structures under construction.

4.3 Construction activities may affect landscape and seascape resources and views, in areas where they can be seen. The ZTV maps (**Figure 22.4** and **22.5**) indicate the extent of theoretical visibility of the completed scenario(s). The extent of theoretical visibility for the site during construction would initially be much smaller, being limited to areas with direct views of the site area. As construction progresses, visibility of the works will increase as more turbines are erected.

Construction Mitigation Measures

4.4 There are few potential mitigation measures which would reduce the potential for impacts upon the landscape/ seascape and on views. The construction activities are temporary in nature, and best practice measures will be applied to reduce the extent of any visible pollution or discolouration of the sea during the works to install undersea structures.

Residual Impacts During Construction

4.5 Views of boat movements are not considered to be out of place in this relatively busy seascape, where large numbers of boats 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 impacts on seascape or landscape character, or on views.

4.6 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 landscape or visual impacts.

4.7 The visibility of partially-completed turbines, or the partially-completed wind farm, will never exceed the visibility of the operational turbines. The potential for impacts will increase incrementally over the construction period, but will never exceed the potential for operational impacts. As such, potential impacts arising from the construction phase of the offshore

development will always be less than those arising from the operational phase.

4.8 The pattern of any impacts 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 wind farm under construction, they have not been assessed separately.

IMPACTS DURING OPERATION

4.9 Impacts on seascape/landscape and visual amenity may arise as a result of the following aspects of the offshore development:

- introduction of wind turbines within an area of formerly open sea;
- introduction of associated structures, including substation; and
- operational activities such as boat movements and lighting.

4.10 This would result in potential changes to the perception of seascape and landscape 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 direct effects on the seascape closer to the shore (as explored through the seascape units defined in baseline studies) or upon landscape character, as represented by the landscape character units described by SNH. The assessment is therefore primarily concerned with indirect impacts, arising from physical changes occurring at a distance. The assessment is informed by the ZTV maps (**Figure 22.4** and **22.5**), and by the visualisations of the wind farm presented in **Figures 22.10** to **22.27**.

4.11 For the purposes of this SLVIA, two scenarios are under consideration, as described in **Section 1** and set out in **Table 1.2**.

4.12 Other features of the operating wind farm are relevant to the assessment:

- the turbines will be painted a pale grey colour (RAL 7035);
- navigation lighting will be required on at least some of the turbines, as set out in Appendix 5.2: Aviation Lighting and Marking Requirements of the ES. Navigation lights , likely to be mounted on the corner turbines, will have a nominal range of five nautical miles (9.26 km), with intermediate lights of nominal range two nautical miles (3.7 km). These nominal ranges 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 that lighting will be visible from any location where visibility of the tower would be expected. This has been considered in the assessment of effects on views; and
- aviation lighting will be required on at least some of the turbines, as set out in Appendix 5.2: Aviation Lighting and Marking Requirements. Aviation lighting is expected to be in the form of directional 'uplighting', which would not be visible to observers on the ground. Aviation lighting has not been considered in the assessment of effects on views.

4.13 Maintenance activities will require regular boat movements to and from the wind farm. Boat movements at the wind farm site will not result in landscape and visual impacts. However, increased boat movements at an onshore base

may have some effects. At present, the location of the onshore base, and the extent of boat movements, is undetermined. Increases in boat movements would be seen in the context of existing port activity, and is unlikely to have a significant effect.

4.14 Operational impacts will continue for the lifetime of the wind farm. Neart na Gaoithe offshore wind farm can be *in situ* for up to 50 years, although it is assumed that repowering will be necessary after 25 years. Repowering would be subject to a separate consent and SLVIA process.

Mitigation of Operational Impacts

4.15 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, 2009).

4.16 The need to consider the aesthetic aspect of the wind farm layout has been recognised in discussions with SNH and other consultees. These discussions also recognised the limitations of the approach set out in *Siting and Designing Windfarms in the Landscape*, when applied to an offshore proposal.

4.17 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 regular patterns are therefore 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.

Residual Operational Impacts

4.18 Residual impacts on seascape and landscape are considered in **Section 5**. Residual impacts on visual receptors are considered in **Section 6**.

IMPACTS DURING DECOMMISSIONING

4.19 After the end of the lifespan of the offshore development (at 25 or 50 years), the turbines will be decommissioned. Decommissioning of the site would involve the removal of all structures, and would 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 impacts. Decommissioning impacts have not therefore been considered further in this SLVIA.

5 Impacts on Seascape and Landscape Resources

5.1 This section sets out the likely impacts of the offshore development on the seascape and landscape resources of the study area, in terms of character and landscape designations. Indirect impacts on seascape and landscape resources (designations and character) will arise from the presence of the offshore wind turbines in views from the receptor, which may affect the perception of that seascape/landscape. As noted in **Section 4.10**, there are no direct impacts on seascape or landscape character types and areas.

SENSITIVITY OF THE RESOURCE

5.2 This section sets out the sensitivity of each seascape and landscape receptor to the offshore development. Receptor sensitivity is defined in **Table 2.2**.

Seascape Character

5.3 The sensitivity of the seascape, as represented by seascape character units, to offshore wind farm development, has been assessed as part of the Seascape Character Assessment study (**Annexe 2**). These sensitivity assessments are summarised in **Table 5.1**.

Table 5.1 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

Landscape Character

5.4 The sensitivity of the landscape, as represented by LCTs, to offshore wind farm development, has been assessed for the purposes of this LVIA.

5.5 A total of 15 LCTs have been identified as potentially subject to significant effects arising from offshore wind farm development (see **Table 3.2**). **Table 5.2** sets out the key characteristics of each of these LCTs, and identifies their sensitivity to the offshore development.

5.6 Key characteristics described in **Table 5.2** are derived from the key characteristics and descriptions in the published LCA reports, and have been modified to reflect the specific character of the landscapes within the study area. This has been informed by desk study and field work.

5.7 It should be noted that the coastal edges of the study area have been separated out as regional seascape units and assessed separately. Therefore the coastal elements of LCTs which lie on the coast are reduced, potentially reducing their sensitivity to offshore development.

Landscape Designations

5.8 The sensitivity of landscape designations to offshore wind farm development, has been considered in relation to their perceived value, and their vulnerability to change of the type proposed.

5.9 Inventory-listed Gardens and Designed Landscapes (GDL) are of 'national importance'. Those GDLs within the ZTV were considered at the baseline stage, and the importance of marine views was noted. As such, all GDLs included in the assessment (**Table 3.3**) are considered to be of high sensitivity to the offshore development, as nationally-designated sites which may be affected by views of offshore development.

5.10 AGLVs are a local landscape designation, protected at a local authority level. All AGLVs within the baseline (**Table 3.4**) have some marine views, and could therefore be affected by the offshore development. As local designations, AGLVs are considered to be of medium sensitivity.

Table 5.2 Sensitivity of Landscape Character Types

Landscape Character Type	Component landscape character types / areas	Summary of key characteristics	Sensitivity to offshore development (refer to criteria in Table 2.2 and Section 2.37)
Coastal Hills Headlands Plateaux and Moorlands	Fife Type 11 Coastal hills Borders Type 21 Coastal moorland	Expansive, flat to gently rolling plateau, sloping steeply to rugged cliffs at the coast, punctuated by occasional knowes and rock outcrops. Predominantly large, open, undulating arable fields, coarse grassland, and heather moorland on upper slopes. Often with no field boundaries or with mainly wire fences, low hedges or some stone dykes. Limited woodland cover, relatively few plantations and shelterbelts. Infrequent small settlements, and widely dispersed, isolated farms and extended or converted farmsteads along minor roads. Extensive seaward views over the North Sea and across the Firths, but generally views to landward are contained by hills in the near distance. A medium to large-scale, open or exposed coastal landscape. The character is always influenced by the sea and can be particularly affected by the weather conditions and views of the sky and the sea.	**Medium** A landscape associated with the coast, and influenced by seaward views, which could be altered by the presence of offshore structures.
Coastal Margins	Lothian Area 23 Dunbar Plain Lothian Area 24 North Berwick Plain	Transitional landscape between hills and sea, ranging from rolling hills through gentle undulations to a virtually flat coastal plain, interrupted by the volcanic outcrop of North Berwick Law. Rocky coastline enclosing sandy coves backed by dunes, and rounded headlands with rocky cliffs, where the coast is higher. Medium to large scale arable fields and extensive estate woodlands, wind-sculpted coastal woods, scattered hedgerow trees and shelterbelts, woodland along stream courses and around farmsteads Scattering of farms and many houses. Distinctive coastal settlements with pink sandstone buildings. Concentrations of golf courses and caravan parks along the coast. Prominent man-made features include the A1 and East Coast main Line Railway corridor, Torness Power Station. A diverse and attractive landscape, extensive views dominated by the open sea, lending a tranquil quality away from transport and industrial features.	**Medium** An attractive landscape which derives some of its value from its association with the coast and coastal views.

Landscape Character Type	Component landscape character types / areas	Summary of key characteristics	Sensitivity to offshore development (refer to criteria in Table 2.2 and Section 2.37)
Coastal Raised Beaches and Terraces	Fife Type 12 Coastal terraces	A mostly flat or gently sloping landform, forming a transition between hills and coastal flats. Large, open, arable fields with some hedgerows, or stone dykes or post and wire fencing. Limited woodland cover except policy planting and shelterbelts around large houses, or on the steeper slopes often above burns. Some built-up areas, with infrequent or more regular steadings in less developed areas Character is always influenced by the sea and can be particularly affected by the weather conditions and views of the sky and the sea. A medium to large-scale, open and exposed landscape with extensive views of the coast and beyond	**High** The coastal experience is intrinsic to this character type, and offshore development has the potential to affect perceptions of this landscape.
Dipslope Farmland	Tayside Type 13 Dipslope farmland	Land generally sloping down from the northwest to the southeast, towards the coast. Low outlying hills in higher areas, merging with higher ground to the northwest. Dominated by productive agricultural land, with woodland cover limited to shelterbelts, except on large estates and along river corridors. Dispersed settlement pattern, including some suburban development. A visually open landscape with the sea as a backdrop.	**Medium** An agricultural area, where the sea forms a backdrop rather than a key part of the landscape.
Fife Lowland Farmland	Fife Type 5 Lowland hills and valleys Fife Type 6 Lowland open sloping farmland	A varied and subtle landform, predominantly large, open, regular arable fields. Extensive woodland on lower ground including hedgerow trees, plantations, shelter planting, roadside planting and policies linked to large estates. Cover is reduced in more exposed areas. Isolated farmsteads regularly dispersed, often with modern agricultural buildings. Occasional larger settlements and towns well related to the landscape, demonstrating a long history of settlement. A generally quiet landscape, although locally affected by more urban, industrialised areas; Variety middle and long distance views, including distant or occasional views of the sea and the Firths.	**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.

Landscape Character Type	Component landscape character types / areas	Summary of key characteristics	Sensitivity to offshore development (refer to criteria in Table 2.2 and Section 2.37)
Foothills	Fife Type 3 Upland foothills	Highly conspicuous in views, forming a backdrop to other landscapes views across the lowlands. Although modest in height, the foothills are occasionally steep-sided and rugged, A mix of arable and pastoral farmland, with burns in gullies or small valleys. Woodland is concentrated in lower-lying areas. General lack of settlement other than farmsteads, occasional hilltop masts. Extensive outward views.	**Medium** Coastal views are not a specific characteristic of this landscape, although several areas lie close to the Firth of Tay.
Low Coastal Farmlands	Borders Type 19 Coastal farmland Borders Type 20 Coastal pasture Borders Type 30 Coastal valley	Strongly varied topography with rock outcrops, mounds, and rolling terrain interrupted by narrow, deeply incised valleys. Land cover of arable and pastoral fields of varying size, with rough pasture and scattered gorse scrub on steep or exposed ground. Field boundaries of mature thorn hedges with occasional hedgerow trees on lower ground. Wooded valleys, and occasional coniferous plantation blocks. Settlement consists of a coastal villages and scattered small farms and cottages along inland roads, with larger towns sited in sheltered folds and coastal valleys. Important transport corridors of the Al and A1107, often in prominent clifftop location.	**Medium** Coastal views are a feature of this landscape, and offshore development has some potential to affect its character.
Lowland Coastal Flats Sands and Dunes	Fife Type 15 Coastal flats	Flat, low-lying, large-scale, exposed coastal landscapes at sea level. Local topography includes sea walls and flood banks. Intensively cultivated landscape of geometrical large to medium-scale, predominantly arable fields. Extensive forestry plantations. Few field boundaries, often wire fences and straight ditches. Occasional designed landscapes with policy planting and shelterbelts. Isolated farmsteads, often conspicuous due to lack of screening, linked by sinuous or angular roads raised above the fields and often with stone dykes. A range of industrial and other built developments, including golf courses. Character is always influenced by the sea and can be particularly affected by the weather conditions and the extensive views of the sky and the sea.	**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.
Lowland Hills (South)	Lothian Area 18 Garleton Hills	Distinctive hills, aligned east-northeast, with prominent northwest-facing crags. Arable land with grazing on upper slopes, and scattered areas of deciduous woodland. Limited development aside from farmsteads. There are prominent vertical features including a mast and the Hopetoun Monument.	**Low** Although the sea is visible from the tops of these hills, it does not form a characteristic of the

Landscape Character Type	Component landscape character types / areas	Summary of key characteristics	Sensitivity to offshore development (refer to criteria in Table 2.2 and Section 2.37)
		This is a highly visible landscape within the surrounding coastal plain.	landscape.
Lowland Plains	Lothian Area 22 Haddington Plain	Extensive, gently undulating plain, interrupted by rugged volcanic hills. Chequerboard pattern of large arable fields divided by hedges, walls and mixed shelterbelts, with pasture on higher ground, and prominent policy woodlands on estate landscapes. Dispersed settlement pattern with larger settlements having extensive 20th-century housing developments. Spectacular views from higher ground taking in the coast to the north.	**Low** A rural landscape of strong character, which is not primarily influenced by coastal views.
Lowland River Valleys	Lothian Area 9 Whittingehame Water Lothian Area 10 Gifford Water	Small twisting rivers within shallow, narrow incised valleys, with occasional areas of flatter ground. Arable land on gentler slopes, with pasture on the valley floor. Clipped hedges with hedgerow trees. Extensive mixed and broadleaf woodlands, including policy woodlands, coniferous plantations and shelterbelts. Small villages built of distinctive warm pink sandstone. Secluded, sheltered and small-scale landscape, though less intimate in open areas where views are available to coast and hills.	**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.
Narrow Wooded River Valleys	Fife Type 7 Lowland Dens	Narrow, deep, gorge-like valleys cut into surrounding hills by fast flowing burns. Semi-natural woodlands on the steeply sloping banks. Irregular patterns. Occasional small villages and many historic buildings, but often an absence of development. Confined, sheltered environments which are generally quiet and calm.	**Low** An enclosed landscape, inward looking and not dependent on external views.
Pronounced Hills	Fife Type 4 Pronounced volcanic hills	Pronounced, often distinctive hills protruding high above the lowlands, forming important backdrops to other landscape types. Steeper and more rugged hilltops, with more vegetated and more intensively used lower slopes. Mixed woodlands and burns in valleys. Lack of settlements, though numerous farmsteads and other individual buildings. Several exposed quarries. Medium to large-scale, open, simple, landscapes with some extensive views across other landscape types.	**Low** Although there are views out to other landscapes, the key characteristics of this type are not vulnerable to changes in these views.

Landscape Character Type	Component landscape character types / areas	Summary of key characteristics	Sensitivity to offshore development (refer to criteria in Table 2.2 and Section 2.37)
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	Steep, cone or dome-shaped hills and flat or gently rolling plateau, descending to interwoven series of low rounded hills dissected by incised valleys with craggy outcrops. Some arable on lower ground but predominantly pasture and rough grazing with rushes, bog vegetation and heather moorland. Large fields bounded by stone walls, and occasional hedges with hedgerow trees. Ancient woodland along narrow valleys. Limited settlement. Dramatic, large-scale open landscape, rich in visual contrasts, with extensive coastal views from higher ground.	**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.
Upland Hills: the Lammermuir, Pentland and Moorfoot Hills	Lothian Area 1 Lammermuir Plateau Borders Type 1 Dissected plateau moorland	Smooth convex hills and level-topped ridges forming a broad, gently undulating plateau, dissected by small and large incised valleys. An expanse of peatland, heather and grass moorland, with occasional improved pasture in valleys. Very limited tree cover aside from coniferous plantations, small shelterbelts, and farmstead woodlands. Very limited settlement, with only a few farms and farm buildings, and few roads. Distinctive hilltop features such as cairns. Overhead power lines are prominent. An open, exposed and remote plateau, with panoramic views across the Firth of Forth from its northern periphery.	**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.

ASSESSMENT OF IMPACTS

5.11 This section sets out the predicted magnitude of effect which will be experienced by each seascape and landscape receptor as a result of the offshore development, and assesses the significance of the resulting impact. Magnitude of effect and significance of impact are defined in **Section 2**.

5.12 The magnitude of effect on each seascape and landscape receptor is assessed by reference to the potential level of visibility of the turbines, as illustrated by the ZTV, by wirelines, and understood based on field work. Where visibility of the turbines is more extensive, they are likely to be more persistent features in the outlook from the seascape/landscape, and therefore are more likely to result in perceptible effects on landscape character. Representative assessment viewpoints within each area are noted.

5.13 In order to assess the maximum effects, reference is made to the ZTV for the maximum height scenario (**Figure 22.4**), which is the farthest-reaching, indicating the maximum potential visibility of the wind farm.

5.14 The indirect impacts on the character of regional seascape units are set out in **Table 5.3**. The indirect impacts on the character of Level 2 LCTs are set out in **Table 5.4**. The indirect impacts on the character of landscape designations are set out in **Table 5.5**.

Table 5.3 Assessment of Impacts on Regional Seascape Units

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
SA4: Montrose Representative viewpoints: 2 St Cyrus	High	The ZTV indicates visibility across the elevated northern part of the area, including Milton Ness and the cliffs at St Cyrus. There is limited visibility from the settlement. There is no theoretical visibility from the mouth of the North Esk, but visibility extends across Charleton and Kinnaber Links, which would be reduced by forest plantations. To the south, there is theoretical visibility across the north of the Links of Montrose, but in the southern part of the area visibility is blocked by the high ground of Scurdie Ness.	The turbines would be visible in the distance, from cliffs at the north of Montrose Bay and Milton Ness. From these elevated locations, the turbines would be seen at 48-50 km distance. From closer to sea level, including the long beach stretching south to the Links of Montrose, there would be reduced visibility of the turbines due to the effects of earth curvature over this distance. From the south of the area, including Montrose and the seafront promenade, there would be no visibility of the turbines due to the intervening Scurdie Ness. Due to distance and atmospheric effects, the presence of the turbines will only be noticeable on clear days, and is unlikely to result in changes to the perception of the seascape. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
SA5: Long Craig Representative viewpoints: n/a	Medium	Theoretical visibility is extensive across this small area, including the southeast facing shore, cliffs and hinterland.	Turbines would be visible between 41 and 43 km to the south, from these open clifftops. Due to distance and atmospheric effects, the presence of the turbines will be noticeable on less than 50% of days, and is unlikely to result in changes to the perception of the seascape. Magnitude of effect: **Negligible**	**None**
SA6: Lunan Bay Representative viewpoints: 6 Braehead of Lunan	High	The ZTV indicates that theoretical visibility is limited to the northern part of this area, including Braehead of Lunan and the more elevated coast of Boddin Point. From Lunan and the bay to the south, visibility would be screened by the higher 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 less than 50% of days, and is unlikely to result in changes to the perception of the seascape. Magnitude of effect: **Negligible**	**None**

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
SA7: Lang Craig to the Deil's Head Representative viewpoints: n/a	High	The ZTV indicates extensive theoretical visibility across this entire seascape area, with only a few pockets outside the ZTV.	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. However, their presence would only lead to very small changes to the perception of the seascape. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
SA8: Arbroath to Monifieth Representative viewpoints: 7 Arbroath 8 Carnoustie	Medium	Theoretical visibility is extensive across this entire seascape area, with only inland pockets of Barry Links and areas of Arbroath outside the ZTV.	From the sea fronts of Arbroath and Carnoustie, and from open areas to 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 noticeable. Due to distance and atmospheric effects, the turbines will be noticeable on around 50% of days. Their presence would only lead to very small changes to the perception of undeveloped parts of this seascape. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
SA9: Dundee Representative viewpoints: 9 Dundee Law	Low	The ZTV shows theoretical visibility along the Dundee coast east of the Docks, and extending inland across Broughty Ferry and the Craigie and Hilltown areas to Dundee Law. There is theoretical visibility across landward areas of the seascape unit, including Downfield and Whitfield, as well as Balgay Hill in the west.	Buildings are likely to screen many views of the turbines. Where they are seen, they are unlikely to affect perceptions of this developed seascape. Magnitude of effect: **Negligible**	**None**
SA10: Inner Firth of Tay Representative viewpoints: n/a	Low	Theoretical visibility is very limited within this seascape area, with only very small hilltop areas to the south of the Firth being within the ZTV. At the outer edge of this seascape area, theoretical visibility extends across the village of Tayport.	Due to the very limited visibility of the turbines from this area, there is no potential for effects on the perception of seascape character. Magnitude of effect: **Negligible**	**None**

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
SA11: St Andrews Bay Representative viewpoints: 10 Tentsmuir	High	Theoretical visibility extends across this low-lying landscape, extending inland from the flat coast. Small pockets of the hinterland are outside the ZTV, as well as a larger area of the north-facing coast, east of Tayport.	In the more open parts, such as the wide beach at Tentsmuir, the presence of offshore turbines may affect the perception of this area as a relatively remote seascape. In more developed areas, such as at Leuchars and St Andrews Links, turbines are less likely to affect perception of the seascape. At around 30 km distance, turbines would be visible on more than 50% of days. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
SA12: St Andrews to Fife Ness Representative viewpoints: 12 East Scores	High	The ZTV shows theoretical visibility across most of this seascape, with only pockets of the hinterland south of St Andrews, and around Boarhills outside the ZTV.	Although there is some local screening in this area, the turbines will be an increasing presence in views to the east. This is a largely undeveloped seascape, in which these large offshore structures will be noticeable in views. In the east there are particularly open areas, such as the golf courses, from where the offshore development will be clearly seen as a persistent feature in views. Further west, the coast is oriented towards the northeast. At between 15 and 30 km distance, the turbines will be visible on most days. Much of this area is within the 28 km range of the proposed lighting, and some lights would therefore be visible at night, potentially altering perceptions of this generally unlit area. Magnitude of effect: **Medium-low**	**Moderate**
SA13: East Neuk of Fife Representative viewpoints: 13 Fife Ness 14 Anstruther 16 Isle of May	High	Theoretical visibility extends across the whole of the coastal part of this seascape. East of Anstruther, theoretical visibility becomes more intermittent across the hinterland of the area.	Although there is some local screening and localised development, the presence of offshore turbines is likely to be noticeable in this seascape, particularly in the east. Much of this coast is oriented to look southeast, and the turbines will therefore be peripheral in many views, particularly around the harbours of the East Neuk villages. However, there are other more open areas with an eastward outlook. Views of the turbines will be an increasingly persistent feature towards the eastern part of this seascape. At between 15 and 30 km distance, they will be visible on most days. Much of this area is within the 28km range of the proposed lighting, and some lights would therefore be visible at night, potentially altering perceptions of this generally unlit area. Magnitude of effect: **Medium-low**	**Moderate**

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
SA14: Kirkcaldy and Largo Bay Representative viewpoints: n/a	Medium	Theoretical visibility is limited across largo Bay, with only pockets of visibility at Kincraig Head and around Colinsburgh to the north. West of Lundin Links, theoretical visibility is more extensive, though still intermittent, extending along the shore from Methil to West Wemyss, and inland across areas of Buckhaven, Methil and other parts of the hinterland.	Visibility of the turbines is likely to be limited to the more built-up parts of this seascape, where the presence of turbines is unlikely to affect the perception of this developed seascape. In less built-up areas, such as around West Wemyss, the turbines will be distant, and due to atmospheric effects only visible on a smaller proportion of days. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
SA16: Edinburgh to Gullane Representative viewpoints: n/a	Medium	The ZTV shows only limited pockets of theoretical visibility in this seascape, including the area between Seton House and Longniddry, and an area between Dirleton and Gullane, which takes in the higher ground of Gullane Links and extends to Gullane Point.	Views of the turbines are likely to be very limited in this seascape, in which views are generally focused north and northwest. In more open areas where they are visible, the turbines are likely to have a small effect on perception of this seascape. At over 35 km from the turbines, they would be visible on fewer than 50% of days. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
SA17: Eyebroughy to Torness Point Representative viewpoints: 17 North Berwick Law 18 Dunbar	Medium	Extensive theoretical visibility is indicated across the low-lying East Lothian coast, including most of the hinterland of this area as well as the shore. The only significant areas outside the ZTV are the slightly elevated farmland inland from Tantallon Castle.	There is much vegetation in this landscape which would screen some views, though the coastal areas are generally open. At around 35 to 27 km, the turbines are likely to be visible on more than 50% of days. In more developed areas, particularly between Dunbar and Torness, the turbines are less likely to affect perception of the landscape, due to existing industrial features. Further north, and in locations where the coast is more open, they would be more likely to affect the perception of this less developed seascape. The coast between Dunbar and Torness is just within the 28 km range of the proposed lighting, and some lights would therefore be visible at night. This is a generally well-lit area, and there would be limited additional effect. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
SA18: Torness Point to St Abb's Head Representative viewpoints: 20 Coldingham Moor	Medium	Theoretical visibility is indicated along the whole coastline of this seascape, extending to most of the hinterland. Some small areas of landward-facing slope are outside the ZTV.	This seascape is low-lying and affected by transport corridors in its northern part, and more open and elevated towards St Abb's Head. The northern part is less likely to be affected, due to the presence of prominent man-made elements along the coast. Views of turbines may be more likely to affect perceptions of the southern area, particularly at headlands such as Fast Castle, where the elemental qualities of the sea are apparent. At around 30 km, the turbines are likely to be visible from this seascape on around 50% of days. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
SA19: St Abb's Head to Eyemouth Representative viewpoints: 21 St Abb's Head	High	The ZTV indicates theoretical visibility around the prominent St Abb's Head, but shows that this headland would screen much of the coast to the south. As such, theoretical visibility is relatively limited in this seascape. The shore of Eyemouth is included, as is the hinterland to the west, but Eyemouth beach and much of the settlement is largely excluded. There is no theoretical visibility from around St Abbs, with the exception of the foreshore.	There are likely to be few areas within this seascape with open views to the turbines, which at over 33 km will be visible on fewer than 50% of days, decreasing to the south. Turbines would be a noticeable feature in views, but are unlikely to be so extensively visible as to affect perception of the seascape. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
SA20: Eyemouth to Berwick upon Tweed Representative viewpoints: n/a	Medium	Theoretical visibility is intermittent along this east- and northeast-facing coast. Much of the shoreline is within the ZTV, but large areas of the hinterland are screened by variations in topography.	Turbines would be a noticeable feature in views from this seascape in clear conditions, at between 39 and 50 km distance. Views to the turbines would be oblique, to the north-northwest, while the coast faces east or north-east. Due to the form of the coast, views would be intermittent, and would not be a constant feature in the seascape. These limited views of the turbines would not substantially affect the perception of this seascape, which is already affected by the busy transport corridors passing close to the coast. Magnitude of effect: **Negligible**	**None**

Table 5.4 Assessment of Impacts on Level 2 LCTs

Level 2 LCT	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
Coastal Hills Headlands Plateaux and Moorlands Representative viewpoints: 11 Strathkinness 20 Coldingham Moor	Medium	This LCT occurs in the study area to the west and south of St Andrews, and at Coldingham Moor in the Borders. 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. 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.	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. 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. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
Coastal Margins Representative viewpoints: n/a	Medium	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.	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. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
Coastal Raised Beaches and Terraces Representative viewpoints: n/a	High	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.	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 turbines will not affect the character of this landscape. Magnitude of effect: **Negligible**	**None**

Level 2 LCT	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
Dipslope Farmland Representative viewpoints: 5 Dodd Hill	Medium	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. Magnitude of effect: **Negligible**	**None**
Fife Lowland Farmland Representative viewpoints: n/a	Medium	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 development, 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. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
Foothills Representative viewpoints: n/a	Medium	This LCT occurs in several blocks across northern Fife. The ZTV is very limited in the west, but more concentrated on higher ground and east-facing slopes to the east, particularly around Balmullo.	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 38 km. The turbines would be visible from this location, but are unlikely to affect the character of this farmed landscape. Magnitude of effect: **Negligible**	**None**
Low Coastal Farmlands Representative viewpoints: n/a	Medium	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 development, 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. Magnitude of effect: **Low** in the north, **negligible** in the south	**Minor** to **none**

Level 2 LCT	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
Lowland Coastal Flats Sands and Dunes Representative viewpoints: n/a	High	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. Magnitude of effect: **Negligible**	**None**
Lowland Hills (South) Representative viewpoints: n/a	Low	This LCT occurs in the study area at the Garleton Hills in 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. Magnitude of effect: **Negligible**	**None**
Lowland Plains Representative viewpoints: n/a	Low	Theoretical visibility is intermittent across this broad LCT within 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 development. 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. Magnitude of change: **Negligible**	**None**
Lowland River Valleys Representative viewpoints: n/a	Low	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. Magnitude of change: **Negligible**	**None**
Narrow Wooded River Valleys Representative viewpoints: n/a	Low	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. Magnitude of change: **Negligible**	**None**

Level 2 LCT	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
Pronounced Hills Representative viewpoints: 15 Largo Law	Low	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 development. However, views of the turbines are unlikely to affect perception of this rolling farmed landscape. Magnitude of effect: **Negligible**	**None**
Upland Fringe Moorland and Grassland: the Lammermuir, Pentland and Moorfoot Hills Representative viewpoints: n/a	Medium	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. Magnitude of effect: **Negligible**	**None**
Upland Hills: the Lammermuir, Pentland and Moorfoot Hills Representative viewpoints: 19 West Steel	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. Magnitude of effect: **Negligible**	**None**

Table 5.5 Assessment of Impacts on Landscape Designations

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
Balgay Park GDL	High	There is theoretical visibility across the elevated Balgay Hill, on which the park is located.	It is likely that views of the distant turbines (47 km) would be available from certain points on the hill, though mature woodland would filter other views. However, the character of the historic public park would not be affected. Magnitude of effect: **Negligible**	**None**
St Andrews Links GDL	High	The ZTV indicates extensive visibility across almost the whole of this flat, coastal area.	There would be views of the turbines 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. Magnitude of change: **Low**	**Minor**
Cambo GDL	High	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 turbines across the area, and effects are unlikely on 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). Magnitude of change: **Low**	**Minor**
Balcaskie GDL	High	The ZTV indicates visibility around the north and west fringes of the GDL, and across the southeast facing south-central part of the area, south of the house.	The designed landscape is based around a central vista from the house to the Bass Rock. Turbines would not be visible in this vista. There are a series of shelterbelts parallel to this vista, which would filter most views of the turbines from the central parkland. Views of the turbines from peripheral parts of the GDL are likely, though they will not affected the character of the historic landscape. Magnitude of change: **Negligible**	**None**
Kellie Castle GDL	High	Very limited theoretical visibility of the proposals.	Given the amount of woodland and vegetation at the fringes of the area, views of the turbines are unlikely to be possible, and would not affect the character of the gardens. Magnitude of change: **Negligible**	**None**

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
Balcarres GDL	High	The ZTV indicates visibility from elevated areas within this GDL, although not from the Den Burn or the house.	The extensively wooded Den Burn is likely to provide screening, with additional mature policy woodland around the house further filtering views. Views from the designed landscape are generally focused more to south than eastward, and the turbines are unlikely to be a persistent feature. Magnitude of change: **Negligible**	**None**
Charleton GDL	High	Theoretical visibility is concentrated in the north, on the higher ground which rises behind the house. Visibility is more intermittent from the area to the south of the house.	The main vista from the house is aligned south-southeast, with parallel woodland strips filtering eastward views to the turbines. There may be views of the turbines from peripheral areas, such as the open hill behind the house, and from the golf course, but these will be distant and will not affect landscape character. Magnitude of change: **Negligible**	**None**
Lahill GDL	High	The ZTV includes very limited areas at the periphery of this GDL.	Views out of this GDL are aligned to the south, and any views of turbines from peripheral areas are likely to be glimpsed at most. Magnitude of change: **Negligible**	**None**
Wemyss Castle GDL	High	The ZTV indicates extensive visibility across the GDL, although the western part is outside the 50 km ZTV.	There will be views of the turbines, in good weather conditions, from the coastal edge of the GDL, though at 48 to 50 km the offshore development will be a small distant element in the view, and will not affect character. Magnitude of change: **Negligible**	**None**
Grey Walls GDL	High	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 character. Magnitude of change: **Negligible**	**None**
Leuchie GDL	High	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 development would only be glimpsed from peripheral locations, across the flat coastal farmland. Magnitude of change: **Negligible**	**None**

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
Tyninghame GDL	High	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 Tyninghame 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 development 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. Magnitude of change: **Low**	**Minor**
Biel GDL	High	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 development. Views of the turbines would only be perceived from peripheral areas of the policies, where they would not affect the character of the GDL. Magnitude of change: **Negligible**	**None**
Broxmouth Park GDL	High	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 development 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. Magnitude of change: **Negligible**	**None**
Dunglass GDL	High	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 development, 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. Magnitude of change: **Negligible**	**None**

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
East Fife AGLV Representative viewpoints: 10 Tentsmuir 11 Strathkinness 13 Fife Ness 14 Easter Anstruther 15 Largo Law	Medium	This very extensive AGLV includes the East Neuk coast, the area between St Andrews and Cupar, Tentsmuir, and the Firth of Tay coast. Theoretical visibility is concentrated in the east, along the East Neuk coast, west of St Andrews, and Tentsmuir. Inland, theoretical visibility becomes more intermittent, picking up high points such as Largo Law and Lucklaw Hill.	The presence of the turbines will be most clearly apparent in eastern parts of the AGLV, particularly Fife Ness and the East Neuk coast. Further inland, the coast plays a less significant role, and the presence of offshore development will have more limited effects. In other coastal areas, such as Tentsmuir, the presence of turbines will result in smaller changes to character. Further west still, there would be no effect on character even where the offshore development is visible. Magnitude of effect: **Medium-low** in the Fife Ness area, reducing to **negligible** elsewhere	Overall **minor**
Longniddry to North Berwick Coast AGLV Representative viewpoints: 10 Tentsmuir	Medium	Much of this area is outside the ZTV, though there is theoretical visibility across the area between North Berwick and Eyebroughy, and at Gullane Links.	Turbines would be visible from the foreshore between North Berwick and Eyebroughy, though inland views would largely be screened by plantation woodlands. Further west there would be some view of the turbines from Gullane Point and the open high ground south of Gullane Bay. At over 35 km away, the turbines would be a distant feature, and not visible at all from most of the AGLV. Magnitude of effect: **Low** to **negligible**	**Minor** to **none**
North Berwick to Dunbar Coast AGLV Representative viewpoints: 18 Dunbar	Medium	There is theoretical visibility across this AGLV, which extends along the coast, and inland to enclose Whitekirk and the land between the Tyne and the A1.	The turbines will be clearly visible along the foreshore of the area, and from clifftops around Tantallon. Further inland the East Lothian farmland is relatively wooded, and many views would be screened, though glimpses would be common. Although widely visible, the turbines would be over 30 km distant and are unlikely to greatly affect the character of the AGLV. Magnitude of effect: **Low**	**Minor**
Barns Ness Coast AGLV Representative viewpoints: n/a	Medium	This narrow coastal strip is entirely within the ZTV.	The turbines would be clearly visible from the foreshore and cliffs across this narrow coastal strip. Although widely visible, the turbines would be around 28 km distant and are unlikely to greatly affect the character of the AGLV. Magnitude of effect: **Low**	**Minor**

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
Thorntonloch Coast AGLV Representative viewpoints: n/a	Medium	This narrow strip, largely comprising foreshore, is entirely within the ZTV.	The turbines would be clearly visible from the foreshore and cliffs across this narrow coastal strip. Although widely visible, the turbines would be around 30 km distant and are unlikely to greatly affect the character of the AGLV. Magnitude of effect: **Low**	**Minor**
Garleton Hills AGLV and Kilduff Hill AGLV Representative viewpoints: n/a	Medium	The ZTV indicates visibility from hilltops and northeast-facing slopes within these small, adjacent AGLVs. The majority of the area has no visibility.	The turbines would be clearly visible in good conditions, at around 40 km distance. However, they would only be visible as a small element in views, from open hilltops such as at the Hopetoun Monument, and would not affect the character of the AGLV. Magnitude of effect: **Negligible**	**None**
Traprain Law AGLV Representative viewpoints: n/a	Medium	The ZTV indicates visibility from Traprain Law itself, and from northern-facing slopes above the Tyne.	Panoramic views are assumed to be a reason for designation of Traprain Law. The offshore development would be visible, but the presence of the turbines in the view will not affect the character of this prominent hill or its landscape setting. Magnitude of effect: **Negligible**	**None**
North Berwick Law AGLV Representative viewpoints: 17 North Berwick Law	Medium	The ZTV indicates visibility from the northeast-facing slopes of North Berwick Law.	Panoramic views are assumed to be the reason for designation of North Berwick Law. The offshore development would be visible, and its effect on the view has been assessed in **Section 6**. The presence of the turbines in the view will not affect the character of this small but prominent hill. Magnitude of effect: **Negligible**	**None**
Balgone AGLV Representative viewpoints: 10 Tentsmuir	Medium	Theoretical visibility is limited to a band across the centre of this small AGLV.	This small AGLV is an area of parkland and is surrounded by mature woodland. Views of the offshore development are unlikely. Magnitude of effect: **Negligible**	**None**

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.4)	Indirect impact (refer to Table 2.6)
Lammermuir Hills AGLV Representative viewpoints: 19 West Steel	Medium	The most extensive area of theoretical visibility is across Lothian Edge, Blackcastle Hill, and Corse Hill, being the northeast-facing flank of the Lammermuirs. Elsewhere, visibility is limited to hilltops and ridges, and most of the area, particularly the Scottish Borders side, has no visibility.	Views towards the turbines would be available from open ridges with sea views. The turbines would be located over 32 km away, and would not be visible from most of this AGLV. There would be very limited or no change to the character of this landscape, in which a number of wind turbines are already present. Magnitude of effect: **Negligible**	**None**
Berwickshire Coast AGLV Representative viewpoints: 20 Coldingham Moor 21 St Abb's Head	Medium	There is theoretical visibility from most of the coastal edge of this AGLV, particularly from the northern area.	Turbines would be visible from the foreshore and from clifftops and other high ground along this area. There is little woodland to screen views, but although widely visible, the turbines are unlikely to greatly affect the character of this area due to their distance, over 30 km to the north. Magnitude of effect: **Low**	**Minor**

6 Impacts on Visual Amenity

6.1 This section sets out the likely impacts of the offshore development on views and the visual amenity of the study area. Impacts on visual receptors will arise from the presence of the offshore wind turbines in certain views.

6.2 The theoretical visibility of the proposals is discussed in **Section 3**, with reference to the ZTVs generated for each of the two scenarios (**Figure 22.4** and **22.5**).

6.3 The final choice of turbine would have some effect on the nature of visual impacts, and both maximum height and maximum density scenarios have therefore been considered in relation to impacts on views.

VIEWPOINT ASSESSMENT

6.4 The viewpoint assessment considers the 18 representative viewpoints identified in **Table 3.5**.

6.5 For each viewpoint, a description of the existing view is given, together with an assessment of sensitivity. The approach to assessing sensitivity considers the type of receptor and the nature of 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 effect and significance of impact are then assessed, based on the methodology set out in **Section 2**.

Comparison of Scenarios

6.6 The viewpoint assessment considered both maximum height and maximum density scenarios. However, in the field it was considered that, although there would be discernible difference between the scenarios, the magnitude of effect, and significance of any impacts, would remain similar. 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 of course 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.

6.7 Visualisations (wirelines and photomontages) for each viewpoint are included in **Figures 22.10** to **22.27**.

Assessment

Viewpoint 2: Beach Road, Kirkton, St Cyrus			
OS grid reference	375195, 764644	*Figure number*	22.10
Regional Seascape Unit	SA4 Montrose	*Landscape designation*	St Cyrus/Lochside -Area of Landscape Significance
Direction of view towards the site	South	*Distance to site boundary*	49.0 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			73 days (20%)

Location and Receptors:

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.

Sensitivity: **High**

- Popular recreational destination with beach access;
- Wide open, immediate and elevated sea views.

Current View:

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. There appears to be little in the way of shipping activity within this part of the coast and sea.

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.

Changes:

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 in both maximum density and maximum height scenarios will appear in the far distance, the lower parts of their towers sitting below the horizon. In both scenarios it is also the case that some of the turbines have part of their blade sweep (below the hub) screened below the horizon. In both maximum density and maximum height scenarios, the man-made appearance of the wind farm will contrast with the horizontal, even sea. Comparatively, the maximum height and maximum density scenarios will appear similar at this distance. Looking south, the wind farm will sometimes appear backlit by the sun. At night time, distant lighting may be visible in clear conditions. The impact of such distant light sources is unlikely to be significant.

Magnitude of effect: **Negligible**

Impact: **None**

Viewpoint 5: Dodd Hill			
OS grid reference	345255, 739616	*Figure number*	22.11
Landscape Character Type	Upland Hills and Hill Slopes, The Ochils and Sidlaw Hills	*Landscape designation*	None
Direction of view towards the site	Southeast	*Distance to site boundary*	43.9 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			102 days (28%)

Location and Receptors:

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.

Sensitivity: **Medium**

- Recreational receptors have an interest in the view;
- Wide open views across the landscape and seascape;
- Inland location where the sea is less immediate.

Current View:

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.

Changes:

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 in both maximum density and maximum height scenarios 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 two turbines at Dundee. Comparatively, maximum height and maximum density scenarios will appear similar at this distance, with a higher level of spacing between turbines on the left of the array, than those on the right. Looking southeast, the wind farm will sometimes appear backlit by the sun. At night time, distant lighting may be visible in clear conditions. The impact of such distant light sources is unlikely to be significant.

Magnitude of effect: **Negligible**

Impact: **None**

Viewpoint 6: Braehead of Lunan			
OS grid reference	368987, 752602	*Figure number*	22.12
Regional Seascape Unit	SA6 Lunan Bay	*Landscape designation*	None
Direction of view towards the site	Southeast	*Distance to site boundary*	39.0 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			135 days (37%)

Location and Receptors:

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.

Sensitivity: **High**

- Residential receptors with proprietary interest and prolonged viewing opportunities;
- Recreational receptors have an interest in the view;
- Open coastal views.

Current View:

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.

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.

Changes:

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 been 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. Comparatively, the maximum height and maximum density scenarios will appear similar at this distance, with increased spacing between turbines on the right, compared to those on the left. Looking southeast, the wind farm will sometimes appear backlit by the sun. At night time, distant lighting may be visible in clear conditions. The impact of such distant light sources is unlikely to be significant.

Magnitude of effect: **Low**
Impact: **Moderate-minor**

Viewpoint 7: Arbroath			
OS grid reference	364050, 740447	*Figure number*	22.13
Regional Seascape Unit	SA8 Arbroath to Monifieth	*Landscape designation*	None
Direction of view towards the site	Southeast	*Distance to site boundary*	30.8 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			197 days (54%)

Location and Receptors:

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.

Sensitivity: **High**

- Recreational visitors have an interest in the view, as seen from within the building and wider Arbroath promenade, rather than from the tower;
- Important visual link to the Bell Rock Lighthouse;
- Open marine views.

Current View:

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.

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.

Changes:

The wind farm will be visible at the centre-right of the sea view, occupying around 15˚ of the view. It will appear to right of the Bell Rock Lighthouse, the individual turbines appearing to be around twice the height of the lighthouse. Turbines in both maximum density and maximum height scenarios will be set against the skyline, their man-made appearance, upright form and movement contrasting with the horizontal, even appearance of the open sea. Both scenarios are similar in terms of layout, forming clear lines of turbines,

grouping in clusters of varying width, but there is a distinct difference. Whereas the maximum height scenario forms separate groups of turbines, the lines to the left hand side of the maximum density scenario merge in to each other. Looking southeast, the wind farm will sometimes appear backlit by the sun. At night time, navigation lighting is likely to be visible in reasonably clear conditions. This is a well-lit location, with existing offshore lighting visible at the Bell Rock Lighthouse. The wind farm will introduce a number of steady offshore lights in the night time sea view.

Magnitude of effect: **Medium-low**

Impact: **Moderate**

Viewpoint 8: Carnoustie			
OS grid reference	356249, 734093	*Figure number*	22.14
Regional Seascape Unit	SA8 Arbroath to Monifieth	*Landscape designation*	None
Direction of view towards the site	Southeast	*Distance to site boundary*	31.7 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			183 days (50%)

Location and Receptors:

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.

Sensitivity: **High**

- Recreational receptors have an interest in the view;
- Open views towards the sea;
- Receptors within hotel have prolonged viewing opportunities.

Current View:

This low-lying viewpoint on the sea front feels exposed. On a flat area protected by a long granite riprap defence, it marks the contrast between the wild open sea, full of movement, and the more formal townscape of Carnoustie. The riprap is separated from the promenade 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, are at the northern end of Barry Sands, south of the Edinburgh to Aberdeen railway line, between Carnoustie Golf Course and Hotel, and the rocky foreshore. The Links provide a number of recreational activities, including golfing, cycling and sailing, and are formalised by feature walls, seating alcoves, and hard-paved paths.

The North 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: the green and gold papery grasses; the stony riprap of muted pinks and greys; the smooth beige sand; and the active, light-reflecting sea. 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.

Changes:

The wind farm will be visible at the centre of the open sea view, occupying around 20˚ of the view. Turbines in both maximum density and maximum height scenarios will be set against the skyline, their man-made appearance, upright form and movement contrasting with the horizontal appearance of the sea. Both scenarios are similar in terms of layout, with turbines appearing more concentrated at the centre of the array, and more spaced out towards to the edges. Viewed at a distance of 32 km, the turbines in both maximum density and maximum height scenarios will have the lower parts of their towers sitting below the horizon. Looking southeast, the wind farm will sometimes appear backlit by the sun. At night time, navigation lighting is likely to be visible in reasonably clear conditions. This is a well-lit location, with existing offshore lighting visible at the Bell Rock Lighthouse. The wind farm will introduce a number of steady offshore lights in the night time sea view.

Magnitude of effect: **Medium-low**

Impact: **Moderate**

Viewpoint 9: Dundee Law			
OS grid reference	339157, 724249	*Figure number*	22.15
Regional Seascape Unit	SA9 Dundee	*Landscape designation*	None
Direction of view towards the site	Southeast	*Distance to site boundary*	44.9 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			88 days (24%)

Location and Receptors:

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.

Sensitivity: **Medium**

- Widely known and well-used as a panoramic viewpoint;
- Recreational receptors are interested in the view;
- Inland location where sea is a small distant element in a wide view.

Current View:

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.

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.

Changes:

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. Comparatively, the maximum height and maximum density scenarios will appear similar at this distance, with a higher level of spacing between turbines on the left of the array, than those on the right. Looking southeast, the wind farm will appear backlit by the sun on clear mornings. At night time, distant navigation lighting is likely to be visible in clear conditions. This is a well-lit location, and the introduction of such distant lighting is unlikely to give rise to significant impacts.

Magnitude of effect: **Negligible**

Impact: **None**

Viewpoint 10: Tentsmuir			
OS grid reference	349971, 724249	*Figure number*	22.16
Regional Seascape Unit	SA11 St Andrews Bay	*Landscape designation*	East Fife Area of Great Landscape Value
Direction of view towards the site	East	*Distance to site boundary*	31.8 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			183 days (50%)

Location and Receptors:

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.

Sensitivity: **High**

- Recreational receptors with an interest in the view;
- A popular beach location;
- Open marine views.

Current View:

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. From observations of the vegetation and tide marks, the fringe of the dune area possibly floods

during high or spring tides creating shallow pools between the dunes. 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.

Changes:

The wind farm will be visible at the centre-right of the open sea view, occupying around 20˚ of the view. Turbines in both maximum density and maximum height scenarios will be set against the skyline, their man-made appearance, upright form and movement contrasting with the horizontal appearance of the sea. Both scenarios are similar in terms of layout, with a higher level of spacing between turbines on the left of the array, than those on the right. Viewed at a distance of 32 km, the turbines in both maximum density and maximum height scenarios 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. At night time, navigation lighting is likely to be visible in reasonably clear conditions. There is little lighting at this location, though lights at St Andrews are visible. The wind farm will introduce a number of steady offshore lights in the night time sea view.

Magnitude of effect: **Medium-low**

Impact: **Moderate**

Viewpoint 11: Strathkinness			
OS grid reference	346605, 716418	*Figure number*	22.17
Landscape Character Type	Coastal Hills Headlands Plateaux and Moorlands	*Landscape designation*	East Fife Area of Great Landscape Value
Direction of view towards the site	East	*Distance to site boundary*	33.1 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			172 days (47%)

Location and Receptors:

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.

Sensitivity: **High**

- Residential receptors with views aligned to north;
- Recreational receptors, including users of NCN Route 1, have an interest in the view.

Current View:

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.

Changes:

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. Comparatively, the maximum height and maximum density scenarios will appear similar at this distance, generally an even spread with turbines most concentrated that the centre. Looking east, the wind farm will appear backlit by the morning sun. At night time, navigation lighting is likely to be visible in reasonably clear conditions. This location has some lighting both nearby and in the wider landscape. The wind farm will introduce a number of steady offshore lights in oblique night time sea views.

Magnitude of effect: **Low-negligible**

Impact: **Minor**

Viewpoint 12: St Andrews, East Scores			
OS grid reference	351560, 716676	*Figure number*	22.18
Regional Seascape Unit	SA12 St Andrews to Fife Ness	*Landscape designation*	None
Direction of view towards the site	East	*Distance to site boundary*	28.2 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			212 days (58%)

Location and Receptors:

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.

Sensitivity: **High**

- Widely known and well-used viewpoint;

- Recreational and nearby residential receptors have an interest in the view;
- Open marine views.

Current View:

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.

Changes:

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. Both maximum density and maximum height scenarios will appear similar, with increased spacing between turbines on the right hand side. Looking east, the wind farm will appear backlit by the morning sun. At night time, navigation lighting is likely to be visible in reasonably clear conditions. This is a well-lit location, though with views over the dark sea. The wind farm will introduce a number of steady offshore lights in the night time sea view.

Magnitude of effect: **Low**

Impact: **Moderate**

Viewpoint 13: Fife Ness, Lochaber Rock			
OS grid reference	363842, 709766	*Figure number*	22.19
Regional Seascape Unit	SA13 East Neuk of Fife	*Landscape designation*	East Fife Area of Great Landscape Value
Direction of view towards the site	East	*Distance to site boundary*	15.5 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			300 days (82%)

Location and Receptors:

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.

Sensitivity: **High**

- Recreational and nearby residential receptors have an interest in the view;
- Open marine views.

Current View:

This very wide and expansive view, located directly on the coastline has a profound and clear connection to the sea. The sea occupies around 240˚ of the view, giving a sense of being surrounded by this massive body of water. The viewpoint is located just above sea level and is locally very changeable, responding strongly to the rise and fall of the tide across the rocky foreshore. This means foreshore moves into and out of view: sometimes a platform of rock dotted with rounded pools and grassy tufts, sometimes uneven humps emerging and submerging through the water, and at other times only made apparent by the reflecting colours through the shallow water surface. In contrast to this flatter, rounded platform of rock central in the view, to either side is a more angular rocky foreshore.

The horizon of sea is very broad as it meets the expansive sky, broken by the Bell Rock Light House, visible 20 km away, by tall buoys, and sometimes by passing ships. This horizon stretches from the distant Angus coastline to the north, to the Lothian coastline 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.

Changes:

The wind farm will be visible at the centre of the open sea view, occupying around 40˚ of the view. Turbines in both maximum density and maximum height scenarios will be set against the skyline, their man-made appearance, upright form and movement contrasting with the horizontal appearance of the sea. Both scenarios are similar in terms of layout, with clusters forming either side of the centre, to a larger degree on the left. Comparatively, in terms of scale and distance, the maximum height scenario appears nearer but less extensive, and the maximum density scenario appears further away but more extensive. 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. At night time, navigation lighting is likely to be visible from this location under most conditions. The surrounding area is generally dark, though there is a lighthouse and other light sources on Fife Ness. The wind farm will introduce a number of steady offshore lights in the night time sea view.

Magnitude of effect: **High**

Impact: **Major**

Viewpoint 14: Anstruther Easter			
OS grid reference	357901, 704166	*Figure number*	22.20
Regional Seascape Unit	SA13 East Neuk of Fife	*Landscape designation*	East Fife Area of Great Landscape Value
Direction of view towards the site	East	*Distance to site boundary*	21.8 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			255 days (70%)

Location and Receptors:

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.

Sensitivity: **High**

- Residential receptors with proprietary interest and prolonged viewing opportunities;
- Recreational receptors have an interest in the view;
- Open marine views.

Current View:

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.

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 Bass Rock and North Berwick Law are perceptible against the more distant Lammermuir Hills.

Changes:

With the Isle of May at the centre of this view, the wind farm will be located roughly equidistance 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. Both scenarios are similar in terms of layout, with turbines forming distinct clustered lines at the centre of the array, more evenly dispersed to the sides. Comparatively, in terms of scale, the maximum density scenario appears more extensive than the maximum height scenario, due to the sheer number of turbines. 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. At night time, navigation lighting is likely to be visible from this location under most conditions. The area around the viewpoint is lit, and lighthouses and other sources are visible offshore. The wind farm will introduce a number of steady offshore lights in the night time sea view.

Magnitude of effect: **High**

Impact: **Major**

Viewpoint 15: Largo Law			
OS grid reference	342710, 704978	*Figure number*	22.21
Landscape Character Type	Pronounced Hills	*Landscape designation*	East Fife Area of Great Landscape Value

Direction of view towards the site	East	*Distance to site boundary*	36.8 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			146 days (40%)

Location and Receptors:

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.

Sensitivity: **Medium**

- Moderately used viewpoint with panoramic views;
- Recreational receptors have an interest in the view;
- Marine views limited to the Firth of Forth.

Current View:

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 Craigleith, 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.

Changes:

Within the limited area of sea visible from this location, the wind farm will be a small and distant element within a wide, complex view. Turbines in both maximum density and maximum height scenarios 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. Comparatively, the maximum height and maximum density scenarios will appear similar at this distance, with an unbalanced distribution of turbines – evenly spaced on the right with clusters of varying size and spacing on the left. 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. At night time, navigation lighting is likely to be visible from this location under reasonably good conditions. The area around the viewpoint is unlit, though there are many light sources in the wider view. The wind farm will introduce a number of steady offshore lights into a small area of the night time view.

Magnitude of effect: **Negligible**

Impact: **None**

Viewpoint 16: Isle of May			
OS grid reference	365632, 699341	*Figure number*	22.23
Regional Seascape Unit	SA13 East Neuk of Fife	*Landscape designation*	None
Direction of view towards the site	Northeast	*Distance to site boundary*	16.3 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			292 days (80%)

Location and Receptors:

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 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. The Scottish Seabird Centre operates two webcams on the island at Pilgrims Haven, in the southwest of the island.

Sensitivity: **High**

- Recreational receptors have an interest in the view, although relatively few in number, they come partly to experience the remoteness of the island setting;
- A popular day-trip destination;
- Open marine views, from an elevated position.

Current View:

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.

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.

Changes:

The wind farm will be visible at the centre of the open sea view, occupying around 40˚ of the view. Turbines in both maximum density and maximum height scenarios will be set against the skyline, their man-made appearance, upright form and movement contrasting with the horizontal appearance of the sea. Both scenarios are similar in terms of layout, with clustering at the centre-left and far right of the array. Comparatively, in terms of scale and distance, the maximum height scenario appears nearer but less extensive, and the maximum density scenario appears further away but more extensive. 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. At night time, navigation lighting is likely to be visible from this location under most conditions, though only the few people staying on the island overnight would experience this. The island is generally unlit, though there is an operational lighthouse. The wind farm will introduce a

number of steady offshore lights in the night time sea view..
Magnitude of effect: **High**
Impact: **Major**

Viewpoint 17: North Berwick Law			
OS grid reference	355642, 684234	*Figure number*	22.24
Landscape Character Type	Coastal Margins	*Landscape designation*	North Berwick Law Area of Great Landscape Value
Direction of view towards the site	Northeast	*Distance to site boundary*	33.0 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			172 days (47%)

Location and Receptors:

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.

Sensitivity: **High**

- Widely known and well-used viewpoint;
- Recreational receptors have an interest in the view;
- Open marine views forming part of a wider panorama.

Current View:

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.

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.

Changes:

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 in both maximum density and maximum height scenarios 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. Comparatively, the maximum height and maximum density scenarios will appear similar at this distance, with increased spacing between

turbines on the right hand side of the array. 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. At night time, navigation lighting is likely to be visible from this location under reasonably good conditions. The view includes lighting close at hand in North Berwick, as well as across the wider view. The wind farm will introduce a number of steady offshore lights into part of this wider view..
Magnitude of effect: **Low**
Impact: **Moderate**

Viewpoint 18: Dunbar			
OS grid reference	367102, 679370	*Figure number*	22.25
Regional Seascape Unit	SA17 Eyebroughy to Torness Point	*Landscape designation*	North Berwick to Dunbar Area of Great Landscape Value
Direction of view towards the site	North	*Distance to site boundary*	28.0 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			208 days (57%)

Location and Receptors:

This viewpoint is located on the John Muir Way as it passes along the coast next to Winterfield Park and Golf Course in Dunbar. It is an Ordnance Survey recorded viewpoint at 10m AOD. Receptors are principally walkers and cyclists visiting the viewpoint. There are some nearby residential properties to the east, along Marine Road.

Sensitivity: **High**

- Widely known and well-used viewpoint;
- Recreational and nearby residential receptors have an interest in the view;
- Open marine views.

Current View:

The John Muir Way wraps around the coastline of Dunbar and is locally formalised, by means of a red sandstone wall separating the hard-paved path from the neighbouring park. The presence of the wall highlights the contrast between the enclosure of the park and the openness of the sea.

The sea view from this point is immediate, as the grass beside the path drops into a short, sharp cliff. Beyond the cliff edge, the view is changeable, responding to rise and fall of the tide and movement of the water itself. This means the rocky foreshore below the cliff moves into and out of view: sometimes a distinct multi-layered platform of rock, sometimes sharp points emerging and submerging through the water, and at other times only made apparent by the reflecting colours on the water surface. Beyond the foreshore a 130˚ wide view of the sea is available, a broad, even expanse, broken only by passing ships. To the east, the horizon is unbroken, but looking almost directly north and at the centre-left of the view, the Isle of May is visible around 20 km away, with its steep sides and silhouetted lighthouses. Looking west, Fife comes into distant view and is interrupted by the Bass Rock in the middle ground before merging with the low, even plain of East Lothian. Here, the headland of St Baldred's Cradle extends beyond the outer stretches of Belhaven Bay, and North Berwick Law can be seen across the flat plain.

Changes:

In this view the wind farm will be located to the centre-right, occupying around 25˚ of the view, with the Isle of May located to the centre-left, each set against the horizon of the open sea. The wind farm in both maximum density and maximum height scenarios will appear a taller feature on the horizon than the Isle of May. The man-made appearance, upright form and movement of the turbines will contrast with this simple view, and the rugged cliffs of the island. Both scenarios are similar in terms of layout, with an unbalanced distribution of turbines – evenly spaced on the left with five or six regularly spaced clusters on the right. Looking north, 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. At night time, navigation lighting is likely to be visible from this location under reasonable conditions. The viewpoint location is close to some lighting, though it overlooks the dark sea. The wind farm will introduce a number of steady offshore lights in the night time sea view..

Magnitude of effect: **Medium**

Impact: **Major-moderate**

Viewpoint 19: West Steel			
OS grid reference	368820, 670537	*Figure number*	22.26
Landscape Character Type	Upland Hills: the Lammermuir, Pentland and Moorfoot Hills	*Landscape designation*	Lammermuir Hills Area of Great Landscape Value
Direction of view towards the site	North	*Distance to site boundary*	34.9 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			153 days (42%)

Location and Receptors:

Located in the Lammermuir Hills at 345m AOD on a minor road between Bransly Hill and Wester Dodd Hill. The viewpoint is at one end of a core path which crosses Bransly Hill. Receptors are users of this road and walkers/cyclists.

Sensitivity: **Medium**

- Reasonably well used minor road;
- Some use by recreational walkers;
- Elevated marine views.

Current View:

This elevated viewpoint is set inland from the coast by 8 km, limiting the view of sea by the extent of landscape visible in the foreground and middle ground. The sea view from this point occupies around 100˚ of the view, but is interrupted to the northeast by Blackcastle Hill which meets with the skyline, and on which stand two significant masts. The sea itself appears distant, though shipping is visible. From this angle the Bass Rock, to the northwest, appears to mark a significant point of change between the North Sea and the Firth of Forth. To the west, the band of blue diminishes as Fife and the Lothians draw closer together.

The viewpoint itself is located in the uplands of the Lammermuir Hills, but does not feel remote or wild, due to the significant extent of human influence apparent in the landscape. In addition to the shipping lane activity

at sea, and the masts on Blackcastle Hill, other elements stand out. These include the neighbouring wind turbines of Aikengall Wind Farm, overhead power lines, blocky coniferous plantation, the town of Dunbar and nearby cement works, Torness Power Station and Barns Ness Lighthouse. The coastline appears flat and developed, with the exception of the rugged cliffs north of Coldingham Moor, a small element 15 km away.

Changes:

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 20° of the view. Turbines in both maximum density and maximum height scenarios 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, the cement works at Dunbar and Torness Power Station. Comparatively, the maximum height and maximum density scenarios will appear similar at this distance, with a higher level of spacing between turbines on the right of the array, than those on the left. 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. At night time, navigation lighting is likely to be visible from this location under good conditions. The viewpoint location is away from sources of lighting. The wind farm will introduce a number of relatively distant offshore lights into the night time view.

Magnitude of effect: **Low**

Impact: **Minor**

Viewpoint 20: Coldingham Moor			
OS grid reference	383492, 669342	*Figure number*	22.27
Regional Seascape Unit	SA18 Torness Point to St Abb's Head	*Landscape designation*	Berwickshire Coast Area of Great Landscape Value
Direction of view towards the site	North	*Distance to site boundary*	32.8 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			172 days (47%)

Location and Receptors:

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.

Sensitivity: **Medium**

- Reasonably well used minor road;
- Open marine views;
- Used by visitors to Fast Castle and Siccar Point.

Current View:

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.

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.

Changes:

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 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. In both maximum density and maximum height scenarios, the man-made appearance, upright form and movement of the turbine will contrast with the horizontal open sea. Comparatively, both scenarios will appear similar from this viewpoint, with a higher level of spacing between turbines seen on the right of the array, than those seen on the left. 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. At night time, navigation lighting is likely to be visible from this location under reasonably good conditions. The viewpoint location is away from sources of lighting. The wind farm will introduce a number of steady offshore lights into the night time sea view.

Magnitude of effect: **Medium-low**

Impact: **Minor**

Viewpoint 21: St Abb's Head			
OS grid reference	391235, 669167	*Figure number*	22.28
Regional Seascape Unit	SA19 St Abb's Head to Eyemouth	*Landscape designation*	Berwickshire Coast Area of Great Landscape Value
Direction of view towards the site	North	*Distance to site boundary*	33.0 km
Estimated number of days on which the turbines would be visible (based on atmospheric visibility data set out in Table 2.1)			172 days (47%)

Location and Receptors:

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.

Sensitivity: **High**

- Recreational receptors have an interest in the view;
- Open marine views;
- Rugged and remote headland without extensive human influence.

Current View:

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.

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.

Changes:

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 a distant Fife Ness and Isle of May. Turbines in both maximum density and maximum height scenarios will be set against the skyline, their man-made appearance, upright form and movement contrasting with horizontal appearance of the sea. Both layouts will appear similar at this distance, with increased spacing between turbines on the right hand side of the array. 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. At night time, navigation lighting is likely to be visible from this location under reasonably good conditions. The viewpoint location is away from sources of lighting. The wind farm will introduce a number of steady offshore lights into the night time view.

Magnitude of effect: **Medium-low**

Impact: **Moderate**

Summary

6.8 The findings of the viewpoint assessment are summarised in **Table 6.1**.

Table 6.1 Viewpoint Assessment Summary

No.	Viewpoint	Distance from site boundary (km)	Sensitivity	Magnitude of effect	Significance of impact
2	Beach Road, Kirkton, St Cyrus	49.0	High	Negligible	None
5	Dodd Hill	43.9	Medium	Negligible	None
6	Braehead of Lunan	39.0	High	Low	Moderate-minor
7	Arbroath	30.8	High	Medium-low	**Moderate**
8	Carnoustie	31.7	High	Medium-low	**Moderate**
9	Dundee Law	44.9	Medium	Negligible	None
10	Tentsmuir	31.8	High	Medium-low	**Moderate**

No.	Viewpoint	Distance from site boundary (km)	Sensitivity	Magnitude of effect	Significance of impact
11	Strathkinness	33.1	High	Low-negligible	Minor
12	St Andrews, East Scores	28.2	High	Low	**Moderate**
13	Fife Ness, Lochaber Rock	15.5	High	High	**Major**
14	Anstruther Easter	21.8	High	High	**Major**
15	Largo Law	36.8	Medium	Negligible	None
16	Isle of May	16.3	High	High	**Major**
17	North Berwick Law	33.0	High	Low	**Moderate**
18	Dunbar	28.0	High	Medium	**Major-moderate**
19	West Steel	34.9	Medium	Low	Minor
20	Coldingham Moor	32.8	Medium	Medium-low	Minor
21	St Abb's Head	33.0	High	Medium-low	**Moderate**

Bold text denotes significant impacts

6.9 Significant impacts (*moderate* or greater) are predicted at 10 of the 18 viewpoints. All of these are high sensitivity viewpoints.

6.10 *Major* impacts are predicted at three of the 18 viewpoints. These are located between 15.5 and 21.8 km from the offshore development. Each of these has a close connection to the open sea, in which the wind turbines would appear in a central position, at distances where they would form a substantial feature in the view, and would be visible for most of the time.

6.11 *Major-moderate* impacts are predicted at one viewpoint, VP 18 Dunbar, located 28.0 km from the offshore development. This viewpoint has a broad view of the open sea, and the turbines would appear across a broad section of the horizon.

6.12 *Moderate* impacts are predicted at six viewpoints, located between 28.2 and 33.0 km from the offshore development. Moderate impacts have been predicted at locations with important connections to the open sea, but where the turbines will be more distant (eg VP 7 Arbroath, VP 21 St Abb's Head), and at locations where the turbines will be less central to the view (eg VP 12 St Andrews, VP 17 North Berwick Law).

6.13 *Minor* or *moderate-minor* impacts (not significant) are predicted at the three viewpoints, located between 32.8 and 39.0 km from the offshore development. These include locations of medium sensitivity where turbines will be visible (eg VP 20 Coldingham Moor), or high sensitivity locations at greater distances, where turbines will not be a substantial feature of the view (eg 6 Braehead of Lunan).

6.14 *No impact* is predicted at the remaining five viewpoints, which are located between 33.1 and 49.0 km from the offshore development. These are

generally distant locations, where the offshore development will only be a very small element in the view (eg VP 1 St Cyrus, VP 9 Dundee Law). No impacts are predicted at VP 11 Strathkinness (33.0 km), due to the limited visibility of the offshore development in this view.

Conclusions of the Viewpoint Assessment

6.15 In the analysis undertaken, significant impacts on viewers have been predicted at viewpoints located at up to around 33 km. Where these viewers have clear unobstructed seaward views in which the turbines would be clearly visible, they may experience up to *moderate* impacts on visual amenity. Similarly, such receptors within around 22 km of the offshore development may experience up to *major* impacts on visual amenity. 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.

VISUAL RECEPTORS

6.16 The following sections consider potential impacts on the receptors identified in **Section 3**. The conclusions are based on the findings of the viewpoint assessment, summarised in **Table 6.1**.

Residents

6.17 Twenty settlements are listed in **Section 3.57**, although there are a number of smaller settlements and individual residential properties within the ZTV. Based on the distances set out in **Section 6.15**, up to *major* impacts could be anticipated at coastal settlements within 22 km, including Crail, Anstruther and Pittenweem. Major impacts will only occur where the turbines are clearly visible from a property with an existing open sea view. In the dense East Neuk villages, this is likely to be limited to houses along the sea front, as well as some properties higher up on the raised beach. There are likely to be a number of individual properties with open sea views which will be affected.

6.18 Settlements within 33 km, where up to *moderate* impacts may be expected, include Arbroath, Carnoustie, St Andrews, St Monans, North Berwick, Dunbar, and Cockburnspath. Again, moderate impacts will only occur where the turbines are clearly visible from a property with an existing open sea view.

6.19 No significant impacts are predicted at more distant settlements or properties, though *minor* impacts may occur.

Recreational Receptors

6.20 A number of recreational locations are identified in **Section 3.58**, from which users may view the turbines. Again based on the findings of the viewpoint assessment, up to *major* impacts may be anticipated at locations within 25 km. This would include visitors to Fife Ness (VP 13, **Figure 22.19**), the Isle of May (VP 16, **Figure 22.22**), and the East Neuk villages (VP 14, **Figure 22.20**). Open views of the development are available from these locations, as noted in the viewpoint assessment. Other

recreational locations within 25 km include Cambo gardens, from where some views would be filtered by vegetation, though others are more open.

6.21 At up to 33 km, the viewpoint assessment indicates that up to *moderate* impacts may be predicted. Open coastal locations within this zone include clifftop sites such as Tantallon Castle, Fast Castle and St Abb's Head (VP 21, **Figure 22.27**), and beaches at Pease Bay, Tentsmuir (VP 10, **Figure 22.16**) and Carnoustie (VP 8, **Figure 22.14**).

6.22 Recreational boat users within the Firth of Forth and Firth of Tay, and in the area between, will view the offshore development at relatively close ranges, depending on their course. Boat users may view the turbines for prolonged periods. Up to *major* (significant) impacts are predicted.

Travelling Receptors

6.23 The potential for impacts on views experienced by users travelling on several key routes within the study area, listed at **Section 3.62**, has been assessed.

Walkers

6.24 Walkers following the Fife Coastal Path walk around the coast at Fife Ness, which is the closest point to the offshore development (VP 13, **Figure 22.19**). Walkers approaching Fife Ness from the south will have more or less continuous views of the turbines as they progress along the East Neuk Coast from Earlsferry, and passing VP 14 Easter Anstruther (**Figure 22.20**), 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, **Figure 22.18**) 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. Walkers on this route would also see the turbines from the Tentsmuir area (VP 10, **Figure 22.16**), between the Eden estuary and Tayport, at distances of 30 to 35 km. Up to *major* (significant) impacts are predicted.

6.25 Walkers on the John Muir Way follow the East Lothian Coast, and would pass through the ZTV of the offshore development for around 36 km between Eyebroughy and Dunglass, including from Dunbar (VP 18, **Figure 22.24**). 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) impacts are predicted.

6.26 Walkers on the Southern Upland Way will have no view of the offshore development 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 impacts are predicted, due to the short section of the route affected.

Cyclists

6.27 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, **Figure 22.17**), on the approach to St Andrews. It remains largely within the ZTV as it passes St Andrews, Leuchars and Tentsmuir (VP 10, **Figure 22.16**). It is outside the ZTV between Tayport and Dundee. Following the Angus coast, almost all the route is within the ZTV excepting two 5 km sections south of Lunan and at Montrose. It passes VP 6 Lunan (**Figure 22.12**) and VP 7 Arbroath (**Figure 22.13**). Up to *moderate* (significant) impacts are predicted.

6.28 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, **Figure 22.24**) and on to East Linton, it is almost entirely within the ZTV. Up to *moderate* (significant) impacts are predicted.

Rail Routes

6.29 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 Neart na Gaoithe, 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) impacts are predicted.

Roads and Tourist Drives

6.30 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 development 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) impacts are predicted.

6.31 Local and tourist traffic may turn off the A1 and follow the A198 north to North Berwick. Between Gullane and the A1, the route is largely within the ZTV, 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. Given the slightly higher sensitivity associated with tourists, up to *moderate-minor* (not significant) impacts are predicted.

6.32 The Fife Tourist Route includes the A917 which follows 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 turbines 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) impacts are predicted.

6.33 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 turbines would be oblique or perpendicular to the direction of travel, at distances of up to 30 km. Up to *minor* (not significant) impacts are predicted.

Ferry Routes and Cruise Ships

6.34 Visitors to the Isle of May access the island via a ferry from Anstruther harbour. The offshore development will be clearly visible at between 15 and 22 km to the east, over the whole course of this 20-minute trip. *Major* (significant) impacts are predicted.

6.35 Cruise ships entering and leaving the Firth of Forth may pass relatively close to the offshore development, depending on their precise route. Passengers may view the turbines as a feature of interest as they pass by, and would see the offshore development for a short period of their voyage. The presence of the turbines is unlikely to affect the overall experience of entering the Forth. Significant impacts are not predicted.

Aircraft Passengers

6.36 From aircraft passing over the Firth of Forth, passengers may see the offshore development in clear conditions. The turbines will form a passing feature in the view, and no significant impacts are predicted.

7 Cumulative Assessment

7.1 This section sets out the likely cumulative impacts of the proposed development on seascape and landscape resources 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 Neart na Gaoithe 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 impacts on the seascape, landscape and visual baseline, as set out in **Section 3**.

CUMULATIVE BASELINE

7.4 A total of 56 wind farms were identified within the 65 km radius study area, including operational and consented wind farms, and proposals at application and scoping stage. These are illustrated in **Figure 22.28**. Of these, the wind farms which are most likely to give rise to significant cumulative impacts were selected for inclusion in the detailed assessment. This scoping process included consideration of the scale and location of each proposal, and its distance from the offshore development (see **Section 2.66**).

7.5 Of the 56 wind farms, 38 are included within the wireline views. 18 wind farms are included in the cumulative ZTVs.

7.6 Those included in the detailed assessment broadly correspond to:

- wind farms located close to the coastline, and within 35 km of the offshore development;
- large wind farms (over 5 turbines of over 100m in height to tip), close to the coastline and up to 65 km from the offshore development; and
- other offshore developments at scoping stage.

7.7 Several wind farms were not included in the cumulative ZTVs due to the limited direct interaction, but were included in wirelines if they were relatively close to a viewpoint location.

7.8 Both Inch Cape and Round 3 Firth of Forth Phase 1 are currently at scoping stage. Round 3 Firth of Forth Phases 2 and 3 have not yet been developed in detail and could not be included, though their location is shown on **Figure 22.28**.

7.9 A list of all developments within the 65 km study area is provided in **Table 7.1** with reasons for their inclusion, or not, in the detailed assessment.

Table 7.1 Wind farms within 65 km

No. (see Fig. 22.28)	Name	Local Authority	Status	Distance from site (km)	No. of turbines	Included in wirelines (Fig. 22.42)	Included in the CZTV (Fig. 22.29)	Justification
Offshore wind farms								
-	Inch Cape	n/a	Scoping	10	187	**Yes**	**Yes**	Large offshore wind farm
-	Round 3 Firth of Forth Phase 1	n/a	Scoping	27	153	**Yes**	**Yes**	Large offshore wind farm
Onshore wind farms								
1	Kenly	Fife	Application Submitted	24	6	**Yes**	**Yes**	Coastal location, relatively close
2	Dunbar	East Lothian	Application Submitted	28	3	**Yes**	**Yes**	Coastal location
3	South Cassingray	Fife	Application Submitted	31	2	**Yes**	**Yes**	Relatively close
4	Corse Hill (Nether Kelly)	Angus	Application Submitted	31	7	**Yes**	**Yes**	Coastal location
5	Drone Hill	Scottish Borders	Under Construction	34	22	**Yes**	**Yes**	Coastal location
6	Penmanshiel	Scottish Borders	Application Submitted	34	19	**Yes**	**Yes**	Coastal location
7	Aikengall	Scottish Borders	Operational	36	16	**Yes**	**Yes**	Prominent location overlooking Firth of Forth
8	Blackburn	Scottish Borders	Application Submitted	36	6	**Yes**	**Yes**	Prominent location overlooking Firth of Forth
9	Aikengall II - Wester Dod	Scottish Borders	Application Submitted	37	22	**Yes**	**Yes**	Prominent location overlooking Firth of Forth
10	Kinblethmont	Angus	Scoping	37	5	No	No	Scoping proposal
11	Crystal Rig - Phase 1	Scottish Borders	Operational	38	20	**Yes**	**Yes**	Prominent location overlooking Firth of Forth

No. (see Fig. 22.28)	Name	Local Authority	Status	Distance from site (km)	No. of turbines	Included in wirelines (Fig. 22.42)	Included in the CZTV (Fig. 22.29)	Justification
12	Crystal Rig - Phase 2a	Scottish Borders	Operational	39	9	**Yes**	**Yes**	Prominent location overlooking Firth of Forth
13	Crystal Rig - Phase 2	Scottish Borders	Operational	39	56	**Yes**	**Yes**	Prominent location overlooking Firth of Forth
14	Crystal Rig - Phase 1a	Scottish Borders	Operational	39	5	**Yes**	**Yes**	Prominent location overlooking Firth of Forth
15	Brockholes	Scottish Borders	Consented	39	3	**Yes**	**Yes**	Prominent location overlooking Firth of Forth
16	Michelin Tyre Factory	Dundee	Operational	40	2	**Yes**	No	Industrial setting but close to VP location
17	North Mains of Cononsyth	Angus	Consented	40	1	**Yes**	No	Not coastal, but close to VP location
18	Port of Dundee	Dundee	Scoping	40	3	No	No	Scoping proposal
19	Hatton Mill	Angus	Scoping	40	1	No	No	Scoping proposal
20	Methil Docks	Fife	Operational	43	1	**Yes**	No	Industrial setting but close to VP location
21	Monashee	Scottish Borders	Scoping	43	17	No	No	Scoping proposal
22	Clatto Farm	Fife	Application Submitted	44	3	**Yes**	No	Not coastal, but close to VP location
23	Pitblatto Farm	Fife	Application Submitted	44	1	No	No	Not coastal, but close to VP location
24	Clatto Hill (Devon Wood)	Fife	Application Submitted	45	7	**Yes**	No	Not coastal, but close to VP location
25	Woodbank Farm	Fife	Application Submitted	46	1	**Yes**	No	Coastal but distant, close to VP location
26	Pickerton	Angus	Application Submitted	46	1	**Yes**	No	Not coastal, but close to VP location
27	Tealing Farm	Angus	Application Submitted	46	1	**Yes**	No	Not coastal, but close to VP location

No. (see Fig. 22.28)	Name	Local Authority	Status	Distance from site (km)	No. of turbines	Included in wirelines (Fig. 22.42)	Included in the CZTV (Fig. 22.29)	Justification
28	Black Hill	Scottish Borders	Operational	47	22	**Yes**	No	Distant, but potentially visible from VP
29	Letham Farm	Fife	Application Submitted	48	2	No	No	Distant small proposal
30	Earlseat Farm	Fife	Application Submitted	49	9	**Yes**	No	Distant, coastal, potentially visible from VP
31	Dundee Cold Stores Ltd	Dundee	Consented	49	1	**Yes**	No	Industrial setting, close to VP location
32	Frawney	Angus	Scoping	49	7	No	No	Scoping proposal
33	Fallago Rig	Scottish Borders	Under Construction	49	47	**Yes**	No	Distant, potentially visible from VP
34	Woodside, Aberlemno	Angus	Application Submitted	50	1	**Yes**	No	Distant, potentially visible from VP
35	Muir of Pert	Angus	Scoping	51	1	No	No	Scoping proposal
36	Strathmore Farm	Fife	Application Submitted	54	1	**Yes**	No	Distant, potentially visible from VP
37	Newburgh Community	Fife	Application Submitted	54	3	No	No	Distant, not near any VP
38	Scotston (Angus)	Angus	Consented	54	1	**Yes**	No	Distant, potentially visible from VP
39	Ark Hill	Angus	Consented	54	8	**Yes**	No	Distant, potentially visible from VP
40	Braeside of Lindores	Fife	Application Submitted	54	3	No	No	Distant, not near any VP
41	Pogbie	Scottish Borders	Consented	56	6	**Yes**	No	Distant, potentially visible from VP
42	Tullo	Aberdeenshire	Operational	56	8	**Yes**	**Yes**	Close to coast
43	Dun Law - Phase 2	Scottish Borders	Consented	57	35	**Yes**	No	Distant, potentially visible from VP

No. (see Fig. 22.28)	Name	Local Authority	Status	Distance from site (km)	No. of turbines	Included in wirelines (Fig. 22.42)	Included in the CZTV (Fig. 22.29)	Justification
44	Dun Law - Phase I	Scottish Borders	Operational	57	26	**Yes**	No	Distant, potentially visible from VP
45	Balrennie Farm	Angus	Application Submitted	57	1	No	No	Distant small proposal
46	Brigton Farm	Aberdeenshire	Application Submitted	57	1	No	No	Distant small proposal
47	Westfield	Fife	Application Submitted	60	5	No	No	Distant, not coastal
48	Little Raith	Fife	Under Construction	62	9	No	No	Distant, not coastal
49	St John's Hill	Aberdeenshire	Consented	62	9	**Yes**	**Yes**	Close to coast
50	Toddleburn-Oxton	Scottish Borders	Operational	62	12	**Yes**	No	Distant larger proposal
51	Mossmorran	Fife	Application Submitted	64	2	No	No	Distant small proposal
52	Fordoun Sawmill	Aberdeenshire	Application Submitted	63	1	No	No	Distant small proposal
53	Falahill	Scottish Borders	Application Submitted	65	3	No	No	Distance
54	Barmoor	Northumberland	Consented	65	6	No	No	Distance, separated by Border hills

Development patterns within 65 km

7.10 Trends can be identified relating to the pattern of developments across the 65 km study area with reference to **Figure 22.28** and **Table 7.1**. Existing and proposed developments are seen to be grouped by region, corresponding to hill ranges and areas of upland moorland, as well as developed coastal areas. The following areas and groupings have been identified:

- dispersed medium- and small-scale development across the coastal and lowland areas to the north of Montrose;
- small-scale wind farms and turbines through lowland areas of Angus between Strathmore and the coast;
- medium-scale wind farms in the Sidlaw Hills in Angus;
- small-scale and single turbine developments in and around the city of Dundee, often in association with industrial sites;
- limited small-scale proposals across the north western fringes of the Ochil Hills and north Fife;
- two relatively isolated proposals in east Fife;
- a number of medium- and small-scale wind farms across the southern parts of mid and west Fife;
- a single proposal within lowland East Lothian;
- a cluster of large-scale wind farms on the north-eastern fringes of the Lammermuir Hills;
- a more dispersed cluster of large- to medium-scale proposals at the eastern edge of the Lammermuirs, closer to the coast;
- large-scale wind farms and proposals across the central and western Lammermuirs; and
- a single proposal in Northumberland.

7.11 Small groups of overlaid ZTVs were generated to inform analysis of the interaction between the proposed development and the geographical groupings of developments within the study area. These small group ZTVs include all the wind farms shown in the CZTV (**Figure 22.30**). These wind farms were grouped as necessary to reflect the patterns identified above.

7.12 Small group ZTVs are shown in **Figures 22.35** to **22.41**. They show Neart na Gaoithe with the following cumulative wind farms:

- Inch Cape and Round 3 Firth of Forth Phase 1 offshore proposals;
- Tullo Wind Farm and St John's Hill Wind Farm in Aberdeenshire (group 1);
- Corse Hill Wind Farm in Angus;
- Kenly Wind Farm and South Cassingray in Fife (group 2);
- Dunbar Wind Farm in East Lothian;

- Crystal Rig, Aikengall and Aikengall II on the Lammermuir Hills (group 3); and
- Penmanshiel, Blackburn, Drone Hill and Brockholes on the Berwickshire coast (group 4).

ANALYSIS OF CUMULATIVE ZONE OF THEORETICAL VISIBILITY

7.13 The cumulative zone of theoretical visibility (CZTV) (**Figure 22.30**) indicates the theoretical extent of visual interactions between Neart na Gaoithe and the selected offshore and onshore wind farms, and illustrates the number of wind farms theoretically visible. This indicates that the greatest potential for cumulative visibility occurs offshore, between the East Lothian coast and Neart na Gaoithe, and onshore along the East Lothian coast. In these areas (pink on the Figure) Neart na Gaoithe and eight or more other wind farms are theoretically visible. This reflects the large clusters of existing and proposed wind farms across the northern Lammermuirs.

7.14 In many areas of East Lothian with visibility of Neart na Gaoithe, there is also theoretical visibility of one to seven other wind farms (yellow and orange on the Figure). This is mainly along the Lammermuir fringe, the coastal strip, and the coastal plain around East Linton. Across east Fife, Neart na Gaoithe will be visible with between one and seven other proposals. Similar numbers of wind farms are theoretically visible from lowland Angus and Dundee, extending more intermittently north along the coast. Greatest levels of theoretical visibility are located along the coast between St Andrews Bay and Arbroath.

Offshore Wind Farms

7.15 The offshore CZTV (**Figure 22.35**) shows that all three proposed wind farms are theoretically visible from sections of the Angus and south Aberdeenshire coast. The coast between Carnoustie and Lang Craig has theoretical visibility of all wind farms, and is within 35 km of Neart na Gaoithe. Theoretical visibility of all wind farms also extends to the tip of Fife Ness, but no further inland.

7.16 Areas where Neart na Gaoithe and Inch Cape will be theoretically visible extend further west along the Firth of Tay, including parts of Dundee, Tentsmuir, and the northern part of east Fife. Both these wind farms are also theoretically visible from smaller areas of the southeast Fife coast, the Isle of May, and from a small part of East Lothian centred on Tantallon Castle.

Onshore Wind Farms

7.17 **Figure 22.36** indicates that theoretical visibility of Neart na Gaoithe and the group 1 wind farms is limited to small areas of Angus and south Aberdeenshire, most of which are over 50 km from Neart na Gaoithe. There is no theoretical cumulative visibility from within 30 km of Neart na Gaoithe.

7.18 **Figure 22.37** indicates that theoretical visibility of Neart na Gaoithe and Corse Hill, a seven-turbine proposal on the Angus coast, is concentrated

within 10 km of Corse Hill, and extends around Tentsmuir, St Andrews Bay to the north coast of east Fife, including Fife Ness.

7.19 **Figure 22.38** indicates that theoretical visibility of Neart na Gaoithe and the group 2 wind farms in Fife extends across much of east Fife, extending north across Tentsmuir and the Angus coast between Dundee and Arbroath. To the south there are areas of theoretical cumulative visibility in northern East Lothian.

7.20 **Figure 22.39** indicates that theoretical visibility of Neart na Gaoithe and the proposed Dunbar Wind Farm would occur along the East Lothian coast between Tantallon and Wheat Stack, extending up to 5-10 km inland. There is theoretical cumulative visibility along the southern East Neuk coast in Fife.

7.21 **Figure 22.40** shows theoretical visibility of Neart na Gaoithe and a cluster of wind farms on the Lammermuir Hills. These existing and proposed wind farms are visible from areas of the East Lothian coastal plain, and cumulative theoretical visibility is indicated intermittently across much of this area.

7.22 **Figure 22.41** shows theoretical visibility of Neart na Gaoithe and a second cluster of proposed wind farms further east on the coastal edge of the Lammermuirs. Cumulative visibility is indicated along most of the coastal strip between Tantallon and Cockburnspath, and across a small area of the Lammermuir fringe.

CUMULATIVE IMPACTS ON SEASCAPE AND LANDSCAPE RESOURCES

Cumulative Impacts on Regional Seascape Units

7.23 Cumulative impacts on regional seascape units are described and assessed in **Table 7.2**. Seascape character is considered to be more sensitive to offshore wind farms than to onshore wind farms at similar distances. The CZTV indicates no theoretical cumulative visibility across seascape units 10, 14, 16 and 18 to 20. Regional seascape units 8 and 17 have proposed onshore wind farms within their boundaries.

Cumulative Assessment of Impacts on Level 2 LCT

7.24 Neart na Gaoithe is located offshore, and the landscape impact assessment has not identified any significant impacts upon landscape character areas.

7.25 Landscape character types within the study area have been reviewed, and coastal characteristics have been identified (**Table 3.2**). This has led to an assessment of their sensitivity to offshore development (**Table 5.2**). While many areas have views to the coast, the changes to the inherent character arising from the offshore development are limited. A *low-negligible* magnitude of effect was predicted upon four LCTs, and *negligible* magnitude of effect upon all others.

7.26 Cumulative impacts on the landscape are often addressed by considering whether an area will become a 'wind farm landscape' where wind farms are a key characteristic. Due to its offshore location, there is no potential for the

construction of Neart na Gaoithe to transform any LCT into a 'wind farm landscape', since no further turbines will be within the LCT.

7.27 Given the low magnitude of effect 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.

7.28 Visual impacts may occur at locations across these areas, and these are discussed below. Any impacts on views will not extend to impacts upon the underlying landscape character.

Assessment of Cumulative Impacts on Landscape Designations

7.29 As with LCTs, changes to the character of landscape designations arising from the offshore development were found to be limited in the stand-alone assessment. A *low* magnitude of effect was predicted upon three GDLs. Locally *medium* magnitude of effect was predicted upon part of the East Fife AGLV, and *low* or *low-negligible* magnitude of effect upon four other coastal AGLVs.

7.30 Given the low magnitude of effect 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 the inland landscape designations has been undertaken.

7.31 On this basis the following landscape designations are considered in the cumulative assessment:

- St Andrews Links GDL;
- Cambo GDL;
- Tyninghame GDL;
- Broxmouth Park GDL;
- East Fife AGLV;
- Longniddry to North Berwick Coastline AGLV;
- North Berwick to Dunbar Coastline AGLV;
- Barns Ness Coastline AGLV;
- Thorntonloch Coastline AGLV; and
- Berwickshire Coast AGLV.

Table 7.2 Assessment of Cumulative Impacts on Regional Seascape Units

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
SA4: Montrose Representative viewpoints: 2 St Cyrus	High	*Offshore* Figure 22.35 indicates theoretical visibility of all three projects along the coast, although Neart na Gaoithe will not be visible from Montrose. *Onshore* Figure 22.36 indicates some theoretical visibility of group 1 wind farms from the links north of Montrose, but not from St Cyrus Bay.	Inch Cape would be a minimum of 20 km from this area, and Round 3 over 30 km. Neart na Gaoithe would at least 45 km south. Neart na Gaoithe would be a relatively small element in the view behind and beside Inch Cape, and is unlikely to result in cumulative changes to the perception of the seascape. Tullo Wind Farm to the north is visible from parts of this area. The addition of Neart na Gaoithe to the south is unlikely to result in changes to the perception of the seascape. Magnitude of effect: **Negligible**	**None**
SA5: Long Craig Representative viewpoints: n/a	Medium	*Offshore* Figure 22.35 indicates theoretical visibility of all three projects along the coast of this area. *Onshore* Figure 22.36 indicates theoretical visibility of group 1 wind farms from the headland.	Inch Cape would be less than 20 km southeast, and Round 3 over 30 km east. Tullo wind farm is 15 km north. The presence of Neart na Gaoithe, around 40 km south, would be a relatively minor element in the view, and is unlikely to result in changes to the perception of the seascape. Magnitude of effect: **Negligible**	**None**
SA6: Lunan Bay Representative viewpoints: 6 Braehead of Lunan	High	*Offshore* Figure 22.35 indicates theoretical visibility of all three projects from the north of this area, although Neart na Gaoithe will not be visible from the southern part. *Onshore* Figure 22.36 indicates very limited theoretical visibility of group 1 wind farms. Figure 22.37 indicates theoretical visibility of the Corse Hill proposal from the north of the area.	Inch Cape would be less than 20 km southeast, and Round 3 over 30 km east. Corse Hill is over 15 km to the south-west along the coast. The presence of Neart na Gaoithe, around 40 km south, would be a relatively minor element in the view, and is unlikely to result in changes to the perception of the seascape. Magnitude of effect: **Negligible**	**None**

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
SA7: Lang Craig to the Deil's Head Representative viewpoints: n/a	High	*Offshore* Figure 22.35 indicates theoretical visibility of all three projects across this area. *Onshore* The paired CZTVs indicate that there will be little visibility of nearby onshore wind farms, except in the area around Arbroath.	Inch Cape would be seen at 15-20 km southeast, with Round 3 some 35 km east, and Neart na Gaoithe 30 km south-southeast. Turbines will be visible across the marine horizon. Although Neart na Gaoithe is distant, the contribution of this wind farm, considering the likely presence of Round 3 and Inch Cape, may slightly affect the perception of the currently undeveloped seaward character. The proposed Corse Hill Wind Farm will be visible at 5-10 km to the south, but is unlikely to have significant effect on the seascape character, and cumulative effects are likely to be limited. Magnitude of cumulative effect: **Low**	**Moderate-minor**
SA8: Arbroath to Monifieth Representative viewpoints: 7 Arbroath 8 Carnoustie	Medium	*Offshore* Figure 22.35 indicates theoretical visibility of all three proposals from Barry Links to Arbroath. Between Barry Links and Dundee Inch Cape and Neart na Gaoithe are theoretically visible. *Onshore* The paired CZTVs indicate that Corse Hill and Kenly Wind Farms will be visible along most of this coastline.	Inch Cape lies between 20 and 35 km east, with Round 3 40 km east of Arbroath. Round 3 is unlikely to be clearly visible behind Inch Cape. Neart na Gaoithe will be between 30 and 35 km south east. Turbines will be seen across the horizon of the open sea. Although Neart na Gaoithe is more distant, the effect of this wind farm, considering the likely presence of Round 3 and Inch Cape, may slightly affect the perception of the currently undeveloped seaward character. The proposed Corse Hill Wind Farm lies at the centre of this area, close to the coastal edge. The seven turbines will be visible along the coast. There may also be views of other proposed wind farms inland. The additional indirect effect of Neart na Gaoithe, assuming the likely direct effects associated with Corse Hill, are likely to be localised. Magnitude of cumulative effect: **Low**	**Moderate-minor**
SA9: Dundee Representative viewpoints: 9 Dundee Law	Low	*Offshore* Figure 22.35 indicates theoretical visibility of Inch Cape and Neart na Gaoithe from parts of Dundee. *Onshore* Figure 22.30 shows limited theoretical cumulative visibility across Dundee.	Other wind farms in the city will also be seen, though these are in the context of industrial infrastructure. The urban character of this seascape area is unlikely to further affected by the addition of Neart na Gaoithe. Magnitude of effect: **Negligible**	**None**

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
SA10: Inner Firth of Tay Representative viewpoints: n/a	Low	*Offshore* Figure 22.35 indicates theoretical visibility of Inch Cape and Neart na Gaoithe from the mouth of the Firth only. *Onshore* The paired CZTVs indicate very limited cumulative visibility from this area, due to the limited theoretical visibility of Neart na Gaoithe.	Due to the very limited visibility of Neart na Gaoithe from this area, there is no potential for effects on the perception of seascape character. Magnitude of effect: **Negligible**	**None**
SA11: St Andrews Bay Representative viewpoints: 10 Tentsmuir	High	*Offshore* Figure 22.35 indicates theoretical visibility of Inch Cape and Neart na Gaoithe across this area. *Onshore* The paired CZTVs indicate widespread visibility of Corse Hill to the north, and Cassingray and Kenly to the south in Fife.	Inch Cape will be seen around 30 km east-northeast, with Neart na Gaoithe a similar distance to east-southeast. From some locations, Neart na Gaoithe will be partially hidden behind the Fife peninsula. Considering the likely presence of Inch Cape, the construction of Neart na Gaoithe will increase the presence of offshore development, which is likely to be noticeable in this open seascape. Small onshore wind farms will be visible to the northeast and southeast, but will have little effect on this seascape. The addition of Neart na Gaoithe is unlikely to have cumulative impacts with the onshore wind farms. Magnitude of effect: **Low**	**Moderate-minor**
SA12: St Andrews to Fife Ness Representative viewpoints: 12 East Scores	High	*Offshore* Figure 22.35 indicates theoretical visibility of Inch Cape and Neart na Gaoithe across this area. In addition, Round 3 would be visible from the eastern tip of Fife Ness. *Onshore* The paired CZTVs indicate some cumulative visibility with Kenly Wind Farm located inland, and more distant visibility of Corse Hill in Angus.	Inch Cape would be visible around 30 km to northeast, and Round 3 may be glimpsed behind it in clear conditions. Neart na Gaoithe would be located 15-20 km east. Considering the likely presence of the other wind farms, the addition of Neart na Gaoithe would increase the presence of turbines within the seascape. Kenly Wind Farm will be visible at relatively close range, though inland views are likely to be partially filtered by vegetation. Corse Hill is unlikely to have any effect on character at this distance. The addition of Neart na Gaoithe would increase the presence of turbines within this coastal area. Magnitude of change: **Medium-low**	**Moderate**

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
SA13: East Neuk of Fife Representative viewpoints: 13 Fife Ness 14 Anstruther 16 Isle of May	High	*Offshore* Figure 22.35 indicates theoretical visibility if Inch Cape and Neart na Gaoithe across eastern parts of this area, including the Isle of May. West of Anstruther, only Neart na Gaoithe will be theoretically visible. *Onshore* The paired CZTVs indicate theoretical visibility of the group 2 wind farms in Fife, and distant views of wind farms in Lothian.	Inch Cape would be partially visible in oblique views along the coast, with much of the wind farm hidden behind Fife Ness. Considering the likely presence of Inch Cape, the construction of Neart na Gaoithe would greatly increase the limited presence of turbines in this seascape. In most places however, only the presence of Neart na Gaoithe would be apparent. The presence of Kenly and other wind farms inland is unlikely to affect this character area, and those in Lothian are too distant. Neart na Gaoithe is unlikely to have cumulative effects on the seascape character. Magnitude of effect: **Medium-low**	**Moderate**
SA14: Kirkcaldy and Largo Bay Representative viewpoints: n/a	Medium	*Offshore* Figure 22.35 indicates that no other offshore proposals are theoretically visible. *Onshore* Figure 22.38 indicates cumulative visibility of Neart na Gaoithe with Cassingray and Kenly in Fife, in the area west of Leven.	There would be distant views of Neart na Gaoithe, 40 km to the east. At this distance, the offshore development is unlikely to impact upon the character of this area, even considering the presence of all other wind farms proposed in the area. Magnitude of effect: **Negligible**	**None**
SA16: Edinburgh to Gullane Representative viewpoints: n/a	Medium	*Offshore* Figure 22.35 indicates that no other offshore proposals are theoretically visible. *Onshore* As noted in the stand alone assessment, there is very limited theoretical visibility of Neart na Gaoithe from this area, although the CZTV indicates that a number of other onshore wind farms are visible.	Views of Neart na Gaoithe will be very limited, and the potential for cumulative effects on the character of the seascape is remote. Magnitude of effect: **Negligible**	**None**

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
SA17: Eyebroughy to Torness Point Representative viewpoints: 17 North Berwick Law 18 Dunbar	Medium	*Offshore* Figure 22.35 indicates theoretical visibility of Inch Cape and Neart na Gaoithe from the headlands only, with other areas being beyond 50 km of Inch Cape. *Onshore* Figure 22.38 indicates theoretical visibility of group 2 wind farms in Fife from the northern part of this area. Figure 22.39 indicates extensive cumulative visibility of the Dunbar proposal across most of the area. Figure 22.40 and 22.41 indicate theoretical views of wind farms on the Lammermuirs from most of the area.	Inch Cape would be visible on clear days, 50 km or more to the northeast. Neart na Gaoithe would be seen in front, some 25-30 km away. Considering the likely presence of Inch Cape, the effect on seascape character would be minimal, and the presence of Neart na Gaoithe is unlikely to give rise to cumulative effects on seascape character. A number of wind farms on the Lammermuirs will be theoretically visible from this area, though being located in the hills they are unlikely to affect seascape character. The proposed Dunbar Wind Farm is likely to have localised effects on seascape character. The addition of Neart na Gaoithe at some distance offshore is likely to increase the visual presence of wind turbines, but with limited change to the seascape character. Magnitude of change: **Low**	**Minor-none**
SA18: Torness Point to St Abb's Head Representative viewpoints: 20 Coldingham Moor	Medium	*Offshore* Figure 22.35 indicates theoretical visibility of Neart na Gaoithe only across this area. *Onshore* The CZTVs indicate cumulative visibility of Dunbar Wind Farm and other wind farms on the Lammermuirs, from most of this area.	A number of wind farms on the Lammermuirs will be theoretically visible from this area. The wind farms located closer to the coast, Drone Hill and Penmanshiel, are likely to have more significant effects on the character of the coastal edge. The proposed Dunbar Wind Farm is likely to have some effects on seascape character. The addition of Neart na Gaoithe, around 30 km north, is likely to increase the visual presence of wind turbines, but with limited change to the seascape character. Magnitude of change: **Low**	**Minor-none**
SA19: St Abb's Head to Eyemouth Representative viewpoints: 21 St Abb's Head	High	*Offshore* Figure 22.35 indicates theoretical visibility of Neart na Gaoithe only across this area. *Onshore* The paired CZTVs indicate relatively little cumulative theoretical visibility from this area, with group 4 wind farms potentially visible from Eyemouth.	Neart na Gaoithe will be visible at around 35 km north, but with limited cumulative visibility there will be no significant additional effects on character. Magnitude of change: **Negligible**	**None**

Regional Seascape Unit	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
SA20: Eyemouth to Berwick upon Tweed Representative viewpoints: n/a	Medium	*Offshore* Figure 22.35 indicates theoretical visibility of Neart na Gaoithe only across this area. *Onshore* Figure 22.41 indicates theoretical visibility of group 4 wind farms from a small area south of Eyemouth, though cumulative visibility is otherwise limited.	Proposed and existing wind farms are unlikely to have significant effects on this seascape character area, and the addition of Neart na Gaoithe is therefore unlikely to give rise to cumulative change in character, at upwards of 40 km to the north. Magnitude of change: **Negligible**	**None**

Table 7.3 Assessment of Cumulative Impacts on Landscape Designations

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
St Andrews Links GDL	High	*Offshore* Figure 22.35 indicates theoretical visibility of Inch Cape and Neart na Gaoithe. *Onshore* The paired CZTVs indicate visibility of Corse Hill to the north, and Cassingray and Kenly to the south in Fife.	The cumulative wind farms are unlikely to have significant effects on this landscape, and the change arising from the introduction of Neart na Gaoithe is likely to be limited. Magnitude of effect: **Negligible**	**None**
Cambo GDL	High	*Offshore* Figure 22.35 indicates theoretical visibility of Inch Cape and Neart na Gaoithe. *Onshore* Figure 22.38 indicates that Kenly Wind Farm will also be theoretically visible.	Views of all wind farms are likely to be filtered by mature trees around this area. Kenly is located relatively close to Cambo. Glimpsed views of Neart na Gaoithe are unlikely to give rise to cumulative changes in landscape character. Magnitude of effect: **Negligible**	**None**

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
Tyninghame GDL	High	*Offshore* Figure 22.35 indicates that no other offshore proposals are theoretically visible. *Onshore* The CZTVs indicate theoretical visibility of several other proposed and existing wind farms on the Lammermuirs and at Dunbar.	A number of wind farms on the Lammermuirs will be theoretically visible from this area, though being located in the hills they are unlikely to affect the lowland character of these parks. Visibility generally will be reduced due to the mature trees which surround the area. Glimpsed views of Neart na Gaoithe at 30 km offshore are unlikely to give rise to cumulative change to the designed landscape. Magnitude of effect: **Negligible**	**None**
Broxmouth Park GDL	High	*Offshore* Figure 22.35 indicates that no other offshore proposals are theoretically visible. *Onshore* The CZTVs indicate theoretical visibility of several other proposed and existing wind farms on the Lammermuirs and at Dunbar.	A number of wind farms on the Lammermuirs will be theoretically visible from this area, though being located in the hills they are unlikely to affect the coastal character of this parkland. Visibility generally will be reduced due to the mature trees which surround the area. Glimpsed views of Neart na Gaoithe at 30 km offshore are unlikely to give rise to cumulative change to the designed landscape. Magnitude of effect: **Negligible**	**None**
East Fife AGLV Representative viewpoints: 10 Tentsmuir 11 Strathkinness 13 Fife Ness 14 Easter Anstruther 15 Largo Law	Medium	*Offshore* Figure 22.35 indicates that Inch Cape and Neart na Gaoithe will be theoretically visible from across Tentsmuir and the northern part of the East Neuk. Round 3 will be theoretically visible from the tip of Fife Ness. *Onshore* Figure 22.38 indicates cumulative visibility of Kenly and Cassingray across much of the East Neuk and north to Tentsmuir.	Inch Cape would be visible at over 30 km to northeast from coastal areas,, and Round 3 may be glimpsed behind it in clear conditions. Neart na Gaoithe would be located 15-20 km east. Considering the likely presence of the other wind farms, the construction of Neart na Gaoithe would increase the presence of turbines in views, but is unlikely to give rise to further effects on landscape character. Kenly and Cassingray would have localised effects on landscape character. The addition of Neart na Gaoithe offshore is unlikely to give rise to changes in landscape character. Actual visibility of onshore and offshore wind farms would be reduced by woodland and other vegetation across the AGLV. Across the majority of the large AGLV, there would be no cumulative effect. Magnitude of effect: Locally **medium-low** at Fife Ness, **low** or **negligible** elsewhere	**Minor-none**

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
Longniddry to North Berwick Coast AGLV Representative viewpoints: 10 Tentsmuir	Medium	*Offshore* Figure 22.35 indicates that no other offshore proposals are theoretically visible. *Onshore* There is very limited theoretical visibility of Neart na Gaoithe from this area, although the CZTV indicates that a number of other onshore wind farms are visible.	Given the lack of visibility of Neart na Gaoithe over the majority of this area, it is unlikely that, assuming the presence of other onshore wind farms, the addition of the offshore development would give rise to changes in landscape character. Magnitude of effect: **Negligible**	**None**
North Berwick to Dunbar Coast AGLV Representative viewpoints: 18 Dunbar	Medium	*Offshore* Figure 22.35 indicates cumulative visibility of Inch Cape and Neart na Gaoithe from headlands only. *Onshore* Figure 22.38 indicates theoretical visibility of group 2 wind farms in Fife from the northern part of this area. Figures 22.39 to 22.41 indicate extensive cumulative visibility of the Dunbar and Lammermuir wind farms across the southern part of the area.	Inch Cape would be visible on clear days, 50 km or more to the northeast. Neart na Gaoithe would be seen in front, some 25-30 km away. Considering the likely presence of Inch Cape, the effect on seascape character would be minimal, and the cumulative effects of Neart na Gaoithe are unlikely to give rise to changes in perceived character. A number of wind farms on the Lammermuirs, and the proposed Dunbar Wind Farm, will be theoretically visible from this area, though being located in the hills they are unlikely to affect the character of this coastal edge. The addition of Neart na Gaoithe at some distance offshore is likely to increase the visual presence of wind turbines, but with limited change to underlying character. Magnitude of effect: **Low**	**Minor-none**
Barns Ness Coast AGLV Representative viewpoints: n/a	Medium	*Offshore* Figure 22.35 indicates that no other offshore proposals are theoretically visible. *Onshore* The Dunbar proposal is within this area and would be theoretically visible, as would wind farms on the Lammermuir Hills (Figure 22.40 and 22.41).	The Dunbar proposal would have localised significant effects on landscape character. The wind farms on the Lammermuirs are unlikely to affect the character of this AGLV. The addition of Neart na Gaoithe to this baseline, 30 km to the north, may increase the presence of turbines in views, but is unlikely to lead to changes in underlying character. Magnitude of effect: **Low**	**Minor-none**

Landscape Designation	Sensitivity	Theoretical visibility	Changes and operational effects (refer to criteria in Table 2.7)	Cumulative impact (refer to Table 2.9)
Thorntonloch Coast AGLV Representative viewpoints: n/a	Medium	*Offshore* Figure 22.35 indicates that no other offshore proposals are theoretically visible. *Onshore* The CZTVs indicate that the wind farms on the Lammermuirs would be visible from this area, as would the proposed Dunbar Wind Farm.	Views of wind turbines on the Lammermuirs or at Dunbar are unlikely to affect the perception of the character of this small area of mainly foreshore. The addition of Neart na Gaoithe at 30 km offshore is likely to increase the visual presence of wind turbines, but with limited change to character of the AGLV. Magnitude of effect: **Low**	**Minor-none**
Berwickshire Coast AGLV Representative viewpoints: 20 Coldingham Moor 21 St Abb's Head	Medium	*Offshore* Figure 22.35 indicates that no other offshore proposals are theoretically visible. *Onshore* Figures 22.40 and 22.41 indicate theoretical visibility of the Lammermuir wind farms and Neart na Gaoithe across the northern part of the area.	A number of wind farms on the Lammermuirs will be theoretically visible from this area. The wind farms located closer to the coast, Drone Hill and Penmanshiel, are likely to have potentially significant effects on the character of the AGLV landscape. The addition of Neart na Gaoithe, around 30 km north, is likely to increase the visual presence of wind turbines, but with limited change to the seascape character. Magnitude of effect: **Low**	**Minor-none**

CUMULATIVE IMPACTS ON VISUAL AMENITY

Viewpoint Assessment

7.32 The cumulative viewpoint assessment considers the effects on views available from the 18 representative viewpoints identified in **Table 3.5**. Cumulative wireline visualisations have been generated for each viewpoint, showing existing and proposed wind farms as noted in **Table 7.1**. Cumulative wirelines are included in **Figures 22.43** to **22.60**. Cumulative impacts on views from each viewpoint are described and assessed in **Table 7.4**.

Table 7.4 Cumulative Viewpoint Assessment

Viewpoint	Theoretical visibility of Neart na Gaoithe and other developments	Magnitude of effect (refer to criteria in Table 2.8)	Cumulative impact (see Table 2.9)
2 Beach Road, Kirkton, St Cyrus Sensitivity: High	*Offshore* Inch Cape visible 25 km south, with Neart na Gaoithe appearing behind and immediately to the south, at 50 km much lower on the horizon. Round 3 visible 30 km southeast. *Onshore* Wind farms on the Lammermuir hills are theoretically visible but at over 90 km are unlikely to be perceived.	Neart na Gaoithe is very distant from this viewpoint, and is likely to be much less visible than other offshore wind farms. Magnitude of effect: Low-negligible	**Minor**
5 Dodd Hill Sensitivity: Medium	*Offshore* Inch Cape visible 35 km east with Round 3 appearing behind (55 km) to the east. Neart na Gaoithe appears as a separate group to the south, at 45 km set lower on the horizon than Inch Cape but larger than Round 3. *Onshore* Corse Hill Wind Farm lies 15 km east below the horizon, in the foreground to Inch Cape and Round 3. The operational Michelin Tyre Factory is visible to the south and further wind farms inland to the southwest and west are theoretically visible.	Neart na Gaoithe is distant but forms a further cluster of off-shore turbines low on the horizon. Magnitude of effect: Low	**Minor**
6 Braehead of Lunan Sensitivity: High	*Offshore* Inch Cape visible 20 km southeast and Round 3 visible immediately to the east, at 35 km extending over a large portion of the horizon formed by the open sea. Neart na Gaoithe is visible as a separate group 40 km south-southeast. *Onshore* Corse Hill Wind Farm lies 15 km south set above the horizon. Two further dispersed groups of wind turbines to the south are theoretically visible, at distances of over 40 km. Wind farms on the Lammermuir Hills are theoretically visible but at over 70 km are unlikely to be perceived.	Neart na Gaoithe is distant but forms a further discrete cluster of off-shore turbines that encroaches on the remaining open horizon of the sea. Magnitude of effect: Low	**Moderate-minor**

Viewpoint	Theoretical visibility of Neart na Gaoithe and other developments	Magnitude of effect (refer to criteria in Table 2.8)	Cumulative impact (see Table 2.9)
7 Arbroath Sensitivity: High	*Offshore* Inch Cape visible 20 km east, with Round 3 visible set behind and immediately to the north, at 40 km much lower on the horizon. Neart na Gaoithe is visible as a separate group 30 km to the southeast. *Onshore* Corse Hill Wind Farm lies 5 km southwest visible above the horizon. Further small groups of wind turbines to the south are theoretically visible, but barely perceptible at distances of over 30 km. Wind farms on the Lammermuir Hills are theoretically visible but at over 65 km are unlikely to be perceived.	Neart na Gaoithe is distant but is set apart from the discrete group formed by Inch Cape and Round 3. Neart na Gaoithe will occupy part of the remaining open horizon of the sea. Magnitude of effect: Low	**Moderate-minor**
8 Carnoustie Sensitivity: High	*Offshore* Inch Cape visible 25 km east, with Round 3 visible set behind and barely perceptible immediately to the left, at 45 km. Neart na Gaoithe is visible as a separate group 30 km southeast lower on the horizon. *Onshore* Corse Hill Wind Farm lies 5 km northeast visible above the horizon. The blades of Michelin Tyre Factory are visible10 km west and Kenly Wind Farm lies over 20km to the southwest. Wind farms on the Lammermuir hills are theoretically visible but at over 60 km are unlikely to be perceived.	Neart na Gaoithe is visible as a separate wind farm from this viewpoint, and will occupy part of the remaining open horizon of the sea. Magnitude of effect: Low	**Moderate-minor**
9 Dundee Law Sensitivity: Medium	*Offshore* Inch Cape visible 45 km east, with Round 3 visible set behind and barely perceptible immediately to the north, at 60 km. Neart na Gaoithe is visible as a separate group 45 km southeast. *Onshore* Corse Hill Wind Farm lies 15 km east above the horizon, set in front of Inch Cape and Round 3. The operational Michelin Tyre Factory turbines are visible 5 km east, set largely below the horizon within an industrial area.	Neart na Gaoithe is visible as a separate wind farm viewed across the mouth of the Firth of Tay. Neart na Gaoithe will extend the presence of offshore turbines across horizon, though they will be partially screened by land. Magnitude of effect: Low	**Minor**

Viewpoint	Theoretical visibility of Neart na Gaoithe and other developments	Magnitude of effect (refer to criteria in Table 2.8)	Cumulative impact (see Table 2.9)
10 Tentsmuir Sensitivity: High	*Offshore* Inch Cape visible 45 km east. Neart na Gaoithe is visible as a separate group 45 km southeast. *Onshore* Kenly (18km) and South Cassingray Wind Farm (12km), will be visible across Fife to the south and Corse Hill within Angus to the northeast.	Neart na Gaoithe will introduce a further large group of turbines across a previously open area of sea horizon, increasing the presence of turbines in this view. Magnitude of effect: Medium	**Major-moderate**
11 Strathkinness Sensitivity: High	*Offshore* Neart na Gaoithe visible at 30 km to the southeast. Inch Cape visible 35 km northeast within the open sea. The tips of Round 3 turbines are theoretically visible at 55 km, behind Inch Cape. *Onshore* A number of distant wind farms are visible across Angus to the north, with the most visible being Corse Hill.	Limited visibility of Neart na Gaoithe, which is partially screened by land to the southeast. The construction of Neart na Gaoithe, considering the likely presence of Inch Cape, will slightly increase the presence of offshore turbines in the view. Magnitude of effect: Low	**Moderate-minor**
12 St Andrews, East Scores Sensitivity: High	*Offshore* Neart na Gaoithe partially visible at 28 km to the east, the southern turbines hidden by Fife Ness. Inch Cape visible 33 km northeast within the open sea. *Onshore* Only distant wind farms in Angus are theoretically visible, though Kenly (6 km) may be visible from nearby locations depending on local screening.	Inch Cape will be a notable feature in this view. Neart na Gaoithe will increase the presence of offshore turbines in the view, though they will be partially screened by land. Magnitude of effect: Medium	**Major-moderate**
13 Fife Ness, Lochaber Rock Sensitivity: High	*Offshore* Neart na Gaoithe visible 15.5 km east, with Inch Cape seen 25 km to north east. The tips of Round 3 turbines are theoretically visible at 45 km, behind Inch Cape. *Onshore* A number of wind farms are visible, but all are distant, in Lothian to the south and in Angus to the north.	The construction of Neart na Gaoithe will greatly increase the presence of offshore turbines in this view, introducing turbines across a previously open area of sea horizon. Magnitude of effect: High	**Major**

Viewpoint	Theoretical visibility of Neart na Gaoithe and other developments	Magnitude of effect (refer to criteria in Table 2.8)	Cumulative impact (see Table 2.9)
14 Anstruther Easter Sensitivity: High	*Offshore* Neart na Gaoithe visible 22 km east, with Inch Cape partially hidden by the headland of Fife Ness. At 30 km Inch Cape is lower on the horizon. Round 3 not visible. *Onshore* Long distance views to wind farms on the Lammermuirs, 35 km or more to the south, but no closer wind farms visible.	The construction of Neart na Gaoithe will greatly increase the limited presence of offshore turbines in this view, introducing further turbines across a previously open area of sea horizon. Magnitude of effect: Medium-high	**Major-moderate**
15 Largo Law Sensitivity: Medium	*Offshore* Neart na Gaoithe visible 37 km east, with Inch Cape visible at 45 km northeast. Round 3 theoretically visible at 65 km, largely behind Inch Cape. *Onshore* Distant views of a number of wind farms. Closer at hand are the Methil turbine (7 km) and Earlseat Farm (10 km) to the southwest, and Kenly (12 km, seen in front of Inch Cape) and South Cassingray (5 km) to the east.	Even with the likely presence of the other wind farms, there would be relatively limited presence of turbines in this panoramic view. The sea is a limited part of this view. The construction of Neart na Gaoithe would slightly increase the limited presence of offshore turbines in the view. Magnitude of effect: Low	**Minor**
16 Isle of May Sensitivity: High	*Offshore* Neart na Gaoithe seen 16 km northeast, with Inch Cape (33 km) seen immediately to the north. The tips of Round 3 turbines are theoretically visible at 50 km behind. Together, the offshore turbines occupy over 50° of the open sea view. *Onshore* Kenly in Fife (15 km), and proposals in Angus would be visible. Turbines along the Lammermuir ridge would be visible at upwards of 30 km.	Inch Cape would have some presence in views, though the onshore wind farms would have a lesser impact. The construction of Neart na Gaoithe would introduce turbines across an area of previously open sea, next to Inch Cape, increasing the presence of offshore turbines in the view. Magnitude of effect: High	**Major**
17 North Berwick Law Sensitivity: High	*Offshore* Neart na Gaoithe seen 33 km northeast, with Inch Cape (55 km) seen to the north. The tips of Round 3 turbines are theoretically visible at 65 km, behind Neart na Gaoithe. *Onshore* To the south, a range of wind farms will be visible on the skyline of the Lammermuirs, from Drone Hill in the east, through Aikengall, Crystal Rig and Fallago Rig to Dun Law. Some proposals in Fife also visible.	Though many developments would be visible, these are distant and the view is not greatly affected. The construction of Neart na Gaoithe would increase the limited presence of offshore turbines in the view. Magnitude of effect: Low	**Moderate-minor**

Viewpoint	Theoretical visibility of Neart na Gaoithe and other developments	Magnitude of effect (refer to criteria in Table 2.8)	Cumulative impact (see Table 2.9)
18 Dunbar Sensitivity: High	*Offshore* Neart na Gaoithe seen 28 km northeast, with Inch Cape behind (45 km), lower on the horizon. Round 3 will not be seen. *Onshore* Only distant proposals in Fife theoretically visible. No theoretical visibility of the Dunbar proposal, though may be seen from nearby locations depending on local screening.	The construction of Neart na Gaoithe would increase the limited presence of offshore turbines in the view. Magnitude of effect: Medium-low	**Moderate**
19 West Steel Sensitivity: Medium	*Offshore* Neart na Gaoithe seen 35 km north, directly in front of Inch Cape and Round 3. *Onshore* The viewpoint is located adjacent to Aikengall and Crystal Rig wind farms, and these are a major feature in views. Drone Hill, Penmanshiel and Blackburn would also be visible at relatively close range.	The construction of Neart na Gaoithe would increase the limited presence of offshore turbines. The sea is a limited part of this view, which is already affected by a high level of onshore development. Magnitude of effect: Low	**Minor**
20 Coldingham Moor Sensitivity: Medium	*Offshore* Neart na Gaoithe seen 33 km north, with Inch Cape (50 km) largely behind. The tips of Round 3 turbines are theoretically visible at 65 km, slightly to the east. *Onshore* The proposed Penmanshiel and Drone Hill wind farms are within 5 km and would be visible at close range, with Aikengall and Crystal Rig also visible to the west. There are distant theoretical views of onshore wind farms in Fife and Angus.	The construction of Neart na Gaoithe would increase the limited existing presence of offshore turbines, in a view already affected by a high level of onshore development. Magnitude of effect: Medium-low	**Moderate-minor**
21 St Abb's Head Sensitivity: High	*Offshore* Neart na Gaoithe seen 33 km north, with Inch Cape (50 km) behind and to the east, lower on the horizon. The tips of Round 3 turbines are theoretically visible at 65 km. *Onshore* There is no theoretical visibility of nearby onshore proposals, but very distant views of turbines in Fife and Angus would be possible.	The construction of Neart na Gaoithe would increase the limited existing presence of offshore turbines in the view. Magnitude of effect: Low	**Moderate-minor**

Summary of Cumulative Viewpoint Assessment

7.33 Significant cumulative impacts (*moderate* or greater) are predicted at seven of the 18 viewpoints. All of these are high sensitivity viewpoints. *Major* cumulative impacts are predicted at two locations (VP 13 Fife Ness and VP 16 Isle of May), where Neart na Gaoithe will be seen close by, and in addition to Inch Cape. *Moderate* and *major-moderate* cumulative impacts are predicted on five other viewpoints, where Neart na Gaoithe will be seen relatively close by, and in addition to Inch Cape.

7.34 At locations where Neart na Gaoithe and Inch Cape are both theoretically visible, but Inch Cape is much closer, the cumulative impact of Neart na Gaoithe was not found to be significant. For example VP 7 Arbroath, considered to be a *moderate-minor* impact.

7.35 Interactions between Neart na Gaoithe and onshore wind farms were not generally found to give rise to significant cumulative effects.

Assessment of Cumulative Impacts on Visual Receptors

7.36 The following sections consider potential impacts on the key visual receptors identified in **Section 3**, and examined as part of the stand-alone assessment in **Section 6**. The conclusions are based on the findings of the viewpoint assessment, summarised in **Table 7.4**.

7.37 The cumulative viewpoint assessment found that significant cumulative effects are most likely where Neart na Gaoithe is seen at relatively close range, where other offshore wind farms are already theoretically visible. As such, significant cumulative effects are most likely to be experienced by viewers in the east Fife area, and to a lesser extent in parts of East Lothian.

Residents

7.38 Significant cumulative impacts were identified at the settlements of Anstruther Easter (VP 14, *major-moderate*) and Dunbar (VP 18, *moderate*). Up to *moderate* cumulative impacts may be experience by residents in east Fife, including Crail and Pittenweem, as well as in some parts of St Andrews and the Tentsmuir area, and more limited coastal parts of East Lothian, around Dunbar. Impacts will only occur where the turbines are clearly visible from a property with an existing open sea view.

Recreational Receptors

7.39 A number of recreational locations are identified in **Section 3.58**, from which users may view Neart na Gaoithe in addition to Inch Cape. Up to *moderate* cumulative impacts may be experience by visitors to locations on the East Lothian coast, such as Tantallon Castle, as well as visitors. Up to *major-moderate* cumulative impacts may be experience by visitors to Tentsmuir and St Andrews. Up to *major* cumulative impacts may be experience by visitors to Fife Ness and other locations in the east of the East Neuk, such as Cambo or Crail.

7.40 Recreational boat users within the Firth of Forth and Firth of Tay, and in the area between, will view Neart na Gaoithe and Inch Cape at relatively close

ranges, depending on their course. Boat users may view the turbines for prolonged periods. Up to *major* (significant) cumulative impacts are predicted.

Travelling Receptors

7.41 Sequential cumulative impacts have been assessed on views experienced by users travelling on several key routes within the study area, listed at **Section 3.64**. Sequential impacts are described and assessed below.

Walkers

7.42 Walkers on the Fife Coastal Path, travelling from Kincardine to Newburgh, pass the existing turbine at Methil, and would potentially see other proposed wind farms in this area, as well as more distant turbines in Lothian. They will have will have more or less continuous views of Neart na Gaoithe as they progress along the East Neuk Coast from Earlsferry. Once past Anstruther, walkers will also have partial views of Inch Cape. Approaching Fife Ness there will be combined views of Neart na Gaoithe, Inch Cape, and a glimpse of Round 3 behind the latter (VP 13, **Figure 22.52**). Turning northwest with the coast, the offshore proposals would remain visible, though in oblique views or behind the viewer. Kenly Wind Farm would be intermittently visible, as well as more distant proposals in Angus. From the Tentsmuir area, Neart na Gaoithe and Inch Cape would again be visible in seaward views. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *major-moderate* (significant) cumulative impact.

7.43 Walkers on the John Muir Way, travelling from Edinburgh to Dunglass, would have views of Neart na Gaoithe between Eyebroughy and the end of their route. From the elevated coast around Tantallon Castle and at Dunbar, there would be oblique, combined views of Neart na Gaoithe and the distant Inch Cape (VP 18 **Figure 22.57**), along with the onshore Dunbar proposal. For much of this section of the route, wind farms on the Lammermuirs would be visible, and these would become a larger feature in the view as the viewer progresses southwards. In particular, the Drone Hill and Penmanshiel proposals would be seen in front for much of this route. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *moderate* (significant) cumulative impact.

7.44 Walkers on the Southern Upland Way would view a number of existing and proposed wind farms as they travel across southern Scotland. Neart na Gaoithe will be visible over the final 2-3 km of the route. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *minor* (not significant) cumulative impact.

Cyclists

7.45 Cyclists on NCN Route 1 would potentially view a number of the small- and medium-scale proposals in west and central Fife, before seeing the Neart na Gaoithe turbines. For most of the route between Strathkinness and Carnoustie, there would be combined visibility of both Neart na Gaoithe and Inch Cape. Beyond Carnoustie, Round 3 would also become visible in the distance, and the onshore Corse Hill proposal would be seen. North of

Arbroath, Neart na Gaoithe is more intermittently visible, and would be behind the viewer. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *moderate-minor* (not significant) cumulative impact.

7.46 Cyclists on NCN Route 76 would have intermittent views of Neart na Gaoithe, to Coldingham Moor, where there would be combined and successive views of Neart na Gaoithe and onshore wind farms on the Lammermuirs. Descending to the coastal plain, the proposed Dunbar wind farm would be increasingly visible, and glimpses of the distant Inch Cape offshore with Neart na Gaoithe. At Dunbar the route turns inland, and Neart na Gaoithe would be left behind. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *moderate-minor* (not significant) cumulative impact.

Rail Routes

7.47 There is theoretical visibility of cumulative wind farms, but not Neart na Gaoithe, between Burnmouth and Cockburnspath, although actual visibility will be limited by vegetation and local topography. Between Cockburnspath and Dunbar, Neart na Gaoithe will be seen offshore, with Inch Cape visible behind in clear conditions. Wind farms on the Lammermuirs will be visible to landward. Trains on this stretch are all high-speed long distance services. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *minor* (not significant) cumulative impact.

Roads and Tourist Drives

7.48 Road users travelling between Berwick and North Berwick would view Neart na Gaoithe at long distance from the A1. Between Burnmouth and Cockburnspath wind farms on the Lammermuirs would be visible but not Neart na Gaoithe. From Cockburnspath, the Lammermuir wind farms would be behind the viewer, with the Dunbar proposal and Neart na Gaoithe ahead. Beyond Dunbar, Inch Cape would become visible in the distance. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *moderate-minor* (not significant) cumulative impact.

7.49 Road users on the Fife Tourist Route would have very distant views of Neart na Gaoithe from around Kirkcaldy, as well as the Methil turbine and other proposals in central Fife. Travelling around the East Neuk, Neart na Gaoithe will be visible offshore, with Inch Cape appearing behind and to the north. There are likely to be close views of Kenly Wind Farm. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *moderate* (significant) cumulative impact.

7.50 Road users on the Angus Tourist Route would view Neart na Gaoithe and Inch Cape together where seaward views are available. From Carnoustie northward, Round 3 would also be theoretically visible, though often behind Inch Cape. There will be close views of Corse Hill Wind Farm. Beyond Arbroath, visibility of Neart na Gaoithe is more intermittent, and the turbines would be behind the viewer. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *moderate-minor* (not significant) cumulative impact.

Ferry Routes and Cruise Ships

7.51 Between Anstruther and the Isle of May, ferry passengers will have open views of both Neart na Gaoithe (15-22 km) and Inch Cape (30-35 km) to the north east, as well as more distant views of onshore wind farms. Assuming the presence of the other wind farms, the addition of Neart na Gaoithe would give rise to a *major* (significant) cumulative impact.

7.52 Passengers on cruise ships would have views of Neart na Gaoithe, Inch Cape and potentially Round 3 as they enter and leave the Firth of Forth. The presence of the turbines is unlikely to affect the overall experience of entering the Forth. Significant cumulative impacts are not predicted.

Aircraft Passengers

7.53 From aircraft passing over the Firth of Forth, passengers may see a number of wind farms, including Neart na Gaoithe and potentially other offshore wind farms. All of these wind farms will form a passing feature in the view, and no significant cumulative impacts are predicted.

8 Summary

8.1 The SLVIA considered the potential impacts of the proposed Neart na Gaoithe Wind Farm on the seascape, landscape and visual amenity, across a study area of 50 km radius from the site boundary.

BASELINE

8.2 The study area includes a range of seascape and landscape character types and areas, which were described and evaluated. These include coastal and hinterland areas in which marine views are an important factor, as well as other areas which are not influenced by the coast.

8.3 A large number of potential visual receptors were identified, including residents in large and small settlements, recreational users, and people travelling through the landscape. A series of 18 representative viewpoints was agreed with consultees, to inform the visual assessment.

IMPACTS ON SEASCAPE AND LANDSCAPE

8.4 The SLVIA has identified significant (*moderate*) impacts on two regional seascape units: SA12 St Andrews to Fife Ness, and SA13 East Neuk of Fife. These areas are the closest to the site, and have a generally open outlook towards the turbines. Impacts on all other regional seascape units are assessed as *minor* or *none*.

8.5 The SLVIA has identified no significant impacts on Level 2 LCTs. Impacts on four Level 2 LCTs were assessed as *minor*, with no impacts on other areas. This reflects the reduced effect of the offshore development on the character of inland areas.

8.6 The SLVIA has identified minor impacts on the landscape character of two sites listed on the Inventory of Gardens and Designed Landscapes: St Andrews Links and Cambo. No impacts were predicted to other GDLs.

8.7 No significant effects were predicted on local landscape designations. The eastern part of the East Fife AGLV is within the area where *moderate* impact on landscape character may be anticipated. However, no significant overall impact on the designation was identified.

8.8 The findings of the SLVIA indicate that *major* impacts upon seascape/landscape will not occur in the study area. *Moderate* impacts may be anticipated in coastal areas at up to around 20 km from the offshore development. *Minor* impacts may occur at sensitive coastal landscapes at greater distances, but generally the offshore development will have no impact on the character of the majority of the study area.

8.9 Impacts on seascape and landscape are summarised in **Tables 8.1** to **8.3**.

Table 8.1 Impacts on Seascape Character

Regional Seascape Unit	Sensitivity	Magnitude of Effect	Indirect impact
SA4: Montrose	High	Low to negligible	Minor to none
SA5: Long Craig	Medium	Negligible	None
SA6: Lunan Bay	High	Negligible	None
SA7: Lang Craig to the Deil's Head	High	Low to negligible	Minor to none
SA8: Arbroath to Monifieth	Medium	Low to negligible	Minor to none
SA9: Dundee	Low	Negligible	None
SA10: Inner Firth of Tay	Low	Negligible	None
SA11: St Andrews Bay	High	Low to negligible	Minor to none
SA12: St Andrews to Fife Ness	High	Medium	**Moderate**
SA13: East Neuk of Fife	High	Medium	**Moderate**
SA14: Kirkcaldy and Largo Bay	Medium	Low to negligible	Minor to none
SA16: Edinburgh to Gullane	Medium	Low to negligible	Minor to none
SA17: Eyebroughy to Torness Point	Medium	Low to negligible	Minor to none
SA18: Torness Point to St Abb's Head	Medium	Low to negligible	Minor to none
SA19: St Abb's Head to Eyemouth	High	Low to negligible	Minor to none
SA20: Eyemouth to Berwick upon Tweed	Medium	Negligible	None

Significant impacts highlighted in **bold**

Table 8.2 Impacts on Landscape Character

Landscape Character Type	Sensitivity	Magnitude of Effect	Indirect impact
Coastal Hills Headlands Plateaux and Moorlands	Medium	Low to negligible	Minor to none
Coastal Margins	Medium	Low to negligible	Minor to none
Coastal Raised Beaches and Terraces	High	Negligible	None
Dipslope Farmland	Medium	Negligible	None
Fife Lowland Farmland	Medium	Low to negligible	Minor to none
Foothills	Medium	Negligible	None
Low Coastal Farmlands	Medium	Low to negligible	Minor to none
Lowland Coastal Flats Sands and Dunes	High	Negligible	None
Lowland Hills (South)	Low	Negligible	None
Lowland Plains	Low	Negligible	None
Lowland River Valleys	Low	Negligible	None
Narrow Wooded River Valleys	Low	Negligible	None
Pronounced Hills	Low	Negligible	None
Upland Fringe Moorland and Grassland: the Lammermuir, Pentland and Moorfoot Hills	Medium	Negligible	None
Upland Hills: the Lammermuir, Pentland and Moorfoot Hills	Medium	Negligible	None

Significant impacts highlighted in **bold**

Table 8.3 Impacts on Landscape Designations

Landscape Designation	Sensitivity	Magnitude of Effect	Indirect impact
Balgay Park	High	Negligible	None
St Andrews Links	High	Low	Minor
Cambo	High	Low	Minor
Balcaskie	High	Negligible	None
Kellie Castle	High	Negligible	None
Balcarres	High	Negligible	None
Charleton	High	Negligible	None
Lahill	High	Negligible	None
Wemyss Castle	High	Negligible	None
Grey Walls	High	Negligible	None
Leuchie	High	Negligible	None
Tyninghame	High	Low	Minor
Biel	High	Negligible	None
Broxmouth Park	High	Negligible	None
Dunglass	High	Negligible	None
East Fife AGLV	Medium	Medium, reducing to minor and negligible	Overall minor
Longniddry to North Berwick Coast AGLV	Medium	Low to negligible	Minor to none
North Berwick to Dunbar Coast AGLV	Medium	Low to negligible	Minor
Barns Ness Coast AGLV	Medium	Low to negligible	Minor
Thorntonloch Coast AGLV	Medium	Low to negligible	Minor
Garleton Hills AGLV and Kilduff Hill AGLV	Medium	Negligible	None
Traprain Law AGLV	Medium	Negligible	None
North Berwick Law AGLV	Medium	Negligible	None
Balgone AGLV	Medium	Negligible	None
Lammermuir Hills AGLV	Medium	Negligible	None
Berwickshire Coast AGLV	Medium	Low to negligible	Minor

Significant impacts highlighted in **bold**

IMPACTS ON VIEWS

8.10 Significant (*moderate* or greater) impacts on viewers are predicted at up to 33 km of the offshore development, depending on the sensitivity of the viewer, and the nature of the existing view. Significant impacts at this distance would be restricted to high-sensitivity viewers with clear unobstructed seaward views, in conditions of good visibility during which the turbines would be clearly perceptible new features.

8.11 At distances of up to 22 km from the offshore development, *major* impacts have been predicted by the SLVIA. Again, these would only occur where high sensitivity receptors have clear seaward views in which the turbines would form a substantial feature.

8.12 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 within 5 to 10 km. It also reflects the unusual appearance of large vertical structures, including lighting which may be visible at night, in the marine environment where man-made structures are an unexpected element in the view.

8.13 The viewpoint assessment considered both maximum height and maximum density scenarios. The assessment concluded that, although there would be discernible difference between the scenarios, the magnitude of effect, and significance of any impacts, would not change.

8.14 Impacts on viewpoints are summarised in **Table 8.4**.

8.15 Significant impacts are predicted on users of the Fife Coastal Path, John Muir Way, and Isle of May Ferry (*major*), and NCN Route 1 and Route 76, and the Fife Tourist Route (*moderate*).

Table 8.4 Viewpoint Assessment Summary

No.	Viewpoint	Distance from site boundary (km)	Sensitivity	Magnitude of effect	Significance of impact
2	Beach Road, Kirkton, St Cyrus	49.0	High	Negligible	None
5	Dodd Hill	43.9	Medium	Negligible	None
6	Braehead of Lunan	39.0	High	Low	Moderate-minor
7	Arbroath	30.8	High	Medium-low	**Moderate**
8	Carnoustie	31.7	High	Medium-low	**Moderate**
9	Dundee Law	44.9	Medium	Negligible	None
10	Tentsmuir	31.8	High	Medium-low	**Moderate**
11	Strathkinness	33.1	High	Low-negligible	Minor
12	St Andrews, East Scores	28.2	High	Low	**Moderate**
13	Fife Ness, Lochaber Rock	15.5	High	High	**Major**
14	Anstruther Easter	21.8	High	High	**Major**
15	Largo Law	36.8	Medium	Negligible	None
16	Isle of May	16.3	High	High	**Major**
17	North Berwick Law	33.0	High	Low	**Moderate**
18	Dunbar	28.0	High	Medium	**Major-moderate**
19	West Steel	34.9	Medium	Low	Minor
20	Coldingham Moor	32.8	Medium	Medium-low	Minor
21	St Abb's Head	33.0	High	Medium-low	**Moderate**

Significant impacts highlighted in **bold**

CUMULATIVE IMPACTS

Cumulative Impacts on Seascape and Landscape

8.16 Significant cumulative impacts on seascape character are predicted to be limited to the eastern tip of Fife Ness, where the nearby presence of Neart na Gaoithe, in combination with the likely future presence of Inch Cape, would affect the perception of character along the coastal edge of two regional seascape units (*moderate* impact).

8.17 No significant cumulative impacts were predicted on LCTs or landscape designations. Cumulative impacts on seascape and landscape are summarised in **Tables 8.5** and **8.6**.

Cumulative Impacts on Views

8.18 Significant cumulative impacts (*moderate* or greater) are predicted at seven of the 18 assessment viewpoints. All of these are high sensitivity viewpoints. *Major* cumulative impacts are predicted at two locations (VP 13 Fife Ness and VP 16 Isle of May), where Neart na Gaoithe will be seen close by, and simultaneously with Inch Cape. *Moderate* and *major-moderate* cumulative impacts are predicted on five other viewpoints, where Neart na Gaoithe will be seen relatively close by, and simultaneously with Inch Cape.

8.19 Significant sequential impacts are predicted to affect walkers using the Fife Coastal Path (*major-moderate*) and the John Muir Way (*moderate*), as well passengers on the Isle of May Ferry (*major*) and visitors on the Fife Tourist Route (*moderate*).

8.20 Cumulative impacts on views are summarised in **Tables 8.7** and **8.8**.

Table 8.5 Cumulative Impacts on Seascape Character

Regional Seascape Unit	Sensitivity	Magnitude of Effect	Indirect impact
SA4: Montrose	High	Negligible	None
SA5: Long Craig	Medium	Negligible	None
SA6: Lunan Bay	High	Negligible	None
SA7: Lang Craig to the Deil's Head	High	Low	Moderate-minor
SA8: Arbroath to Monifieth	Medium	Low	Moderate-minor
SA9: Dundee	Low	Negligible	None
SA10: Inner Firth of Tay	Low	Negligible	None
SA11: St Andrews Bay	High	Low	Moderate-minor
SA12: St Andrews to Fife Ness	High	Medium-low	**Moderate**
SA13: East Neuk of Fife	High	Medium-low	**Moderate**
SA14: Kirkcaldy and Largo Bay	Medium	Negligible	None
SA16: Edinburgh to Gullane	Medium	Negligible	None
SA17: Eyebroughy to Torness Point	Medium	Low	Minor- none
SA18: Torness Point to St Abb's Head	Medium	Low	Minor- none
SA19: St Abb's Head to Eyemouth	High	Negligible	None
SA20: Eyemouth to Berwick upon Tweed	Medium	Negligible	None

Significant impacts highlighted in **bold**

Table 8.6 Cumulative Impacts on Landscape Designations

Landscape Designation	Sensitivity	Magnitude of Effect	Indirect impact
St Andrews Links GDL	High	Negligible	None
Cambo GDL	High	Negligible	None
Tyninghame GDL	High	Negligible	None
Broxmouth Park GDL	High	Negligible	None
East Fife AGLV	Medium	Medium-low, reducing to negligible	Minor-none
Longniddry to North Berwick Coast AGLV	Medium	Negligible	None
North Berwick to Dunbar Coast AGLV	Medium	Low	Minor-none
Barns Ness Coast AGLV	Medium	Low	Minor-none
Thorntonloch Coast AGLV	Medium	Low	Minor-none
Berwickshire Coast AGLV	Medium	Low	Minor-none

Significant impacts highlighted in **bold**

Table 8.7 Cumulative Impacts on Representative Viewpoints

No.	Viewpoint	Distance from site boundary (km)	Sensitivity	Magnitude of effect	Significance of cumulative impact
2	Beach Road, Kirkton, St Cyrus	49.0	High	Low-negligible	Minor
5	Dodd Hill	43.9	Medium	Low	Minor
6	Braehead of Lunan	39.0	High	Low	Moderate-minor
7	Arbroath	30.8	High	Low	Moderate-minor
8	Carnoustie	31.7	High	Low	Moderate-minor
9	Dundee Law	44.9	Medium	Low	Minor
10	Tentsmuir	31.8	High	Medium	**Major-moderate**
11	Strathkinness	33.1	High	Low	Moderate-minor
12	St Andrews, East Scores	28.2	High	Medium	**Major-moderate**
13	Fife Ness, Lochaber Rock	15.5	High	High	**Major**
14	Anstruther Easter	21.8	High	Medium-high	**Major-moderate**
15	Largo Law	36.8	Medium	Low	Minor
16	Isle of May	16.3	High	High	**Major**
17	North Berwick Law	33.0	High	Low	Moderate-minor
18	Dunbar	28.0	High	Medium-low	**Moderate**
19	West Steel	34.9	Medium	Low	Minor
20	Coldingham Moor	32.8	Medium	Medium-low	Moderate-minor
21	St Abb's Head	33.0	High	Low	Moderate-minor

Significant impacts highlighted in **bold**

Table 8.8 Cumulative Impacts on Routes

Route	Sensitivity	Magnitude of effect	Significance of cumulative impact
Fife Coastal Path	High	Medium	**Major-moderate**
John Muir Way	High	Medium-low	**Moderate**
Southern Upland Way	High	Low-negligible	Minor
NCN Route 1	High	Low	Moderate-minor
NCN Route 76	High	Low	Moderate-minor
East Coast Main Line	Medium	Low	Minor
A1/A198	Medium	Medium-low	Moderate-minor
Fife Tourist Route	Medium	Medium	**Moderate**
Angus Tourist Route	Medium	Medium-low	Moderate-minor
Isle of May Ferry	High	High	**Major**
Cruise ship passengers	Medium	Medium-high	Minor
Aeroplane passengers	Low	Low	None

Significant impacts highlighted in **bold**

CONCLUSIONS

8.21 It is generally recognised that some impacts on seascape/landscape and views are an inevitable consequence of wind energy development. The SLVIA has identified limited potential for significant effects on the seascape character of the study area, and no significant effects on the landscape character of the landward part of the study area, as a result of the offshore development. No significant effects would occur on nationally designated landscapes. The offshore development will have no direct impacts upon the landscape.

8.22 Significant effects on views are predicted to be more widespread, although they are only likely to occur at open coastal locations scattered across the study area.

8.23 The SLVIA has considered 'maximum effect' scenarios, with all assessment work being carried out under conditions of good or very good visibility. In reality, as noted in **Section 2.7**, atmospheric conditions are likely to obscure the offshore development, when viewed from 30 km, almost half of the time.

8.24 The examination of two alternative layouts has concluded that the precise layout of the development, within the parameters defined in the Rochdale Envelope, is unlikely to vary the finding of the SLVIA.

9 References

9.1 Guidance documents relating to (S)LVIA, particularly as it relates to renewable energy proposals:

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9.2 Landscape and seascape character assessment:

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9.3 Policy and planning:

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Contact	Alison Duncan
Address	15-18 York Place, Edinburgh, EH1 3EB
Website	www.emulimited.com

Annexe 1

List of FTOWDG Viewpoints

Table A1.1 FTOWDG Assessment Viewpoints

The following viewpoints were agreed between the members of the Forth and Tay Offshore Windfarm Developer Group (FTOWDG), in consultation with Scottish Natural Heritage, Marine Scotland, Angus Council, Fife Council, East Lothian Council and Scottish Borders Council. They will be used, where appropriate, for landscape and visual assessment of all FTOWDG projects.

No.	Viewpoint	Easting	Northing	Reason for selection
1	Garron Point	388587	787597	A links golf course, located on a headland which enables unobscured views south along the coast
2	Beach Road, Kirkton, St Cyrus	375195	764644	Car park offering beach access, and wide elevated views over Montrose Bay, on a coastal footpath
3	Montrose	372689	757962	Main car park/access point for the Montrose Bay beach and coast, promenade enables views across the seascape (note: not in ZTV for Neart na Gaoithe)
4	White Caterthun Hill Fort	354818	766084	Inland location, offering views over Strathmore and the Angus coast beyond, signposted and interpreted historic site
5	Dodd Hill	345897	740184	Inland location on walking route offering views across Angus to the coast
6	Braehead of Lunan	368987	752602	Representative of views from a hamlet, located on NCN Route 1, enables views south over Red Head
7	Arbroath	364050	740447	Listed building with an elevated platform and historic connection to the Bell Rock, now a museum
8	Carnoustie	356249	734093	Recently upgraded promenade with car parking and beach access
9	Dundee Law	339157	731273	Most prominent viewpoint in Dundee, a popular recreational location with large numbers of visitors, and long views down the Firth of Tay
10	Tentsmuir	349971	724249	Forestry Commission car park in a popular recreational area. Views across sandbanks. Located on Fife Coastal Path and NCN Route 1
11	Strathkinness	346605	716418	Within coastal hills, small settlement overlooking St Andrews and the Firth of Tay
12	St Andrews, East Scores	351560	716676	Popular location within the town, by the abbey, overlooking St Andrews Bay, on the Fife Coastal Path

13	Fife Ness, Lochaber Rock	363842	709766	Easternmost point of Fife, unobstructed views across the outer Firth and Tay, on the Fife Coastal Path
14	Anstruther Easter	357901	704166	Representative of views from coastal settlement at a local play park with foreshore access, on the Fife Coastal Path
15	Largo Law	342710	704978	Elevated location, enabling wide views across the Firth of Forth, on a locally-signposted footpath
16	Isle of May	365632	699341	The island is a popular day-trip destination, and a useful proxy for marine views
17	North Berwick Law	355642	684234	Popular walking destination close to North Berwick, enabling wide views over the Firth of Forth
18	Dunbar	367129	679358	Marked as a viewpoint on OS map, representative of views from coastal settlement, on John Muir Way
19	West Steel	368833	670540	Elevated viewpoint enabling views across the coastal plain to the Firth of Forth
20	Coldingham Moor	383492	669342	Elevated headland with wide seaward views, enabling northward views over the Firth of Forth
21	St Abb's Head	391235	669167	Marked as a viewpoint on OS map, within NTS access land, offering extensive coastal views

Annexe 2

Seascape Character Assessment: Aberdeen to Holy Island