



FIVE
ESTUARIES
OFFSHORE WIND FARM

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OFFSHORE WIND FARM
ENVIRONMENTAL STATEMENT

VOLUME 6, PART 2, CHAPTER 10:
SEASCAPE, LANDSCAPE AND VISUAL
ASSESSMENT

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DEFINITION OF ACRONYMS

Term	Definition
AfL	Agreement for Lease
AMSL	Above Mean Sea Level
AONB	Area of Outstanding Natural Beauty
CEA	Cumulative Effect Assessment
CfD	Contracts for Difference
CMS	Construction Method Statements
CPRE	Campaign to Protect Rural England
CRoW	Countryside and Rights of Way (Act)
DCO	Development Consent Order
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food & Rural Affairs
EASA	European Aviation Safety Agency
EIA	Environmental Impact Assessment
ES	Environmental Statement
ETG	Expert Topic Groups
GLVIA3	Guidelines for Landscape and Visual Impact Assessment, 3 rd Edition
HAT	Highest Astronomical Tide
ICAO	International Civil Aviation Organisation
IEMA	Institute of Environmental Management and Assessment
LAT	Lowest Astronomical Tide
LCA	Landscape Character Area
LCT	Landscape Character Type
LDWA	Long Distance Walkers Association
MCA	Marine Character Areas
MCZ	Marine Conservation Zones
MGN	Marine Guidance Note
MHWS	Mean High Water Spring
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MPA	Marine Protected Areas
MPCP	Marine Pollution Contingency Plan
MPS	Marine Policy Statement
MW	Megawatts
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OS	Ordnance Survey
OWF	Offshore Wind Farm
PDE	Project Design Envelope
PEMP	Project Environment Management Plan
PINS	Planning Inspectorate
RAF	Royal Air Force



Term	Definition
RPG	Registered Parks and Gardens
SAC	Special Area of Conservation
SCHAONB	Suffolk Coast and Heaths Area of Outstanding Natural Beauty
SPA	Special Protection Area
SLVIA	Seascape, Landscape and Visual Impact Assessment
SSSI	Site of Special Scientific Interest
UK	United Kingdom
VE	Five Estuaries
ZTV	Zone of Theoretical Visibility



GLOSSARY OF TERMS

Term	Definition
Baseline	Refers to existing conditions as represented by latest available survey and other data that is used as a benchmark for making comparisons to assess the impact of development.
Baseline conditions	The environment as it appears (or would appear) immediately prior to the implementation of a proposed development together with any known or foreseeable future changes that will take place before completion of a proposed development.
Construction effects	Used to describe both temporary effects that arise during the construction phases as well as permanent existence effects that arise from the physical existence of development (for example new buildings).
Cumulative effects	Additional changes caused by a proposed development in conjunction with other similar developments or as a combined effect of a set of proposed developments.
Cumulative Effects Assessment (CEA)	Assessment of impacts as a result of the incremental changes caused by other past, present and reasonably foreseeable human activities and natural processes together with a proposed development.
DCO Application	An application for consent to undertake a Nationally Significant Infrastructure Project made to the Planning Inspectorate who will consider the application and make a recommendation to the Secretary of State, who will decide on whether development consent should be granted for a proposed development.
Decommissioning	The period during which a development and its associated processes are removed from active operation.
Environmental Impact Assessment (EIA)	The written output presenting the full findings of the Environmental Impact Assessment.
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach and the information required to support the EIA and HRA for certain aspects.
Formal consultation	Formal consultation refers to statutory consultation that is required under Section 42 and Section 47 of the Planning Act 2008 and the EIA regulations with the relevant consultation bodies and the public on the preliminary environmental information.
Future baseline	Refers to the situation in future years without a proposed development.
Impact	The changes resulting from an action.
Indirect effects	Effects that result indirectly from a proposed development as a consequence of the direct effects, often occurring away from the site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or in time from the source of the effects.



	Often used to describe effects on landscape character that are not directly impacted by a proposed development such as effects on perceptual characteristics and qualities of the landscape.
Informal consultation	Informal consultation refers to the voluntary consultation undertaken in addition to the formal consultation requirements.
Likely significant effects	It is a requirement of Environmental Impact Assessment Regulations to determine the likely significant effects of a proposed development on the environment which should relate to the level of an effect and the type of effect.
Magnitude (of change)	A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short term or long term in duration'. Also known as the 'degree' or 'nature' of change.
Mitigation	Mitigation measures, or commitments, are commitments made by the project to reduce and/or eliminate the potential for significant effects to arise as a result of the project.
Nationally Significant Infrastructure Project (NSIP)	Nationally Significant Infrastructure Projects are major infrastructure developments in England and Wales which are consented by DCO. These include proposals for renewable energy projects with an installed capacity greater than 100MW.
Preliminary Environmental Information Report (PEIR)	The written output of the Environmental Impact Assessment undertaken for a proposed development. It is developed to support formal consultation and presents the preliminary findings of the assessment to allow an informed view to be developed of a proposed development, the assessment approach that has been undertaken, and the preliminary conclusions on the likely significant effects of a proposed development and environmental measures proposed.
Receptor	These are as defined in Regulation 5(2) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and include population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape that may be at risk from changes as a result of a proposed development.
Scoping Opinion	A Scoping Opinion is adopted by the Secretary of State for a proposed development.
Scoping Report	A report that presents the findings of an initial stage in the Environmental Impact Assessment process.
Secretary of State	The authority who makes the decision to grant development consent.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value associated to that receptor.
Significance	A measure of the importance of the environmental effect, defined by criteria specific to the environmental aspect.
Significant effects	It is a requirement of the EIA Regulations to determine the likely significant effects of the development on the environment which should relate to the level of an effect and the type of effect. Where possible significant effects should be mitigated.



Temporal Scope	The temporal scope covers the time period over which changes to the environment and the resultant effects are predicted to occur and are typically defined as either being temporary or permanent.
Temporary or permanent effects	Effects may be considered as temporary or permanent. In the case of wind energy development the application is for a defined period after which the assessment assumes that decommissioning will occur and that the site will be restored. For these reasons the effect of the VE array areas are referred to as long term and reversible.



10 SEASCAPE, LANDSCAPE, AND VISUAL

10.1 INTRODUCTION

- 10.1.1 This seascape, landscape, and visual impact assessment (SLVIA) identifies and evaluates the significance of effects of the construction, operation and maintenance, and decommissioning of the Five Estuaries Offshore Wind Farm (VE), with respect to seascape, landscape, and visual amenity. It also assesses the cumulative effects of VE in conjunction with other developments.
- 10.1.2 The SLVIA is based on a realistic worst-case scenario summarised in Table 10.7, based on the project parameters described in Volume 6, Part 2, Chapter 1: Offshore Project Description, which provides further details regarding specific activities and their durations. Effects assessed are therefore a worst-case and precautionary.
- 10.1.3 The effects of the VE array areas are also assessed based on optimum visibility conditions, as a worst-case. 'Excellent' visibility is not 'prevailing' in terms of its frequency across the year. Often, the VE WTGs will be viewed in less than the optimum visibility assumed for assessment purposes. Effects have not been downgraded in magnitude due to variations in weather/visibility, and how infrequently the effects will be experienced. Effects are based on the worst-case with clear visibility and should be considered in context of the limited time effects will occur, which is described in the SLVIA.
- 10.1.4 The SLVIA should be read in conjunction with the project description provided in Volume 6, Part 42, Chapter 1: Offshore Project Description and the relevant parts of the following ES Chapters:
- > Volume 6, Part 3, Chapter 2, : Landscape and Visual Impact Assessment (LVIA), due to the inter-relationship with onshore landscape and visual impacts; and
 - > Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage, due to the inter-relationship with cultural heritage impacts.
- 10.1.5 This SLVIA is supported by the following Technical Appendices:
- > Volume 6 Part 7, Annex 10.1 SLVIA Methodology, setting out the full methodology for the SLVIA, which is summarised in Section 10.4.
 - > Volume 6, Part 7, Annex 10.2 SLVIA Viewpoint Assessment, setting out a full assessment of all representative viewpoints, which is summarised in Table 10.29.
- 10.1.6 The SLVIA is also supported by plan figures in Volume 6, Part 7, Annex 10.3.1-5: Seascape, Landscape and Visual Figures and Photomontages Figures 10.1 - Figure 10.25 and visual representations (photomontages) in Volume 6, Part 7, Annex 10.3: Seascape, Landscape and Visual Figures and Volume 6, Part 7, Annex 10.3.6-26: Seascape, Landscape and Visual Assessment Photomontages.

10.2 STATUTORY AND POLICY CONTEXT

- 10.2.1 Relevant legislation and guidance documents have been reviewed and considered as part of this assessment. Table 10.1 lists the legislation relevant to the assessment of effects on seascape, landscape, and visual receptors.



Table 10.1: Legislation and policy context.

Legislation/ policy	Key provisions	Section where comment addressed
<p>Countryside and Rights of Way Act (CRoW) (2000)</p>	<p>AONBs are areas designated under section 82 of the CRoW Act (2000). Section 82(1) of the CRoW Act defines an AONB in England as:</p> <p><i>“Where it appears to Natural England that an area which is in England but not in a National Park is of such outstanding natural beauty that it is desirable that the provisions of this Part relating to areas designated under this section should apply to it, [Natural England may], for the purpose of conserving and enhancing the natural beauty of the area, by order designate the area for the purposes of this Part as an area of outstanding natural beauty.”</i></p> <p>The UK Government current online Guidance on AONBs confirms with regard to the above legislation that:</p> <p><i>“An area of outstanding natural beauty (AONB) is land protected by the Countryside and Rights of Way Act 2000 (CROW Act). It protects the land to conserve and enhance its natural beauty”.</i></p> <p>The CRoW Act places a general duty on public bodies i.e. ‘relevant authorities’ including for example the Councils, statutory undertakers and in the context of the DCO, the Secretary of State, as follows:</p> <p><i>“(1) In exercising or performing any functions in relation to, or so as to affect, land in an area of outstanding natural beauty, a relevant authority shall have regard to the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty” (S85).</i></p>	<p>The baseline character and special qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (SCHAONB) are described in Section 10.7 and the operational effects of VE on the natural beauty and special qualities of the SCHAONB are assessed in Section 10.11. Regard has been had to the purpose of conserving and enhancing the natural beauty of the SCHAONB through the siting and design of VE.</p>
<p>Levelling-up and Regeneration Act</p>	<p>All relevant authorities ‘must seek to further the purposes’ of the designated</p>	<p>The term AONB is used throughout this</p>



Legislation/ policy	Key provisions	Section where comment addressed
2023 (26th December 2023)	<p>landscape; for AONBs, this purpose is conserving and enhancing natural beauty of the area. This duty features in Section 245 of the Levelling-up and Regeneration Act 2023 and it overrides and strengthens the previous duty to 'have regard' to the purposes. Since November 2023, AONBs have also been called 'National Landscapes', although the legal definition remains AONB (as per Section 245 of the Levelling-up and Regeneration Act 2023).</p>	<p>Chapter. The baseline character and special qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (SCHAONB) are described in Section 10.7 and the operational effects of VE on the natural beauty and special qualities of the SCHAONB are assessed in Section 10.11. Regard has been had to the purpose of conserving and enhancing the natural beauty of the SCHAONB through the siting and design of VE.</p>
The Marine and Coastal Access Act (MCA) (2009)	<p>The MCA Act provides the framework for the establishment of the England Coast Path and access across the 'coastal margin', defined in Part 1 of the CRoW, which includes all land between the trail and the sea and may also extend inland; subject to certain provision.</p> <p>Part 9 of the MCA Act aims to improve public access to, and enjoyment of, the English coastline by creating clear and consistent public rights along the English coast for open-air recreation on foot. It allows existing coastal access to be secured and improved and new access to be created in coastal places where it did not already exist.</p>	<p>The baseline character of the coastal margin and views from the England Coast Path are described in Section 10.7 and the operational effects of VE on views from the England Coast Path are assessed in Section 10.11.</p>



Legislation/ policy	Key provisions	Section where comment addressed
<p>Overarching National Policy Statement for Energy (EN-1) (EN-1 2023)</p>	<p><i>3.3.62 Government has concluded that there is a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure. Section 4.2 states which energy generating technologies are low carbon and are therefore CNP infrastructure.</i></p> <p><i>3.3.63 Subject to any legal requirements, the urgent need for CNP Infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy. Government strongly supports the delivery of CNP Infrastructure and it should be progressed as quickly as possible.</i></p>	<p>The project has applied the mitigation hierarchy effectively through the measures incorporated within the project design (Section 10.9). Likely significant effects on seascape, landscape and visual receptors have been reduced or mitigated following the mitigation hierarchy, including design measures to reduce harms, such as on the special qualities of the SCHAONB and its views (Section 10.9). The residual effects arising from VE (CNP infrastructure) that are not capable of being addressed by application of the mitigation hierarchy are assessed in Section 10.10 to 10.18.</p>
<p>EN-1 (2023) 4.3 Environmental Effects / Considerations</p>	<p><i>4.3.11 In some instances, it may not be possible at the time of the application for development consent for all aspects of the proposal to have been settled in precise detail. Where this is the case, the applicant should explain in its application which elements of the proposal have yet to be finalised, and the reasons why this is the case.</i></p> <p><i>4.3.12 Where some details are still to be finalised, the ES should, to the best of the applicant's knowledge, assess the likely worst-case environmental, social and economic effects of the proposed</i></p>	<p>Volume 6, Part 2, Chapter 1: Offshore Project Description provides further details regarding specific activities and project parameters. In this Chapter Section 10.6 sets out the uncertainty arising from this, and Section 10.9 sets out the Maximum Design Scenario that has been defined to</p>



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>development to ensure that the impacts of the project as it may be constructed have been properly assessed.</i></p>	<p>ensure that the worst-case seascape, landscape, and visual effects are assessed. Chapter 10 Sections 10.10 – 10.18 assess the likely worst-case environmental effects of the VE array areas.</p>
<p>EN-1 (2023) 4.7 Criteria for good design for Energy Infrastructure</p>	<p><i>4.7.1 The visual appearance of a building, structure, or piece of infrastructure, and how it relates to the landscape it sits within, is sometimes considered to be the most important factor in good design. But high quality and inclusive design goes far beyond aesthetic considerations. The functionality of an object – be it a building or other type of infrastructure – including fitness for purpose and sustainability, is equally important.</i></p> <p><i>4.7.2 Applying good design to energy projects should produce sustainable infrastructure sensitive to place, including impacts on heritage, efficient in the use of natural resources, including land-use, and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged, however that the nature of energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.</i></p> <p><i>4.7.5 To ensure good design is embedded within the project development, a project board level design champion could be appointed, and a representative design panel used to maximise the value provided by the infrastructure. Design principles should be established from the outset of the project to guide the development from</i></p>	<p>Volume 6, Part 1, Chapter 4: Site Selection and Alternatives sets out the iterative process that has influenced the design of VE and how the design process was conducted. The offshore design principles document (Volume 9, Report 3: Offshore Design Principles) also sets out all considerations that informed the offshore design for the array and the guidance that will be considered going forward. Opportunities for enhancement of the quality of an area through the ‘Good Design’ of an offshore wind farm are limited due to the functional, technical and economic requirements associated with producing offshore renewable energy, as well as other environmental factors.</p>



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>conception to operation. Applicants should consider how their design principles can be applied post-consent.</i></p> <p><i>4.7.6 Whilst the applicant may not have any or very limited choice in the physical appearance of some energy infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation.</i></p> <p><i>4.7.7 Applicants must demonstrate in their application documents how the design process was conducted and how the proposed design evolved. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected.</i></p> <p><i>4.7.11 The Secretary of State should be satisfied that the applicant has considered both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located, any potential amenity benefits, and visual impacts on the landscape or seascape) as far as possible.</i></p> <p><i>4.7.12 In considering applications, the Secretary of State should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy. Many of the wider impacts of a development, such as landscape and environmental impacts, will be important factors in the design process.</i></p>	<p>Opportunities for good design are also further limited by the need to retain flexibility of WTG numbers, size, and location within the VE array area through the planning stages and the need to assess worst-case environmental effects (a necessary part of the process that is recognised in EN1 (paragraph 4.3)).</p> <p>Section 10.9 of this Chapter sets out the mitigation that is included in VE project design in respect of seascape, landscape and visual receptors. In accordance with EN-1, the iterative design of the VE array areas has sought to minimise effects upon the special qualities of the SCHAONB (and its Natural Beauty) and reduce visual/aesthetic effects as far as possible, insofar as this can be achieved with respect to other functional, technical and economic requirements of the Project.</p> <p>Design mitigation has been included in the project design as</p>



Legislation/ policy	Key provisions	Section where comment addressed
		<p>described in Table 10.18:</p> <ul style="list-style-type: none">- The spatial extent of the VE array area was reduced providing in a reduction in the lateral spread and 'curtaining' of WTGs when viewed from the Suffolk coast.- The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case



Legislation/ policy	Key provisions	Section where comment addressed
		<p>scenario (or MDS) for the assessment.</p> <p>- The maximum height of the VE WTGs has been reduced to 399m blade tip height above LAT (395m above MHWS).</p> <p>Section 10.11 assesses the residual effects of VE on seascape, landscape and visual receptors.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.1 The landscape and visual effects of energy projects will vary on a case by case basis according to the type of development, its location and the landscape setting of the proposed development. In this context, references to landscape should be taken as covering seascape and townscape where appropriate.</i></p>	<p>Section 10.11 assesses the operational effects of VE on seascape, landscape and visual receptors.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.4 Landscape effects arise not only from the sensitivity of the landscape but also the nature and magnitude of change proposed by the development, whose specific siting and design make the assessment a case-by-case judgement.</i></p>	<p>The methodology for the SLVIA (Appendix 10.1) and the reported ES findings (Section 10.10 – 10.18) provide assessment of both sensitivity and magnitude of change arising from VE, to arrive at case-by-case assessment of significance.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.5 Virtually all nationally significant energy infrastructure projects will have adverse effects on the landscape, but there may also be beneficial landscape character impacts arising from mitigation.</i></p> <p><i>5.10.6 Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard</i></p>	<p>The operational effects of VE on landscape character are assessed in Section 10.11. The design of VE has considered and addressed the potential impact on seascape, landscape,</p>



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.</i></p>	<p>and visual receptors, in order to minimise harm by mitigation of landscape effects. Section 10.9 describes the environmental measures that minimise harm through mitigation of seascape, landscape and visual effects.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.7 National Parks, the Broads and AONBs have been confirmed by the government as having the highest status of protection in relation to landscape and natural beauty. Each of these designated areas has specific statutory purposes. Projects should be designed sensitively given the various siting, operational, and other relevant constraints.</i></p>	<p>The effect of the VE array areas on the special qualities and statutory purpose of the SCHAONB is assessed in Section 10.11. As described in Section 10.9, VE has been designed sensitivity with environmental measures that minimise harm and has due regard to the statutory purpose of the SCHAONB.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.8 The duty to seek to further the purposes of nationally designated landscapes also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. In these locations, projects should be sensitively given the various siting, operational, and other relevant constraints. The Secretary of State should be satisfied that measures which seek to further the purposes of the designation are sufficient, appropriate and proportionate to the type and scale of the development.</i></p>	<p>The baseline character and special qualities of the SCHAONB are described in Section 10.7 and the operational effects of VE on the natural beauty and special qualities of the SCHAONB are assessed in Section 10.11. Regard has been had to the purpose of conserving and enhancing the natural beauty of the</p>



Legislation/ policy	Key provisions	Section where comment addressed
		<p>SCHAONB through the siting and design of VE. As described in Section 10.9, VE has been designed with environmental measures that minimise harm to the statutory purpose of the SCHAONB.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.10 Heritage Coasts are defined areas of undeveloped coastline which are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors.</i></p> <p><i>5.10.11 Development within a Heritage Coast (that is not also a National Park, The Broads or an AONB) is unlikely to be appropriate, unless it is compatible with the natural beauty and special character of the area.</i></p>	<p>The VE array areas are not located within a defined Heritage Coast. The VE array areas are located in the seascape outside the boundaries of the Suffolk Heritage Coast, yet may have impacts on views and perceived character experienced within the Suffolk Heritage Coast.</p> <p>The geographic extent of the Suffolk Heritage Coast highlights the stretch of coastal edge of the SCHAONB most sensitive to the potential seascape and visual effects from the VE array areas. The effect of the VE array areas on the Suffolk Heritage Coast is considered as part of the assessment of the SCHAONB in Section 10.11 and measures designed to minimise harm to its special character area</p>



Legislation/ policy	Key provisions	Section where comment addressed
		are described in Section 10.9.
EN-1 (2023) 5.10 Landscape and Visual	<p><i>5.10.12 Outside nationally designated areas, there are local landscapes that may be highly valued locally. Where a local development document in England or a local development plan in Wales has policies based on landscape or waterscape character assessment, these should be paid particular attention. However, locally valued landscapes should not be used in themselves to refuse consent, as this may unduly restrict acceptable development.</i></p>	Section 10.7 and Section 10.11 considers the value of the local landscape as part of the assessment of effects on landscape character. This includes regard to the character, features and special qualities of the areas designated as the Suffolk Heritage Coast and Special Landscape Areas.
EN-1 (2023) 5.10 Landscape and Visual	<p><i>5.10.13 All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites.</i></p> <p><i>5.10.14 The Secretary of State will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project.</i></p> <p><i>5.10.15 Coastal areas are particularly vulnerable to visual intrusion because of the potential high visibility of development on the foreshore, on the skyline and affecting views along stretches of undeveloped coast.</i></p>	Section 10.11 assesses the operational effects of VE on views and visual receptors. This includes consideration of visibility from undeveloped coast. The benefits (including need) of the project are set out in Volume 6, Part 1, Chapter 4: Site Selection and Alternatives.
EN-1 (2023) 5.10 Landscape and Visual	<p><i>5.10.16 The applicant should carry out a landscape and visual impact assessment and report it in the ES, including cumulative effects (see Section 4.3). Several guides have been produced to assist in addressing landscape issues.</i></p>	A seascape, landscape and visual impact assessment of the VE array areas has been undertaken within this ES. Volume 6, Part 2, Chapter 10.



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>5.10.17 The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England and local development plans in Wales.</i></p> <p><i>5.10.18 For seascapes, applicants should consult the Seascape Character Assessment and the Marine Plan Seascape Character Assessments, and any successors to them.</i></p>	<p>The guidance that has been considered/ followed in preparing this chapter is set out in Volume 6, Part 7, Annex 10.1: SLVIA Methodology and summarised in paragraph 10.5.2. Local development plan policies, landscape character and seascape character assessments are also considered and identified within the relevant baseline data sources (Table 10.6).</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.19 The applicant should consider landscape and visual matters in the early stages of siting and design, where site choices and design principles are being established. This will allow the applicant to demonstrate in the ES how negative effects have been minimised and opportunities for creating positive benefits or enhancement have been recognised incorporated into the design, delivery and operation of the scheme.</i></p>	<p>Volume 6, Part 1, Chapter 4: Site Selection and Alternatives sets out the iterative process that has influenced the design of VE and how the design process was conducted. Section 10.9 of this Chapter sets out the mitigation that is included in VE project design in respect of seascape, landscape and visual receptors. The offshore design principles document (Volume 9, Report 3: Offshore Design Principles) also sets out all considerations that informed the offshore design for the array and the</p>



Legislation/ policy	Key provisions	Section where comment addressed
		guidance that will be considered going forward.
EN-1 (2023) 5.10 Landscape and Visual	<i>5.10.20 The assessment should include the effects on landscape components and character during construction and operation. For projects which may affect a National Park, The Broads or an Areas of Outstanding Natural Beauty the assessment should include effects on the natural beauty and special qualities of these areas.</i>	There are no effects on landscape components as a result of the VE array areas. Section 10.11 assesses the operational effects of VE on seascape, landscape and visual receptors.
EN-1 (2023) 5.10 Landscape and Visual	<p><i>5.10.21 The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include light pollution effects, including on dark skies, local amenity, and nature conservation.</i></p> <p><i>5.10.22 The assessment should also address the landscape and visual effects of noise and light pollution, and other emissions (see Section 5.2 and Section 5.7), from construction and operational activities on residential amenity and on sensitive locations, receptors and views, how these will be minimised.</i></p>	<p>Section 10.10 and 10.11 assesses the construction and operational effects of VE on views and visual receptors, including night-time visual effects arising from lighting.</p> <p>Section 10.9 of this Chapter sets out the mitigation. This includes a commitment to reduced lighting intensity in certain conditions.</p>
EN-1 (2023) 5.10 Landscape and Visual	<p><i>5.10.25 In considering visual effects it may be helpful for applicants to draw attention, in the supporting evidence to their applications, to any examples of existing permitted infrastructure they are aware of with a similar magnitude of impact on equally sensitive receptors. This may assist the Secretary of State in judging the weight they should give to the assessed visual impacts of the proposed development.</i></p>	Attention is drawn to the operational Greater Gabbard and Galloper Offshore Wind Farms, and the consented East Anglia One North and East Anglia TWO offshore wind farms. These projects are located nearby and affect common seascape,



Legislation/ policy	Key provisions	Section where comment addressed
		<p>landscape and visual receptors, particularly the SCHAONB and the Sussex Heritage Coast.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.26 Reducing the scale of a project can help to mitigate the visual and landscape effects of a proposed project. However, reducing the scale or otherwise amending the design of a proposed energy infrastructure project may result in a significant operational constraint and reduction in function – for example, electricity generation output. There may, however, be exceptional circumstances, where mitigation could have a very significant benefit and warrant a small reduction in function. In these circumstances, the Secretary of State may decide that the benefits of the mitigation to reduce the landscape and/or visual effects outweigh the marginal loss of function.</i></p> <p><i>5.10.27 Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure within its development site and wider setting. The careful consideration of colours and materials will support the delivery of a well-designed scheme, as will sympathetic landscaping and management of its immediate surroundings.</i></p>	<p>The balance between mitigation of effects and significant operational constraint / reduction in function is considered in Volume 6, Part 1, Chapter 4: Site Selection and Alternatives. The offshore design principles document (Volume 9, Report 3: Offshore Design Principles) also sets out all considerations that informed the offshore design for the array and the guidance that will be considered going forward.</p> <p>Adverse seascape, landscape and visual effects are minimised through mitigation measures as presented in Section 10.9. The role of the site selection process in minimising landscape and visual effects is presented in Volume 6, Part 1, Chapter 4: Site Selection and Alternatives. The offshore design principles document (Volume 9, Report 3:</p>



Legislation/ policy	Key provisions	Section where comment addressed
		<p>Offshore Design Principles) also sets out all considerations that informed the offshore design for the array and the guidance that will be considered going forward.</p> <p>Choice of colours and materials is set out in Volume 6, Part 2, Chapter 1: Offshore Project Description.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.29 The Secretary of State should take into consideration the level of detailed design which the applicant has provided and is secured in the Development Consent Order, and the extent to which design details are subject to future approvals.</i></p> <p><i>5.10.30 The Secretary of State should be satisfied that local authorities will have sufficient design content secured to ensure future consenting will meet landscape, visual and good design objectives.</i></p>	<p>Opportunities for detailed design are limited by the need to retain flexibility of WTG numbers, size, and location within the VE array area through the planning stages and the need to assess worst-case environmental effects (a necessary part of the process that is recognised in EN1 (paragraph 4.3)).</p> <p>Section 10.9 of this Chapter sets out the mitigation that is included in VE project design in respect of seascape, landscape and visual receptors. In accordance with EN-1, the iterative design of the VE array areas has sought to minimise effects upon the special qualities of the SCHAONB (and its Natural Beauty)</p>



Legislation/ policy	Key provisions	Section where comment addressed
		<p>and reduce visual/aesthetic effects insofar as possible, with respect to other functional, technical and economic requirements of the Project. The offshore design principles document (Volume 9, Report 3: Offshore Design Principles) also sets out all considerations that informed the offshore design for the array and the guidance that will be considered going forward.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.34 The duty to seek to further the purposes of nationally designated landscapes also applies when considering applications for projects outside the boundaries of these areas, which may have impacts within them. The aim should be to avoid harming the purposes of designation or to minimise adverse effects on designated landscapes, and such projects should be designed sensitively given the various siting, operational, and other relevant constraints. The fact that a proposed project will be visible from within a designated area should not in itself be a reason for the Secretary of State to refuse consent.</i></p>	<p>The operational effects of VE on the natural beauty and special qualities of the SCHAONB are assessed in Section 10.11. Regard has been had to the purpose of conserving and enhancing the natural beauty of the SCHAONB through the siting and design of VE. As described in Section 10.9, VE has been designed with environmental measures that minimise harm to the statutory purpose of the SCHAONB. It is the finding of the assessment that the VE array areas minimise adverse</p>



Legislation/ policy	Key provisions	Section where comment addressed
		<p>effects on the setting of the SCHAONB and avoid harming the purposes of the SCHAONB designation. This is set out in full in the assessment in Section 10.11 and summarised in the conclusions in Section 10.18.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.35 The scale of energy projects means that they will often be visible across a very wide area. The Secretary of State should judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project.</i></p> <p><i>5.10.36 In reaching a judgement, the Secretary of State should consider whether any adverse impact is temporary, such as during construction, and/or whether any adverse impact on the landscape will be capable of being reversed in a timescale that the Secretary of State considers reasonable.</i></p>	<p>Section 10.11 assesses the operational effects of VE on seascape, landscape and visual receptors. Volume 6, Part 1 Chapter 4: Site Selection and Alternatives sets out the benefits of and need for the project. Where the impacts of VE are temporary or reversible, this is set out in the assessments in Sections 10.10, 10.11 and 10.12.</p>
<p>EN-1 (2023) 5.10 Landscape and Visual</p>	<p><i>5.10.37 The Secretary of State should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by appropriate mitigation.</i></p> <p><i>5.10.38 The Secretary of State should consider whether requirements to the</i></p>	<p>As described in Section 10.9, VE has been designed carefully, taking account seascape, landscape and visual effects, and the need for good design and to have regard to the statutory purpose of the SCHAONB. As a result of the design</p>



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>consent are needed requiring the incorporation of particular design details that are in keeping with the statutory and technical requirements for landscape and visual impacts.</i></p>	<p>mitigation included in the project (Table 10.18) the VE array areas will have WTG with a reduced height (399 m above LAT or 395 m above MHWS) over a reduced spatial extent/spread and in the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB coast, which contribute to minimising effects on the special qualities of the SCHAONB and harms to its statutory purpose. Volume 6, Part 1, Chapter 4: Site Selection and Alternatives sets out the iterative process that has influenced the design of VE and how the design process was conducted. The offshore design principles document (Volume 9, Report 3: Offshore Design Principles) also sets out all considerations that informed the offshore design for the array and the guidance that will be considered going forward.</p>



Legislation/ policy	Key provisions	Section where comment addressed
<p>National Policy Statement for Renewable Energy Infrastructure (EN-3)</p> <p>Presented to the Houses of Parliament 2023</p> <p>(EN-3 2023)</p>	<p><i>2.1.7 As stated in Section 4.2 of EN-1, to support the urgent need for new low carbon infrastructure, all onshore and offshore electricity generation covered in this NPS that does not involve fossil fuel combustion are considered to be Critical National Priority (CNP) Infrastructure.</i></p> <p><i>2.1.8 Applicants must show how any likely significant negative effects would be avoided, reduced, mitigated or compensated for, following the mitigation hierarchy.</i></p>	<p>The project has applied the mitigation hierarchy effectively through the measures incorporated within the project design (Section 10.9). Likely significant effects on seascape, landscape and visual receptors have been reduced or mitigated following the mitigation hierarchy, including embedded design measures to reduce harms, such as on the special qualities of the SDNP and its views (Section 10.9). The residual effects arising from VE (CNP infrastructure) that are not capable of being addressed by application of the mitigation hierarchy are assessed in Section 10.10 to 10.18.</p>
<p>EN-3 (2023)</p> <p>2.3 Factors influencing site selection and design - National Designations.</p>	<p><i>2.3.6 When considering applications for CNP Infrastructure in sites with nationally recognised designations (such as SSSIs, National Nature Reserves, National Parks, the Broads, Areas of Outstanding Natural Beauty, Registered Parks and Gardens, and World Heritage Sites), the Secretary of State will take as the starting point that the relevant tests in Sections 5.4 and 5.10 of EN-1 have been met, and any significant adverse effects on the qualities for which the area has been designated are clearly</i></p>	<p>This paragraph of EN-3 is not applicable as the VE array areas are not located within a nationally recognised designation. The VE array areas are however located outside the boundaries of the SCHAONB in an area that may have impacts on its seascape setting. Measures</p>



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>outweighed by the urgent need for this type of infrastructure.</i></p>	<p>designed to minimise harm to its special qualities and statutory purpose are described in Section 10.9. The residual effects on the setting of the SCHAONB arising from the VE array areas that are not capable of being addressed by application of the mitigation hierarchy are assessed in Section 10.10 to 10.18.</p>
<p>EN-3 (2023) Technical Considerations - Flexibility in the project details</p>	<p><i>2.8.64 Owing to the complex nature of offshore wind farm development, many of the details of a proposed scheme may be unknown to the applicant at the time of the application to the Secretary of State. Such aspects may include:</i></p> <ul style="list-style-type: none"> <i>• the precise location and configuration of turbines and associated development.</i> <i>• the foundation type and size.</i> <i>• the installation technique or hammer energy.</i> <i>• the exact turbine blade tip height and rotor swept area.</i> <i>• the cable type and precise cable or offshore transmission route.</i> <i>• the exact locations of offshore and/or onshore substations.</i> <p><i>2.8.65 Guidance on how applicants should manage flexibility is set out at section 2.6 of this NPS and 4.3 of EN-1.</i></p>	<p>The need for a level of flexibility within the design envelope is well established and described in the Volume 6, Part 2, Chapter 1: Offshore Project Description. The parameters used in the assessment of the Maximum Design Scenario for the purpose of SLVIA are set out in Section 10.8.</p>
<p>EN-3 (2023) Seascape and Visual Effects</p>	<p><i>2.8.194 Applicants should address impact on seascape in addition to the landscape and visual effects discussed in Section 5.10 of EN-1.</i></p>	<p>Section 10.11 assesses the operational effects of VE on seascape,</p>



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>2.8.195 Seascape is an additional issue for consideration given that it is an important environmental, cultural and economic asset. This is especially so where seascape provides the setting for a nationally designated landscape (National Park, The Broads or AONB) and as a defined special quality of the area supports the delivery of the designated area's statutory purpose. This is also an important consideration for stretches of coastline identified as Heritage Coasts, which are associated with a largely undeveloped coastal character.</i></p> <p><i>2.8.196 Seascape is a discrete area, with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other.</i></p> <p><i>2.8.197 Applicants should follow relevant guidance including, but not limited to seascape and landscape character assessments, landscape sensitivity assessments, and marine plan seascape character assessments (e.g., NRW Marine Character Areas (with associated guidance) England's marine plans).</i></p>	<p>landscape and visual receptors (including the SCHAONB and Sussex Heritage Coast). The guidance that has been considered/ followed in preparing this chapter is set out in Volume 6, Part 7, Annex 10.1: SLVIA Methodology and summarised in Section paragraph 10.2.2. Landscape and seascape character assessments are also considered and identified within the relevant baseline data sources (Table 10.6).</p>
<p>EN-3 (2023) Seascape and Visual Effects</p>	<p><i>2.8.198 Where a proposed offshore wind farm will be visible from the shore and would be within the setting of a nationally designated landscape with potential effects on the area's statutory purpose, a seascape, landscape and visual impact assessment (SLVIA) should be undertaken in accordance with the relevant offshore wind farm EIA policy and the latest Offshore Energy SEA, including the White 2020 report.</i></p>	<p>It is considered that the SLVIA is proportionate to the scale of the potential impacts and the assessment in Section 10.11 includes the effects on the settings of nationally designated landscapes. The</p>



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>The SLVIA should be proportionate to the scale of the potential impacts. This will always be the case where a coastal National Park, the Broads or AONB, or a Heritage Coast or their setting is potentially affected.</i></p>	<p>SLVIA has been informed through consultation with stakeholders during statutory, non-statutory and Evidence Plan processes, which has influenced the SLVIA in all aspects, from consideration of the maximum design scenarios, the number and location of viewpoints, the approach taken to assessment at each location, and detail presented in contextualizing key assessment criteria such as magnitude and susceptibility. The SLVIA is therefore directly proportionate both to the scale of potential impacts and the quantum of feedback provided.</p>
<p>EN-3 (2023) Seascape and Visual Effects</p>	<p><i>2.8.199 Where necessary, assessment of the seascape should include an assessment of four principal considerations on the likely effect of offshore wind farms on the coast:</i></p> <ul style="list-style-type: none"> <i>• the limit of visual perception from the coast under poor, good and best lighting conditions;</i> <i>• the effects of navigation and hazard prevention lighting on dark night skies;</i> <i>• individual landscape and visual characteristics of the coast and the special qualities of designated landscapes, such as World Heritage</i> 	<p>Figure 10.19 illustrates the range and frequency of visibility of the VE array area from the coast, which is assessed in Section 10.11, together with how people perceive and interact with the coast and seascape. Night time effects of lighting of VE is also assessed in Section 10.11.</p>



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>Sites and National Parks, which limits the coasts capacity to absorb a development; and</i></p> <ul style="list-style-type: none"> <i>• how people perceive and interact with the coast and natural seascape.</i> 	<p>The baseline character and special qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (SCHAONB) are described in Section 10.7 and the operational effects of VE on the natural beauty and special qualities of the SCHAONB are assessed in Section 10.11.</p>
<p>EN-3 (2023) Seascape and Visual Effects</p>	<p><i>2.8.200 As part of the SLVIA, photomontages will be required. Viewpoints to be used for the SLVIA should be selected in consultation with the statutory consultees at the EIA Scoping stage.</i></p>	<p>Viewpoints were agreed during consultation with statutory consultees and are listed in Table 10.16. Photomontages from these viewpoints are presented in Volume 6, Part 7, Annex 10.3.6-26: SLVIA Assessment Photomontages, Figures 10.26 to 10.46.</p>
<p>EN-3 (2023) Seascape and Visual Effects</p>	<p><i>2.8.201 Applicants should assess the magnitude and significance of change to both the identified seascape receptors (such as seascape and landscape units, visual receptors and the special qualities of designated landscapes) in accordance with the standard methodology for SLVIA.</i></p>	<p>The methodology for the SLVIA (Appendix 10.1) and the reported ES findings (Section 10.10 – 10.18) provide assessment of both sensitivity and magnitude of change arising from VE, to arrive at case-by-case assessment of significance of</p>



Legislation/ policy	Key provisions	Section where comment addressed
		seascape, landscape and visual receptors.
EN-3 (2023) Seascape and Visual Effects	<i>2.8.202 Where appropriate, cumulative SLVIA should be undertaken in accordance with the policy on cumulative assessment outlined in Section 5.10.17 of EN-1.</i>	Section 10.13 sets out the cumulative SLVIA of VE, which accords with EN-1.
EN-3 (2023) Seascape and Visual Effects: Mitigation	<p><i>2.8.253 Neither the design nor scale of individual wind turbines can be changed without significantly affecting the electricity generating output of the wind turbines. Therefore, the Secretary of State should expect it to be unlikely that mitigation in the form of reduction in scale will be feasible.</i></p> <p><i>2.8.254 However, the siting layout of the turbines should be designed appropriately to minimise harm, considering other constraints such as ecological effects, safety reasons or engineering and design parameters.</i></p>	The specific layout of the VE WTGs has not been finalised at this stage. Section 10.9 sets out the mitigation that has been included in order to reduce the potential for seascape, landscape and visual effects, which has included a reduction in the spatial extent of the VE array area. These reductions made through the pre-application process have resulted in a material reduction in the spatial extent of the VE array areas and have been introduced specifically to minimise harm through a reduction in the spread of the VE array on the horizon.
UK Marine Policy Statement (MPS) (2011)	<p>The MPS provides the UK’s framework for preparing sustainable development in the marine area. In relation to seascape paragraph 2.6.5.3 advises that:</p> <p><i>“In considering the impact of an activity or development on seascape, the marine plan authority should take into account existing character and quality, how highly it is valued and its capacity</i></p>	Section 10.11 assesses the operational effects of VE on seascape, landscape and visual receptors.



Legislation/ policy	Key provisions	Section where comment addressed
	<p><i>to accommodate change specific to any development. Landscape Character assessment methodology may be an aid to this process.”</i></p>	
MPS	<p>Paragraph 2.6.5.4 states that:</p> <p><i>“For any development proposed within or relatively close to nationally designated areas the marine plan authority should have regards to the specific statutory purposes of the designated areas. The design of a development should be taken into account as an aid to mitigation.”</i></p>	<p>The baseline character and special qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (SCHAONB) are described in Section 10.7 and the operational effects of VE on the natural beauty and special qualities of the SCHAONB are assessed in Section 10.11.</p>

10.2.2 Guidance relevant to SLVIA is set out in the following documents:

- > Landscape Institute and IEMA (2013) - Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA3);
- > Landscape Institute (2019). Visual Representation of Development Proposals;
- > Landscape Institute (2021) Technical Guidance Note 02-21 ‘Assessing the Value of Landscapes outside National Designations’
- > Natural England (2012). An Approach to Seascape Character Assessment;
- > Natural England (2014). An Approach to Landscape Character Assessment;
- > Planning Inspectorate (2018) Advice Note Nine: Rochdale Envelope;
- > Planning Inspectorate (2019). Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects - Version 2
- > NatureScot (2021). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
- > NatureScot (2017) - Siting and Designing Windfarms in the Landscape, Guidance (Version 3);
- > NatureScot (2017) - Visual Representation of Windfarms, Guidance (Version 2.2) (herein referred to as ‘NS Visual Representation’); and
- > The National Historic Seascape Characterisation Consolidation (Land Use Consultants, 2018) should be used within the assessment for Historic Seascape Characterisation.



10.2.3 Although some of this guidance has been derived from publication by bodies in other UK nations it is commonly drawn on for work carried out in England where no equivalent exists. The preparation of visual representations that accord with NS Visual Representation has been agreed with stakeholders as part of the SLVIA Expert Topic Group (ETG) consultations.

10.3 CONSULTATION

OVERVIEW

10.3.1 Consultation with regard to seascape, landscape and visual amenity has been undertaken in line with the general process described in Volume 6, Part 1, Chapter 3: EIA Methodology. The key elements to date have included the Scoping Opinion in relation to seascape, landscape and visual (summarised in Table 10.2), and the ongoing Evidence Plan Process (EPP) via Seascape, Landscape and Visual ETG meetings.

SCOPING OPINION

10.3.2 Five Estuaries Offshore Windfarm Limited (hereafter 'the Applicant') submitted a Scoping Report (VE OWFL Ltd, September 2021) and request for a Scoping Opinion to the Secretary of State and a Scoping Opinion was received in November 2021. The Scoping Report sets out the proposed seascape, landscape and visual assessment methodologies, outline of the baseline data collected to date and proposed, and the scope of the assessment. Table 10.2 sets out the comments received in Section 4.10 of the PINS Scoping Opinion 'Aspect based scoping tables – Offshore' and how these have been addressed in this ES. Regard has also been given to other stakeholder comments that were received in relation to the Scoping Report.



Table 10.2: PINS Scoping Opinion responses – seascape, landscape and visual

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
PINS Scoping Opinion		
November 2021. Scoping Opinion ID 4.10.1	The ES should include an assessment of Suffolk, South Norfolk and North Essex Seascape Character Types (SCT) 01,02 and 04 and MMO Marine Character Areas (MCA) 11 and 15 – 17; or evidence demonstrating agreement with the relevant consultation bodies to omit these from the SLVIA; and the absence of LSE on the environment.	Section 10.11 (Impact 16.5) presents an assessment of the potential operational effects of the VE array areas on SCTs and MCAs within the SLVIA study area.
November 2021. Scoping Opinion ID 4.10.2	The ES should include an assessment of Construction, operation impact (daytime) of the array areas on Landscape Character Types (LCT) in Suffolk other than LCTs 5 - 8 & 29; Landscape Character Areas (LCA) in Essex other than LCAs F7 – F10; and all LCTs within Kent; or evidence demonstrating agreement with the relevant consultation bodies to omit these from the SLVIA; and the absence of LSE on the environment.	Section 10.11 (Impact 16.6) presents an assessment of the potential operational effects of the VE array areas on LCTs and LCAs within the SLVIA study area.
November 2021. Scoping Opinion ID 4.10.3	<p>The Inspectorate notes the advice from East Suffolk Council that special landscape areas no longer exist in their district and agrees that these can be scoped out of further assessment.</p> <p>The ES should include an assessment of Construction impact (daytime) of the array areas on Kent Downs Area of Outstanding Natural Beauty (AONB), Campsey Ashe Registered Park and Garden (RPG), Glenham Hall (RPG) and Special Landscape Areas (Suffolk); or evidence demonstrating agreement with the relevant consultation bodies to omit these from the SLVIA; and the absence of LSE on the environment.</p>	<p>Kent Downs AONB is not assessed as it is considered that it is not susceptible to the effects of VE, due to the approximately 78 km distance between it and the VE array areas.</p> <p>Section 10.11 (Impact 16.6) presents an assessment of the potential operational effects of the VE array areas on RPGs. Special Landscape Areas (Suffolk) are scoped out of the assessment in agreement with the</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
		relevant consultation bodies.
November 2021. Scoping Opinion ID 4.10.12	<p>The Inspectorate agrees that effects of the array area lighting on seascape and landscape character at night during maintenance can be scoped out.</p> <p>The ES should include an assessment of the effects of the array area lighting on seascape and landscape character at night during operation, together with cumulative effects with other existing and proposed wind farms to provide full understanding of the potential impacts on seascape and landscape character.; or evidence demonstrating agreement with the relevant consultation bodies to omit these from the SLVIA; and the absence of LSE on the environment.</p>	Section 10.11 presents an assessment of the effects of the array area lighting on seascape and landscape character at night during operation, together with cumulative effects with other existing and proposed wind farms.
November 2021. Scoping Opinion ID 4.10.19	Consideration should be given to the effects of sequential views of VE (both offshore and onshore) by people using the Suffolk Coast Path and the potential for a series of insignificant effects to become significant cumulatively.	Section 10.11 considers the potential for significant effects on sequential views from the Suffolk Coast Path during operation.
November 2021. Scoping Opinion ID 4.10.20	The ES should justify why additional viewpoints further inland were not included within the SLVIA to reflect the blade tip zone of theoretical visibility (ZTV) coverage shown on Scoping Report Figure 16.3.	Viewpoint 8 Burrow Hill (Figure 10.33) has been included in the viewpoint assessment. Section 10.11 provides further justification for the omission of additional inland viewpoints to be assessed within the SLVIA, which takes account of the screening effects of the landscape elements such as trees and buildings; and the generally flat topography of the study area.
November 2021.	The Inspectorate advises that the Applicant should consider using	Section 10.11 assesses the effect of VE at



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
<p>Scoping Opinion ID 4.10.21</p>	<p>viewpoints suggested for North Falls offshore wind farm in addition to those selected for Galloper, Greater Gabbard and East Anglia TWO.</p>	<p>representative viewpoints (Table 10.16), which have been informed by viewpoints selected for the North Falls project.</p>
	<p>The Applicant should seek to agree the range of viewpoints with relevant stakeholders and attention is drawn to the relevant comments from Essex County Council and Suffolk County Council in Appendix 2 of the Scoping Opinion.</p>	<p>Viewpoints listed in Table 10.16 have been agreed with stakeholders during ETG meeting consultations, with reference to the relevant comments in Appendix 2 of the Scoping Opinion.</p>
	<p>The ES should justify the limitation to only five viewpoints for the production of photomontages showing the existing night-time view alongside a representation of the appearance of visible aviation and marine navigation lighting.</p>	<p>Section 10.11 provides a justification for the number of night-time photomontages presented.</p>
	<p>The Applicant should discuss this issue with stakeholders and increase the number of viewpoints if necessary.</p>	<p>Viewpoints listed in Table 10.16 have been agreed with stakeholders during ETG meeting consultations.</p>
<p>November 2021. Scoping Opinion ID 4.10.22</p>	<p>The Inspectorate considers that a written assessment of the Illustrative Viewpoints A to G will be required alongside baseline panoramas and wireframe visualisations to understand the impacts of VE and fully assess its effects.</p>	<p>Illustrative viewpoints are chosen to demonstrate a particular effect or specific issue (including restricted visibility). A baseline panorama and wireline visualisation have been produced (Figures 10.40 – 11.46), but a written assessment of these viewpoints is not included in the SLVIA, in line with guidance (Landscape Institute, 2013).</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
November 2021. Scoping Opinion ID 4.10.23	Photographs should be taken at the time of year and time of day when visibility is greatest.	Figures 10.26 - 11.46 are based on photographs taken at times when Met Office visibility was regarded as 'Very Good' or 'Excellent'.
	The Applicant should take account of the advice from East Sussex Council, Essex County Council and Suffolk County Council in Appendix 2 of the Scoping Opinion.	Advice from East Sussex Council, Essex County Council and Suffolk County Council has been taken into account during the preparation of the SLVIA.
	The ES should also include photomontages prepared during winter months to reflect views when trees are not in leaf and therefore visibility may be increased.	Figures 10.26 - 11.46 present photomontages based on photographs taken in summer only. It is regarded that seasonal variations to tree foliage will not impinge on visibility from the selected viewpoints due to the lack of tree cover within each view; and that atmospheric effects at sea during the winter would limit the visibility enabled when trees are not in leaf.
November 2021. Scoping Opinion ID 4.10.24	The Inspectorate considers that the following guidance should also be used in the assessment in the ES: <ul style="list-style-type: none"> > The National Historic Seascape Characterisation Consolidation (Land Use Consultants, 2018) should be used within the assessment for Historic Seascape Characterisation. > Technical Guidance Note (TGN) 02-21 'Assessing the Value of Landscapes outside National Designations' (Landscape Institute, 2021) 	Guidance that has informed the preparation of the SLVIA is summarised in paragraph 10.2.2, which includes 'The National Historic Seascape Characterisation Consolidation and TGN 02-21.



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
East Suffolk Council Scoping Response		
November 2021. Scoping Opinion East Suffolk Council.	Special Landscape Areas (SLA); no longer form part of East Suffolk Local Plan policy and no reference to them should be made. The remaining designation items contained in Scoping Report Table 16.2 are agreed.	Special Landscape Areas (SLA) within East Suffolk are omitted from the SLVIA.
November 2021. Scoping Opinion East Suffolk Council.	<p>East Suffolk Council noted that, subject to weather conditions, the maximum visual impact is likely to be experienced on late summer sunny afternoons/early evenings when there is a south-western airstream that turns turbine blades to 'face' towards the coast and the sun is low in the sky, behind the viewer.</p> <p>It is recommended that assessors take this scenario into consideration when undertaking their assessment of onshore visual effects.</p> <p>Baseline photography should be taken late in the afternoon where possible, particularly from the most well used resort based public viewpoints, in order to capture these effects.</p>	<p>Section 10.8 considers the worst case scenario when visibility of the offshore elements of VE is greatest.</p> <p>Figures 10.26 – 11.46 present photomontages based on photographs taken in summer and at the recommended time where possible.</p>
November 2021. Scoping Opinion East Suffolk Council.	<p>East Suffolk Council emphasised the importance of the following documents when assessing the Suffolk Coast and AONB:</p> <ul style="list-style-type: none"> > Suffolk Seascape Character Assessment https://suffolklandscape.org.uk/landscape-typology/seascape-typology/ (Section 16.4.8, page 343) > Natural Beauty and Special Qualities of the Suffolk Coast and Heaths AONB (SCHAONB) https://www.eastsuffolk.gov.uk/planning/national-infrastructure-and-energyprojects/sizewell-nuclear-power-station/aonb-special-qualities-document/ (Table 16.1, page 341) 	Table 10.6 includes these documents as part of the data sources which informs the assessment of operational effects on seascape, landscape and visual receptors contained in Section 10.11.



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<ul style="list-style-type: none"> > Designation History Series https://infrastructure.planninginspectorate.gov.uk/wpcontent/ipc/uploads/projects/EN010078/EN010078-004113-SCC%20The%20Designation%20History%20of%20the%20Suffolk%20Coast%20and%20Heaths%20AONB%20220221.pdf > Development in the setting of the Suffolk Coast & Heaths Area of Outstanding > Natural Beauty (AONB) https://www.suffolkcoastandheaths.org/wpcontent/uploads/2021/01/ENDORSED-SCH-AONB-Position-Statement-on-Development-in-Setting-of-AONB-2015.pdf (Table 26.1, page 553) 	
<p>November 2021. Scoping Opinion East Suffolk Council.</p>	<p>The Applicant should consider sequential visual effects on users of the Suffolk/England Coast Path, where the effect of multiple non-significant visual effects along the route may be significant; and the cumulative and in-combination sequential visual effects of VE with other projects and proposals.</p>	<p>Section 10.11 considers the potential for operational effects on sequential views from the Suffolk Coast Path, including the potential for multiple non-significant visual effects becoming significant.</p> <p>Section 10.13 considers the potential for cumulative and in-combination sequential visual effects of VE with other projects and proposals.</p>
<p>November 2021. Scoping Opinion East Suffolk Council.</p>	<p>Approach to consideration of visibility of the turbines. The seasonality of adverse impacts and the concentration of highest visibility days in certain period of the year, some of which coincide with peak visitor period, should also be a consideration and we refer the Applicant to the following published material as a</p>	<p>Section 10.11 takes seasonal variations of visibility into consideration as part of the SLVIA; and takes guidance from the aforementioned documents.</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p>guide to carrying out their own research and gathering baseline information:</p> <ul style="list-style-type: none"> > https://infrastructure.planninginspectorate.gov.uk/wpcontent/ipc/uploads/projects/EN010078/EN010078-001586-6.3.28.8%20EA2%20ES%20Appendix%2028.8%20Offshore%20Windfarm%20Visibility.pdf > https://infrastructure.planninginspectorate.gov.uk/wpcontent/ipc/uploads/projects/EN010078/EN010078-001587-6.3.28.9%20EA2%20ES%20Appendix%2028.9%20Met%20Office%20Vessel%20Visibility%20Data%20Study.pdf 	
<p>November 2021. Scoping Opinion East Suffolk Council.</p>	<p>East Suffolk Council highlights the importance of the 'Suffolk Coast & Heaths AONB Natural Beauty and Special Qualities Indicators (2016)' document which sets out the key sources of information applied for seascape, landscape, and visual assessment.</p>	<p>The baseline character and special qualities of the SCHAONB are described in Section 10.7 and the operational effects of VE on the natural beauty and special qualities of the SCHAONB are assessed in Section 10.11, with reference to the 'Suffolk Coast & Heaths AONB Natural Beauty and Special Qualities Indicators (2016)' document.</p>
<p>November 2021. Scoping Opinion East Suffolk Council.</p>	<p>East Suffolk Council considers that the Statutory Purposes of the SCHAONB may be put at risk by VE, both from its impacts alone and cumulatively with other developments.</p> <p>It is considered that these effects of VE on the Statutory Purposes of the SCHAONB are likely to be a key consideration for Statutory Consultees, Interested Parties, and the SoS.</p>	<p>Section 10.11 assesses the effect of VE on the Statutory Purposes of the SCHAONB, as described in Section 2 of the CRoW Act:</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	<p>Natural England, as the advisory body to Government on protected landscapes, provides further guidance on this issue within Section 2 of the CRoW Act: https://www.legislation.gov.uk/ukpga/2000/37/section/82</p>	
<p>November 2021. Scoping Opinion East Suffolk Council.</p>	<p>The SLVIA should consider the extent and significance of cumulative landscape and visual effects, particularly including ‘curtaining’ in views from the northwest, where it is anticipated that the solus and in combination effects of VE will have implications for both the Natural Beauty of the AONB and the purposes of designation.</p>	<p>Section 10.11 assesses the operational effects of VE on seascape, landscape and visual receptors, including the potential ‘curtaining’ effect in views from the coast. The cumulative ‘in-combination’ effects of VE with other projects are assessed in Section 10.13. Section 10.11 assesses the effect of VE on the special qualities and Statutory Purposes of the SCHAONB.</p>
<p>November 2021. Scoping Opinion East Suffolk Council.</p>	<p>Scoping out of construction impacts. Table 16.5 (pages 374 – 376) seeks to scope out the impacts of construction, however noting the distance of the proposed Five Estuaries array offshore, and that construction impacts will not exceed the operation effects in terms of magnitude, they will both extend the duration of these effects and potentially interact with constructing projects both offshore and on the coast, (at Sizewell C for example). This is expected to generate adverse effects that should be understood and evaluated. In this respect the inclusion of two beach landing facilities during the Sizewell C construction phase strongly indicate that the Sizewell C development should be included in cumulative assessments.</p>	<p>Section 10.13 presents the cumulative seascape, landscape, and visual effects of VE with other projects, including Sizewell C.</p>
<p>Essex County Council Scoping Response</p>		



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
<p>November 2021. Scoping Opinion. Essex County Council.</p>	<p>Guidance.</p> <p>Essex County Council is generally satisfied with the proposed methodology but requests the detailed methodology for review as soon as possible and that key terms and values should be defined including:</p> <ul style="list-style-type: none"> > Susceptibility and value – which contribute to sensitivity of the receptor; > Scale, duration and extent - which contribute to the magnitude of effect; and > Significance. 	<p>Section 10.5 includes a definitions of key terms and values which are more fully defined within Volume 6, Part 7, Annex 10.1: SLVIA Methodology.</p>
<p>November 2021. Scoping Opinion. Essex County Council.</p>	<p>Essex County Council recommends the LI Technical Guidance Note 06-19 'Visual Representation of development proposal's' is used for reference.</p> <p>The SLVIA should take into consideration the LI Technical Guidance Note (TGN) 02-21 'Assessing the Value of Landscapes Outside National Designations' that has recently been published and builds on the details within GLVIA3 and the assessment of value (GLVIA3 Box 5.1). GLVIA3 recognises that landscape value is not always signified by designation:</p> <p><i>'The fact that an area of landscape is not designated either nationally or locally does not mean that it does not have any value'</i> (paragraph 5.26).</p> <p>This TGN provides further information on the subject matter and introduces additional factors that should be taken into consideration when assessing value.</p>	<p>Figures 10.26 – 11.46 adhere to guidance within TGN 06-19.</p> <p>Section 10.11 includes assessments of landscape value informed by guidance within TGN 02-21 and which inform the SLVIA.</p>
<p>November 2021. Scoping Opinion</p>	<p>Proposed viewpoint selection.</p> <p>Essex County Council broadly accepts the proposed Viewpoints, which includes</p>	<p>Viewpoint F (Figure 10.46) is located at Clacton-on-Sea.</p>



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
Essex County Council.	Clacton-on-Sea and Harwich, and advises that a specific viewpoint at Clacton-on-Sea pier is also included.	
November 2021. Scoping Opinion Essex County Council.	<p>Assessment of sequential impacts on the England coast path.</p> <p>The Jaywick to Harwich stretch of the England Coast Path was approved by the SoS on the 7 of July 2021 and work is now underway to prepare the new stretch of coast path for public use. The SLVIA should consider sequential visual effects on users of the England coast path along this stretch and in turn, additional viewpoints along this stretch of coast should be included.</p>	<p>Section 10.11 considers the potential for significant effects on sequential views from the Suffolk Coast Path and includes Viewpoint 12 The Naze which lies on the Jaywick to harwich stretch of the England Coast Path.</p>
November 2021. Scoping Opinion Essex County Council.	<p>Approach to viewpoint photography</p> <p>The Applicant should note that the turbines are likely to be at their most visible in the evening, as the sun will be setting in the west, and views will, subject to weather conditions, be widely available from coastal locations both on the shore and from elevated locations back from the beach or cliffs. Essex County Council requests that baseline photography is taken late in the afternoon when possible, particularly from the most well used resort based public viewpoints, to capture these effects.</p> <p>Essex County Council notes that the accumulation of non-significant visual effects along such a route may together be of significance. The SLVIA will need to consider the cumulative and in combination sequential visual effects with other projects and proposals.</p>	<p>Figures 10.26 – 11.46 present photomontages based on photographs taken in summer and at the recommended time where possible. Section 10.13 considers the cumulative and in combination sequential visual effects of VE with other projects and proposals.</p>
November 2021. Scoping Opinion	The SLVIA should also contain the setting guidance produced by Historic England if this is to be integrated with the heritage and cultural section.	The effect of VE on the setting of cultural heritage assets is assessed in Volume 6, Part 3,



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
Essex County Council.		Chapter 7 Onshore Archaeology and Cultural Heritage.
November 2021. Scoping Opinion Essex County Council.	The key sources of information include the National Heritage List for England in regard to the Registered Parks and Gardens and UNESCO World Heritage Sites, but some listed buildings and scheduled monuments on the list may also be relevant considerations particularly those (as noted in Chapter 20) which have a historic functional link with the coast and views out to sea (forts, lighthouses, etc.).	Volume 6, Part 3, Chapter 7 Archaeology and Cultural Heritage considers the listed buildings and scheduled monuments which have a historic functional link with the coast and views out to sea noted in Chapter 20 of the Scoping Report as part of the assessment of the effects of VE on visual receptors within the relevant settlements: Lowestoft, Southwold, Dunwich, Aldeburgh, Orford, Felixstowe and Walton-on-the-Naze.
November 2021. Scoping Opinion Essex County Council.	Essex County Council requests consideration of Clacton Seafront Gardens (Grade II Registered Park and Garden, list entry no. 1001626) within the SLVIA.	Section 10.11 includes an assessment of the visual effects of VE at Clacton-on-Sea, informed by Viewpoint E (Figure 10.44).
November 2021. Scoping Opinion Essex County Council.	Essex County Council suggests inclusion of the scheduled monuments of Dovercourt Lighthouses and Causeway (list entry no. 1017200) Beacon Hill Fort (list entry no. 1018958) and Harwich Redoubt (list entry no. 1017205) on the list of visual receptors to be considered within the SLVIA.	Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage Volume 2, Chapter 12 includes consideration of the effects of VE on visitors to these historic environment assets within the assessment of effects on Harwich.
November 2021. Scoping Opinion Essex County Council.	Essex County Council recommends that Good Practice Advice in Planning 3: The Setting of Heritage Assets (Historic England, 2017) is also considered in the	The effect of VE on the setting of cultural heritage assets is assessed in Volume 6, Part 3,



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	technical guidance as there is some overlap between the SLVIA and Built Heritage chapters with some visual receptors being visitors to heritage assets (with their settings contributing to how they are experienced).	Chapter 7: Archaeology and Cultural Heritage.
November 2021. Scoping Opinion Essex County Council.	Essex County Council suggests seeking agreement on a list of viewpoints requiring wirelines or photomontages to better assess the impact of the proposal on heritage assets.	The effect of VE on the setting of cultural heritage assets is assessed in Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage.
Suffolk County Council Scoping Response		
November 2021. Scoping Opinion Suffolk County Council.	<p>A representative viewpoint further north at Covehithe should be considered to understand potential curtaining effects, and to properly inform consideration of cumulative impacts, and their implications for the SCHAONB.</p> <p>In addition to the representative (assessed) and illustrative (not assessed) viewpoints identified in table 16.3 for the SLVIA, Specific Viewpoints (assessed) may also be required to deal with some locations for the assessment of impacts on coastal heritage assets including Landguard Fort and Bawdsey Manor for example, and we would suggest that discussions with relevant cultural heritage consultees, including Historic England take place, to explore these issues in terms of the level of assessment required.</p>	An illustrative viewpoint from Covehithe (Viewpoint A) is included and shown in the wireline in Figure 10.40.
November 2021. Scoping Opinion Suffolk County Council.	Scoping out of SCT02: International Ports and Approaches appears to be inconsistent with inclusion of both SCT03: Nearshore Waters SCT05: Coastal Waters	Section 10.11 includes a preliminary assessment of the effect of VE on SCT02.
November 2021. Scoping Opinion	The SLVIA should consider sequential visual effects on users of the Suffolk / England coast path, where the accumulation of non-significant visual	Section 10.11 considers the potential for significant operational effects on sequential



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
Suffolk County Council.	<p>effects along the route may be significant.</p> <p>The SLVIA should consider the cumulative and in-combination sequential visual effects with other projects and proposals.</p>	<p>views from the Suffolk Coast Path.</p> <p>Section 10.13 considers the potential for cumulative and in-combination sequential visual effects of VE with other projects and proposals.</p>
November 2021. Scoping Opinion Suffolk County Council.	<p>Approach to consideration of visibility of the turbines.</p> <p>The seasonality of adverse impacts and the concentration of highest visibility days in certain period of the year, some of which coincide with peak visitor period, should also be a consideration. Suffolk County Council refers the Applicant to the following published material, as a guide to carrying out research and gathering baseline information: East Anglia TWO Offshore Windfarm Environmental Statement Volume 3, Appendix 28.8 Offshore Windfarm Visibility Appendix and 28.9 Met Office Vessel Data Visibility Study.</p>	<p>Consideration of visibility of the VE array areas and seasonality of impacts is undertaken with reference to the existing environment in Section 10.7 and in the assessment of operational effects of VE in Section 10.11.</p>
November 2021. Scoping Opinion Suffolk County Council.	<p>The significance of setting in emerging Planning Policy.</p> <p>The Applicant's attention is drawn to the significant changes and amendments in the consultation draft of National Policy Statement EN3 from section 2.34 onwards, in respect of the setting of designated landscapes and related SLVIA matters.</p>	<p>Table 10.1 outlines the legislation that is relevant to and informs the SLVIA.</p>



EVIDENCE PLAN PROCESS

- 10.3.3 The Evidence Plan Process (EPP) has been set up to provide a formal, non-legally binding, independently chaired forum to agree the scope of the EIA and Habitats regulations Assessment (HRA), and the evidence required to support the DCO Application.
- 10.3.4 For seascape, landscape and visual, engagement has been undertaken via the EPP Expert Topic Group (ETG): SLVIA, LVIA, Archaeology & Cultural Heritage.
- 10.3.5 ETG meetings were held on 14 July 2021, 11 August 2021, 7 December 2021, 2 November 2022, 17 August 2023 and 4 September 2023 with representatives from East Suffolk Council, Essex County Council, Historic England, National Trust, Natural England, SCHAONB Partnership, Suffolk County Council and Tendring District Council.
- 10.3.6 Minutes from these seascape, landscape, historic environment and marine archaeology ETG meetings will be set out in Volume 5, Report 2: Evidence Plan to accompany the ES for the Application. The key feedback from these ETGs is summarised as follows:
- > Agreement of the SLVIA study area (60 km radius) (Figure 10.1);
 - > Agreement of effects to be scoped in and out of the SLVIA;
 - > Agreement of the relevant guidance and baseline data sources to inform the SLVIA;
 - > Discussion and agreement around the SLVIA methodology to inform robust assessment;
 - > Clarity on the realistic maximum design scenario being assessed as the Rochdale Envelope for the Proposed Development (see section 10.8);
 - > The need to undertake viewpoint photography in very good/excellent visibility conditions, during the afternoon/early evening.
 - > Potential for effects on the special qualities of the SCHAONB and its statutory purpose;
 - > Importance of the Suffolk Coast Path and England Coast Path national trails, as the principal means by which the character of the SCHAONB is experienced, including sea views;
 - > Potential effects of WTG lighting on the night-time views and qualities of the SCHAONB;
 - > Feedback on specific landscape, visual and/or cultural heritage receptors and viewpoints for assessment in the ES; and
 - > Feedback and agreement on the viewpoints to be included in the SLVIA.
- 10.3.7 All consultees were encouraged to scrutinise and feedback on the proposed viewpoints, with the aim of agreeing the viewpoints, where possible, for the ES assessment. A set of visual representations which contained baseline views and wirelines for all viewpoints, as well as photomontages from a selection of key viewpoints were provided as part of slide presentations to stakeholders at the ETG meetings to inform further consideration of the visual impacts of VE. Photomontages were also presented at VE non-statutory public exhibitions which were held in person in Frinton-on-Sea on 13 July 2022 and Lawford on 14 July 2022 and are also available to view online as part of the consultation on VE's online exhibition platform.



10.3.8 Consultations on the viewpoint selection brought forward a number of suggestions from stakeholders regarding the inclusion of certain viewpoint locations for assessment, which have been incorporated in the viewpoints selected for the SLVIA (shown in Table 10.16). Agreement of the viewpoint locations for use in the SLVIA has been reached with stakeholders following consideration of the combined feedback from consultees and discussion during the ETG meetings.

10.3.9 Further information is provided in Volume 5, Report 2: Evidence Plan.

STATUTORY CONSULTATION

10.3.10 VE's statutory consultation period under Section 42 of the Planning Act 2008 ran from 14 March 2023 and closed on 12 May 2023, a period of nine weeks. The PEIR was published as part of Statutory Consultation which provided preliminary information on seascape, landscape and visual within PEIR Volume 2, Chapter 10: Seascape, landscape and visual.

10.3.11 Table 10.3: Statutory Consultation Feedback provides a summary of the key themes of the feedback received in relation to seascape, landscape and visual and outlines how the feedback has been considered in this ES chapter. A list of comments received during the Statutory Consultation period and the response to comments is provided in the Volume 5, Report 1: Consultation Report.



Table 10.3: Statutory Consultation Feedback

Consultee	Consultation and key issues raised	Section where comment addressed
East Suffolk Council	<p><i>“The seascape of Suffolk is sensitive to offshore wind farm development primarily due to its relationship with the combined Suffolk Coast and Heaths AONB and Suffolk Heritage Coast, with seascape contributing significantly to the AONB’s setting and natural beauty. To fully assess the potential seascape impacts on East Suffolk’s coastal communities and designated landscapes, an update to the Suffolk Seascape Sensitivity Study 2020 was required as the original scope of works did not cater for the proposed Five Estuaries project parameters. The findings of this updated study have now been published and inform our response to the statutory consultation”.</i></p>	<p>The findings of the updated addendum to the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2023) apply to offshore windfarms with WTGs greater than 400m high. The maximum height of the VE WTGs has been reduced from 424 m to 399 m blade tip height (above LAT) (395 m above MHWS) as described in Table 10.18. The update addendum highlights the OESEA 2020 conclusions that 40 km was a ‘reasonable’ and ‘substantial’ buffer from designated coastal landscapes for WTGs up to 400 m high to blade tip. The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>the assessment. The majority of the VE WTGs are located beyond 40 km from the SCHAONB. Further consideration of how the findings of this SLVIA relate to the recommendations of the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2020) and its Update Addendum (Suffolk County Council, 2023) are set out in the conclusions of this Chapter in Section 10.18.</p>
<p>East Suffolk Council</p>	<p><i>“ESC has concerns regarding the potential significance of visual impact on our coastal regions resulting from the introduction of up to 79 wind turbine generators with associated foundations having a maximum tip height of 424m above mean sea level. At a distance of approximately 37km from the offshore array, the proposed wind turbines will be visible from the designated Suffolk Coast and Heaths AONB”.</i></p>	<p>The number of WTGs will not exceed 79 at the minimum blade tip height (324 m above LAT) and 41 at the maximum blade tip height (399 m above LAT). The maximum height of the VE WTGs has been reduced from 424 m blade tip height to 399 m blade tip height (above LAT), leading to a reduction in the ZTV and apparent scale of the WTGs as described in Table 10.18. The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for the assessment.
East Suffolk Council	<p><i>“The Five Estuaries Stage 2 consultation assessment concludes that at approximately 37km off the Suffolk coast at the closest point that the proposed wind turbines would be located behind existing wind farms when viewed from most East Suffolk coastal viewpoints. The assessment also finds that despite the Five Estuaries wind turbines being taller than the existing intervening wind turbines which have a maximum blade tip height of 180.5m, they are unlikely to be visible frequently due to distance, weather conditions and earth curvature”.</i></p> <p><i>The PEIR concludes that the majority of the wind turbines will be viewed behind and in the same section of the view as the existing Greater Gabbard and Galloper offshore wind farms, thereby minimising additional visual impact. In terms of cumulative effects with future projects it concludes that the visual effects are not considered to be significant on balance, due to the low level of change and the long distance over which the effect would be experienced.</i></p>	These are also the findings of the ES assessment presented in this SLVIA (Chapter 10) and summarised in its conclusions in Section 10.18.
East Suffolk Council	<p><i>“It is acknowledged as part of the Five Estuaries’ project development that the turbine array area has been reduced following the last consultation, with a section of the northern array being removed to help avoid filling in the ‘gap’ between existing wind farms as seen from the Suffolk coast. The</i></p>	Mitigation measures are described in Section 10.9 and include a reduction in the spatial extent of the windfarm site between Scoping and PEIR, which reduced the apparent lateral spread of WTGs, with a section of the northern



Consultee	Consultation and key issues raised	Section where comment addressed
	<p><i>justification presented for this refers to the sensitivity of views from the coast, particularly from within the AONB”.</i></p>	<p>array removed to help avoid filling in the ‘gap’ between existing wind farms as seen from the Suffolk coast.</p>
<p>East Suffolk Council</p>	<p><i>“The commissioned update to the Suffolk Seascape Sensitivity Study (2020) reviews the sensitivity assessment previously undertaken using the same study area limits, assessing for wind turbines greater than 400m to blade tip above Lowest Astronomical Tide (LAT) (more appropriate for the Five Estuaries project at 424m to tip). The report update forms an addendum to the original assessment and together they will act as a framework and background study for assessing the likely seascape and visual effects of wind farms off of the Suffolk coast. It also undertakes a review of the Five Estuaries Seascape and Landscape Visibility Impact Assessment (SLVIA) methodology used in the PEIR.</i></p> <p><i>The update addendum to the Suffolk Seascape Sensitivity to Offshore Wind Farms Study (2020) was produced by White Consultants (June 2023). It finds that wind turbines over 400m should be located no less than 40km from the coastline (with turbines at 425m >42.5km) for the introduced visual effects on the AONB to fall below the medium magnitude threshold”.</i></p>	<p>The findings of the update addendum to the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2023) apply to offshore windfarms with WTGs greater than 400m high. The maximum height of the VE WTGs has been reduced from 424 m to 399 m blade tip height (above LAT) (395 m above MHWS) as described in Table 10.18. The update addendum highlights the OESEA 2020 conclusions that 40 km was a ‘reasonable’ and ‘substantial’ buffer from designated coastal landscapes for WTGs up to 400 m high to blade tip. The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>represents the worst-case scenario (or MDS) for the assessment. Further consideration of how the findings of this SLVIA relate to the recommendations of the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2020) and its Update Addendum (Suffolk County Council, 2023) are set out in the conclusions of this Chapter in Section 10.18.</p>
<p>East Suffolk Council</p>	<p><i>It also assessed the average offshore visibility distances related to the percentage of days each year that turbines can be seen from coastal receptors. This assessment concluded that the Five Estuaries arrays (with the closest row of 424m turbines at approximately 37.7km from the Suffolk coast at the closest point) would be visible less than 33% of days each year due to visibility modifiers (i.e. meteorological/atmospheric conditions). However, on days where the turbines will be visible, it is expected that visual effects from within the AONB will be worse than medium magnitude. It is however noted that the precise magnitude of effect will depend on the findings of a detailed assessment of AONB special qualities as discussed below.</i></p>	<p>The magnitude of change resulting from the VE array areas for representative viewpoints within the SCHAONB is assessed in Section 10.11 of this SLVIA. Due to the combination of factors assessed as part of magnitude, including apparent scale, lateral spread and distance from the SCHAONB, the assessment has concluded that the magnitude of change arising as a result of the VE array areas will be not greater than low magnitude.</p>
<p>East Suffolk Council</p>	<p><i>“Additionally, it was found that there are multiple references within the PEIR to the Five Estuaries array not being within the AONB’s ‘immediate setting’ but rather within the ‘open seascape’. Section 10.11.181 within PEIR Volume 2, Chapter 10 Seascape Landscape and Visual Assessment states that ‘the VE array areas do not affect the immediate setting of the SCHAONB, but will be seen on and beyond the horizon, as a</i></p>	<p>The assessment describes the ‘immediate setting’ of the SCHAONB and ‘horizon development’ as a way of distinguishing between the effects of development on the distant visual horizon/open seascape compared to development at close range in the foreground seascape (immediate setting). Where WTGs are</p>



Consultee	Consultation and key issues raised	Section where comment addressed
	<p><i>'horizon development' to a large, open seascape, rather than being viewed 'within' its seascape/landscape.'</i> Section 10.11.357 also states <i>'In views from the Suffolk coast at night, the VE WTG aviation lighting will not occur in the immediate setting of the coast or the SCHAONB, but will be on the horizon of a large, open seascape, rather than being viewed 'within' its seascape/landscape.'</i> <i>'Immediate setting' is not a reference supported by planning policy. It is the view of ESC that the limit of a seascape setting is the visual horizon, therefore if the Five Estuaries array can be seen on the visual horizon, it is considered to be within the seascape setting for the AONB. ESC therefore does not agree with the Five Estuaries conclusion that the wind turbine array is not within the AONB's 'immediate setting'. Setting refers to the surroundings in which the AONB is experienced, the extent of setting is therefore not fixed or measured. The visual horizon (and Five Estuaries array) will be experienced by users within the AONB; therefore 'immediate setting' has no real value in this context".</i></p>	<p>visible closer to shore, in the foreground seascape or visible next to coastal focal points or complex and enclosed coastal landscapes (immediate setting), there is potential for adverse effects of higher magnitude on setting, whereas offshore wind farm developments tend to have lower levels of effect, of less adversity, when located in the seascape backdrop away from the seascapes visible at the coast, in locations on or beyond the horizon ('horizon development'). It is accepted that the VE array areas are within the seascape setting of the SCHAONB and may be visible in views out of the SCHAONB, and by virtue of its nature, siting and size/scale is likely to have an impact on the setting and special qualities of the SCHAONB, however these are assessed in the SLVIA (Section 10.11) and found to be not significant.</p>
<p>East Suffolk Council</p>	<p><i>"In parallel to the Suffolk Seascape Sensitivity Study update addendum, White Consultants also undertook a comparison of seascape and visual impact assessment methodologies for East Anglia TWO/East Anglia ONE North offshore wind farms and the Five Estuaries offshore wind farm to ensure consistency in the PEIR approach adopted. Sections 2.4-2.10 of the methodology review finds that whilst special qualities are referred to at various points in the method, no focussed assessment of them has been undertaken for the PEIR.</i></p>	<p>The comments in the 'Comparison of SLVIA Methodologies for East Anglia TWO/East Anglia One North and Five Estuaries' (White Consultants, June 2023) are noted and addressed in full in the conclusions of this SLVIA in Section 10.18. SLVIA methodology is subject to ongoing iteration to address professional practice and guidance, therefore some differences in approaches between East Anglia TWO and Five Estuaries are to be expected. The review undertaken by East</p>



Consultee	Consultation and key issues raised	Section where comment addressed
	<p><i>It is therefore recommended that a full assessment of the effects on AONB special qualities is carried out as special qualities reflect what is important about the AONB (i.e. they describe its natural beauty and express the qualities for which it was designated). As such, great weight must be accorded to them (as set out in national planning policy), noting that all special qualities are of high value and important whether physical, historical, cultural or perceptual. Special qualities can be affected by development in the AONB's setting and this in turn can affect the primary statutory purpose of the designation”.</i></p>	<p>Suffolk Council highlighted a number of improvements in clarity of criteria, helpful, reasonable and fair wording/approach in the SLVIA Methodology (which is set out in full in Appendix 10.1).</p> <p>A full assessment of the effects of VE array area on the special qualities of the SCHAONB was undertaken in the PEIR (Section 10.11 of the PEIR, pages 169 to 192 (paragraphs 10.11.171 to 10.11.280) and appears to have been missed by East Suffolk Council (and the SCHAONB partnership) when reviewing the PEIR. East Suffolk Council (and the SCHAONB partnership) have subsequently acknowledged that ‘full assessment of the effects on AONB special qualities’ was undertaken in the PEIR. This full assessment of the effects on SCHAONB special qualities is undertaken in Section 10.11 – Impact 16.7: Impact (daytime) of the operation and maintenance of the VE array areas on special qualities of designated landscapes.</p>
<p>East Suffolk Council</p>	<p><i>“The comparison report also highlights the potential limitations of the cumulative impact assessments supporting the Five Estuaries development. Understanding a combined and in totality scenario will be essential to understanding the scale of effects and potential impact on AONB special qualities and purposes of designation.</i></p>	<p>Guidance on assessing cumulative landscape and visual impacts (NatureScot, 2021) defines cumulative impacts as ‘the additional changes caused by a proposed development in conjunction with other similar developments OR as the combined effect of a set of</p>



Consultee	Consultation and key issues raised	Section where comment addressed
	<p><i>The Planning Inspectorate noted in their Scoping Report that there are a number of other projects, including Nationally Significant Infrastructure Projects (NSIPs) such as East Anglia ONE North and TWO Wind Farms, North Falls Offshore Wind Farm and Sizewell C, located within the likely study area for the Proposed Development. There is the potential for cumulative impacts to occur as a result of temporal and spatial overlap of the Five Estuaries project with these other NSIPs which needs to be adequately assessed.</i></p> <p><i>This view was supported by ESC, noting that the relevance of the AONB's special qualities extends beyond its legal boundaries and into its setting, especially in respect of 'out to sea'.</i></p>	<p><i>developments, taken together'. The SLVIA undertaken in Section 10.13 assesses the 'additional' cumulative changes resulting from the VE array areas (in addition to other projects such as East Anglia ONE North and TWO Wind Farms, North Falls Offshore Wind Farm and Sizewell C), in line with this NatureScot guidance and guidance contained within IEMA (2020) 'Demystifying Cumulative Effects' in respect of considering the additional (contribution) of the development to the cumulative effect. This approach allows the contribution of the specific project to the cumulative effect to be assessed (rather than the totality of the effect) and addresses guidance in Advice Note 17 (PINS, 2019) to provide information on 'how the effects of the applicant's proposal would combine and interact with the effects of other development'.</i></p>
East Suffolk Council	<p><i>"A focussed assessment of AONB special qualities is therefore required to contribute to the decision-making process. As yet this has not been undertaken in detail and will be necessary to fully understand the magnitude of visual effect on the AONB.</i></p>	<p>A full assessment of the effects of VE array area on the special qualities of the SCHAONB was undertaken in the PEIR (Section 10.11 of the PEIR, pages 169 to 192 (paragraphs 10.11.171 to 10.11.280) and appears to have been missed by East Suffolk Council (and the SCHAONB partnership) when reviewing the PEIR. East Suffolk Council (and the SCHAONB partnership) have subsequently acknowledged that 'full assessment of the effects on AONB special qualities' was undertaken in the PEIR.</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		This full assessment of the effects on SCHAONB special qualities is undertaken in Section 10.11 – Impact 16.7: Impact (daytime) of the operation and maintenance of the VE array areas on special qualities of designated landscapes.
East Suffolk Council	<i>“ESC previously highlighted the importance of the AONB’s special qualities and its purposes for designation in the EIA Scoping response. This advised that these must be given consideration in ongoing assessments, given the size and location of the proposed wind turbines. It is considered that the statutory purposes of the designation may be put at risk from the project alone and cumulatively with other projects, and ESC’s final position on seascape impacts on the AONB will be informed by the findings of this assessment”.</i>	A full assessment of the effects on SCHAONB special qualities is undertaken in Section 10.11 – Impact 16.7: Impact (daytime) of the operation and maintenance of the VE array areas on special qualities of designated landscapes of this ES chapter 10. The conclusion of the SLVIA (Section 10.18) is that the assessed effects to the special qualities of the SCHAONB would not undermine the statutory purpose of the SCHAONB and would not compromise the purposes of the SCHAONB designation. The full reasoning for this conclusion is set out fully in Section 10.18.
East Suffolk Council	<i>“ESC will remain concerned until the special qualities assessment has been undertaken. If once completed it is found that the mitigation hierarchy would be unable to fully mitigate the anticipated effects and that residual impacts remain, ESC (in conjunction with SCC as host Authority and the SCHAONB Partnership) will be seeking appropriate compensation to offset the seascape impacts”.</i>	A full assessment of the effects of VE array area on the special qualities of the SCHAONB was undertaken in the PEIR (Section 10.11 of the PEIR, pages 169 to 192 (paragraphs 10.11.171 to 10.11.280) and appears to have been missed by East Suffolk Council (and the SCHAONB partnership) when reviewing the PEIR. East Suffolk Council (and the SCHAONB partnership) have subsequently acknowledged that ‘full assessment of the effects on AONB



Consultee	Consultation and key issues raised	Section where comment addressed
		<p><i>special qualities</i>' was undertaken in the PEIR. This full assessment of the effects on SCHAONB special qualities is undertaken in Section 10.11 of this ES chapter 10. The Project has had due regard to the statutory purpose of the SCHAONB (to 'conserve and enhance' natural beauty) through the siting and design of the VE array areas, which include measures that avoid significant effects, minimise 'harm' and avoid 'compromising' the purposes of the SDNP.</p>
Essex County Council	<p><i>'The proposed locations for Viewpoints and Illustrative Viewpoints, including reference to Clacton-on-Sea and Harwich. Whilst the viewpoints proposed are broadly acceptable, we would advise a specific viewpoint from Clacton-on-Sea pier is also included'.</i></p>	<p>Clacton-on-Sea pier is outside the SLVIA study area i.e. over 60km from the VE array areas. A viewpoint is included from Clacton-on-Sea (Viewpoint F shown in Figure 10.45) from the promenade north of pier, which is within the study area.</p>
Natural England	<p><i>'The statutory purpose of a designated landscape extends beyond its boundary to include its setting, where this contributes to the natural beauty of the designation. The seascape component of the setting is fundamental to the character and natural beauty of the SCHAONB and the special character of the SHC. The presence and special character of the SHC serves to highlight the stretch of coastal edge most sensitive to the potential seascape and visual effects from VE. We note that the SVIA also considers this in paragraph 10.7.29'.</i></p>	<p>The SLVIA recognises that the statutory purpose of a designated landscape extends beyond its boundary to include its setting and that the geographic extent of the Suffolk Heritage Coast highlights the stretch of coastal edge most sensitive to the potential seascape and visual effects from the VE array areas (para 10.11.82).</p>
Natural England	<p><i>'Natural England considers that the VE proposed development area sits within the seascape setting of the SCHAONB and the</i></p>	<p>The assessment describes the 'immediate setting' of the SCHAONB and 'horizon</p>



Consultee	Consultation and key issues raised	Section where comment addressed
	<p><i>SHC. We note that the SVIA acknowledges that VE is located within the seascape setting of the SCHAONB and the SHC, for example, in paragraphs 10.11.190 and 10.11.237. However, the emphasis of the assessment (for example at paragraph 10.11.181) is that VE is not in the ‘immediate setting’ and is a ‘horizon development’. Natural England disagrees with the first of these statements. We consider that the special qualities of the SCHAONB are highly sensitive to changes in views out to sea and will be affected by the proposed VE development’.</i></p>	<p>development’ as a way of distinguishing between the effects of development on the distant visual horizon/open seascape compared to development at close range in the foreground seascape (immediate setting). Where WTGs are visible closer to shore, in the foreground seascape or visible next to coastal focal points or complex and enclosed coastal landscapes (immediate setting), there is potential for adverse effects of higher magnitude on setting, whereas offshore wind farm developments tend to have lower levels of effect, of less adversity, when located in the seascape backdrop away from the seascapes visible at the coast, in locations on or beyond the horizon (‘horizon development’). It is accepted that the VE array areas are within the seascape setting of the SCHAONB and may be visible in views out of the SCHAONB, and by virtue of its nature, siting and size/scale is likely to have an impact on the setting and special qualities of the SCHAONB, however these are assessed in the SLVIA (Section 10.11) and found to be not significant.</p>
<p>Natural England</p>	<p><i>‘We understand that the minimum distances to the VE array area are 37.3km from the SCHAONB, and 35.8km from the SHC (Table 2.4). However, these distances cannot be used to justify ‘negligible harm’ to the SCHAONB and SHC, since distance does not negate the following:</i></p>	<p>The minimum distance to the VE array area is 37.3km from the SCHAONB. The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper</p>



Consultee	Consultation and key issues raised	Section where comment addressed
	<p><i>a. The VE WTGs, even the ~320m blade tip height design option, will appear significantly taller than the Greater Gabbard Offshore Wind Farm (OWF) and Galloper OWF turbines.</i></p> <p><i>b. The VE WTGs, especially the ~320m design option, will increase the lateral spread of turbines across the horizon, and introduce the presence of a new object on the horizon (the most northerly 8 WTGs) from key viewpoints.</i></p> <p><i>c. The VE WTGs, especially the ~320m design option, will create a densification effect across the horizon when seen in conjunction with the Greater Gabbard and Galloper array turbines’.</i></p>	<p>wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for the assessment.</p> <p>A. The maximum height of the VE WTGs has been reduced from 424m blade tip height to 399m blade tip height above LAT (395m above MHWS), as described in Table 10.18. This will reduce the apparent (vertical) scale of the VE WTGs and their comparative scale with Greater Gabbard and Galloper WTGs. Due to the position of the VE array areas behind and to the east of Greater Gabbard and Galloper, at greater distance offshore, it is evident from the visualisations in Figures 10.23 – 10.46 that there is little difference in the apparent scale of the VE WTGs within the southern array. It is recognised that the WTGs within the northern VE array are likely to appear taller than the Greater Gabbard and Galloper WTGs, both in terms of their height to blade tip and larger rotors. Their scale would be more comparable</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>to the closest of the consented East Anglia TWO WTGs to the north.</p> <p>b. The lateral spread of the VE array areas will occupy between 22° to 32° of the horizontal field of view (HfoV) in total, however the majority of the WTG array will be viewed behind and in the same section of the view as the existing Greater Gabbard and Galloper offshore wind farms, thereby minimising the additional horizontal spread of WTGs. The VE array areas will only result in WTGs occupying an additional lateral spread of up to approximately 8° of the HfoV to the north of Galloper, in views from the northern part of the SCHAONB, which is considered a relatively narrow addition as a portion of the 180° sea view available to the observer. The additional HfoV of VE WTGs reduces when moving south along the SCHAONB coastline, to the point where at Shingle Street (Viewpoint 10) it is almost entirely behind Galloper and Greater Gabbard and adds little spread of WTGs.</p> <p>c. It is accepted that the VE WTGs will contribute to the densification of WTGs on the sea skyline together with the operational Greater Gabbard and Galloper WTGs, although this effect is less with the 41 WTG MDS layout. This effect is considered preferable to the above lateral spread effect (b), and results in lower levels of effect, as it concentrates development</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>into part of the view that is already affected by WTG arrays and has a <i>'cluttered horizon'</i> (EDF Energy, SCHAONB Partnership at all, 2016), when the operational WTGs are visible.</p> <p>These findings are described further in the SLVIA (Section 10.11 and Appendix 10.1) and summarised in the conclusions in Section 10.18.</p>
Natural England	<p><i>'Based on the information presented within the PEIR, and with awareness of typical visibility conditions along the Suffolk Coast, Natural England disagrees with the conclusion of 'some not significant effects' on the SCHAONB special qualities and that this would 'not compromise the purposes of designation' (paragraph 10.16.27).'</i></p>	<p>The conclusion of the SLVIA (Section 10.18) is that the VE array areas will not result in significant effects on the special qualities of the SCHAONB and would 'not compromise the purposes of designation'. These conclusions are based on the assessments in Section 10.11 of the visual effects of the VE array areas from representative viewpoints in the SCHAONB and the full assessment of effects on SCHAONB special qualities in section 10.11.170.</p>
Natural England	<p><i>'Natural England does not agree that the potential seascape and visual effects of the 16 WTGs, that form the northern array of VE, on the SCHAONB and the SHC, are insignificant in EIA terms. Within the northern array area of VE, the most northerly 8 WTGs have the greatest potential to affect the special qualities of the SCHAONB and the special character of the SHC. This relates to their lateral spread, combined with their apparent height, which from some viewpoints will bridge the gap between Galloper OWF and the consented East Anglia TWO (EA2) array. We advise that this 'curtaining' effect' is likely to be significant. While the remaining 8 WTGs are, from most views, partially masked by the Galloper WTGs, their</i></p>	<p>The conclusion of the SLVIA (Section 10.18) is that the VE array areas will not result in significant effects on views from the SCHAONB or its special qualities. These conclusions are based on the assessments in Section 10.11 of the visual effects of the VE array areas from representative viewpoints in the SCHAONB and the full assessment of effects on SCHAONB special qualities in Section 10.11. The SLVIA considers the cumulative effect of the grouping of WTGs in the northern part of the VE array areas in the gap between Galloper / Greater</p>



Consultee	Consultation and key issues raised	Section where comment addressed
	<p><i>sheer size will create a harsh juxtaposition on the horizon with the existing arrays’.</i></p>	<p>Gabbard and East Anglia TWO in the CEA in Section 10.13. On balance, while noting some differences in apparent scale of the WTGs within the northern VE array, the effect is considered not significant given the retention of some gap between VE and East Anglia TWO in the majority of views; the relatively narrow additional increase in lateral spread of the VE WTGs; their introduction as elements that are similar to those that are present or consented; and their very long distances from the SCHAONB on the sea skyline, all of which diminishes the potential ‘curtaining’ effect, and limits the cumulative effect to occurring in only the most optimum, infrequent, visibility conditions.</p>
<p>Natural England</p>	<p><i>‘Natural England advises that further embedded mitigation is required. Below we propose 3 design principles which we believe will assist in fulfilling the need for Good Design as outlined in the Overarching National Policy Statement for Energy (EN-1).</i></p> <ul style="list-style-type: none"> <i>> Design Principle 1: Maintain a clear visual gap between VE and the consented EA2 by limiting northward lateral spread of the array.</i> <i>> Design Principle 2: Locate as many turbines as possible on the eastern side of the Northern Development Area in order to increase the separation distance and therefore reduce the apparent height of the WTGs when seen from the SCHAONB and SHC.</i> 	<p>The need for Good Design outlined in the Overarching National Policy Statement for Energy (EN-1) is recognised. The offshore design principles document (Volume 9, Report 3: Offshore Design Principles) sets out all considerations that informed the offshore design for the array and the guidance that will be considered going forward. Design mitigation has been included in the project design as described in Table 10.18. This is summarised as follows:</p> <ul style="list-style-type: none"> <i>> The spatial extent of the VE array area was reduced between Scoping and PEIR, providing in a reduction in the lateral spread</i>



Consultee	Consultation and key issues raised	Section where comment addressed
	<p>> <i>Design Principle 3: Ensure that the layout does not create a new distinct object on the far horizon visible from the SCHAONB and SHC (see Figure 10.29e with respect to the most northerly 8 WTGs)</i>.</p>	<p>of WTGs when viewed from the coast, with a section of the northern array removed to help maintain a visual gap between existing wind farms and the consented East Anglia TWO windfarm, as seen from the Suffolk coast.</p> <p>> The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for the assessment.</p> <p>> The maximum height of the VE WTGs has been reduced from 424 m blade tip height to 399 m blade tip height above LAT (395 m above MHWS), leading to a reduction in the ZTV and apparent scale of the WTGs.</p>
Natural England	<p><i>'Natural England consider the ~420m blade tip height design option to be the worst-case based on the apparent heights of</i></p>	<p>The maximum height of the VE WTGs has been reduced from 424 m blade tip height to 399 m</p>



Consultee	Consultation and key issues raised	Section where comment addressed
	<p><i>the WTGs and an increase in the lateral spread of WTGs northwards across the horizon towards the EA2 consented array’.</i></p>	<p>blade tip height (above LAT) as described in Table 10.18.</p>
<p>Natural England</p>	<p><i>‘Natural England consider that the ~320m blade tip height design is more acceptable, although the apparent heights of the WTGs do not become completely insignificant. The greater northward lateral spread of WTGs combined the densification effects associated with the greater number of WTGs would also result in some significant effects. The ~320m turbines will still appear to be significantly taller than the existing turbines (Gallopier and Greater Gabbard arrays), albeit partially obscured. The ~320m scheme is more likely to result in good design provided that additional design principles are adhered to’.</i></p>	<p>It is noted that Natural England consider that the parameters for maximum number of WTGs at the smaller blade tip height (324 m blade tip height above LAT) is more acceptable and more likely to result in good design. The SLVIA assesses the effect of the maximum design scenario, which consists of 41 WTGs at 399 m blade tip height (above LAT) as described in Table 10.17.</p>
<p>Natural England</p>	<p><i>‘Natural England agrees with the assessment that the most sensitive views are from Orford Ness (10.7.44), principally in terms of potential for significant adverse effects to the SCHAONB wildness and tranquillity special qualities’.</i></p>	<p>The visual effect of the VE array areas on the view from Orford Ness is assessed in Section 10.11 (Viewpoint 9, Figure 10.34) and effects on the SCHAONB wildness and tranquillity special qualities are assessed in Section 10.11. Gallopier and Greater Gabbard windfarms have a more notable influence on the view from Orford Ness, as they are more visible in this view from Orfordness than other parts of the SCHAONB further north. The austere simplicity, bleak and foreboding qualities afforded by this location would still be appreciated by visitors, despite the addition of the VE array areas on the seaward horizon. Wider views of Orford Ness include other development influences,</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		including structures associated with the military use of Orford Ness, structures associated with the 50+ years of former military testing and bombing; and the tall communications masts at Orford Ness Transmitting Station. Bleak, derelict, foreboding, skeletal
Natural England	<i>'In response to statement at para.10.7.51; based on the visualisations supplied by the Applicant, we request further clarification as to how views past each turbine are possible. Or in respect of the sense of enclosure and isolation special quality; how the VE array can be considered permeable?'</i>	The VE array areas are considered relatively 'permeable' and do not create 'enclosure', partly due to their relatively small vertical scale at long distance and partially due to the space between WTGs, which means that there will still be views to the sky beyond (varying with the density of the turbine array). This is evident in the ES photomontage visualisations, such as Viewpoint 4 (Figure 10.29) for example, where the WTG are seen as a simple line on the horizon with space between each WTG.
Natural England	<i>'We could not find the visualisations of the ~320m design scenario (as indicated in paragraph 10.8.4).'</i>	Visualisations of the ~320 m design scenario (79 turbines) are shown in Figure 10.47 – Figure 10.67.
Natural England	<i>'We disagree with para. 10.11.186 which states that VE 'will entirely occur in the context of existing built developments'. 'There is a distinct grouping of 8 WTGs in the remaining gap between Galloper / Greater Gabbard OWF arrays and VE. We cannot see where the SVIA considers the effect of this. We also disagree that the VE WTGs are 'generally in keeping' with existing arrays given the starkly differing apparent heights between Galloper / Greater Gabbard arrays and VE (see table 1 below).'</i>	The grouping of eight VE WTGs in the northern part of the northern VE array area is noted in the SLVIA, however these will occur as a northern extension of the Galloper / Greater Gabbard OWF arrays and will therefore be seen in the context of these operational wind farms. The height of the VE WTGs is considered to be 'generally in keeping' with these existing arrays, particularly the WTGs located to the south and



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>east of the VE array areas, while noting that those WTGs to the north of the VE array area are likely to be viewed with a higher apparent height in certain views, which may be more akin to the apparent scale of those consented at East Anglia TWO. The SLVIA considers the cumulative effect of the grouping of WTGs in the northern part of the VE array areas in the gap between Galloper / Greater Gabbard and East Anglia TWO in the CEA in Section 10.13.</p>
<p>Natural England</p>	<p><i>'Para. 10.11.188 acknowledges that VE adds to an already 'cluttered landscape', but the assessment does not quantify this. With respect of para. 10.11.222; although the VE development is not being introduced into an undeveloped coastline and accompanying seascape, a new development is still being introduced into the seascape setting of the SCHAONB and SHC. What is the additional impact of VE in terms of the 'cluttering' effect identified?'</i></p>	<p>The contribution of the VE array areas in terms of the 'cluttering' effect identified is assessed further in the CEA in Section 10.13 and conclusions are drawn in Section 10.18.</p>
<p>Natural England</p>	<p><i>'Para. 10.11.199 states that VE will not present 'eye-catching features'. However, the statement at para. 10.11.200 suggests that VE will be an 'additional focal point'. NE advises that the most northerly 8 WTGs will create a new-distinct object on the horizon and the resulting harm from this new object on the statutory purpose of the SCHAONB and special character of the SHC has not been fully considered in the assessment'.</i></p>	<p>The grouping of eight VE WTGs in the northern part of the VE array areas will occur as a northern extension of the Galloper / Greater Gabbard OWF arrays and will therefore be seen in the context of these operational WTGs. While noting some differences in apparent scale varying according to the viewpoint, the SLVIA considers that the VE WTGs are not separate or fundamentally dissimilar to the operational WTGs, or those that have recently been consented in the setting of the SCHAONB. The</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>conclusion of the SLVIA (Section 10.18) is that the assessed effects to the special qualities of the SCHAONB would not undermine the statutory purpose of the SCHAONB and would not compromise the purposes of the SCHAONB designation. The full reasoning for this conclusion is set out fully in Section 10.18.</p>
<p>Natural England</p>	<p><i>‘The assessment of the sense of openness and exposure special quality has not considered the effect of VE closing of gap between the existing Galloper and Greater Gabbard OWF arrays and the to be built EA2 array. Based upon the evidence provided by the Applicant there is a likelihood that VE would close the last ‘gap without turbines’ in direct views out to sea along a ~20km stretch of SCHAONB and SHC coastline Orford Ness to Dunwich)’.</i></p>	<p>The contribution of the VE array areas to the closing of the gap between the existing Galloper and Greater Gabbard and consented East Anglia TWO array is assessed as part of the CEA in Section 10.13. On balance the effect is considered not significant given the retention of some gap between VE and East Anglia TWO in the majority of views; the relatively narrow additional increase in lateral spread of the VE WTGs; their introduction as elements that are similar to those that are present or consented; and their very long distances from the SCHAONB on the sea skyline, all of which diminishes the potential ‘curtaining’ effect, and limits the cumulative effect to occurring in only the most optimum, infrequent, visibility conditions.</p>
<p>Suffolk Coast and Heaths AONB</p>	<p><i>‘The AONB Partnership has concern about the impact that the offshore element will have on the nationally designated landscape’.</i></p>	<p>A full assessment of the effects on SCHAONB special qualities is undertaken in Section 10.11 of this ES chapter 10. The conclusion of the SLVIA (Section 10.18) is that the assessed effects to the special qualities of the SCHAONB</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>would not undermine the statutory purpose of the SCHAONB and would not compromise the purposes of the SCHAONB designation. The full reasoning for this conclusion is set out fully in Section 10.18.</p>
<p>Suffolk Coast and Heaths AONB</p>	<p><i>‘The AONB Partnership considers the impacts on the nationally designated landscape will be more fully understood following the publication of an update of the Suffolk Seascape Sensitivity Study (2020), commissioned by Suffolk County Council, East Suffolk Council and the AONB Partnership. It is not available in the timeframe available for this consultation. The findings of that study will inform the view of the AONB Partnership and communicated to the project proposers as soon as reasonably possible’.</i></p>	<p>The findings of the update addendum to the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2023) apply to offshore windfarms with WTGs greater than 400m high. The maximum height of the VE WTGs has been reduced from 424m to 399m blade tip height (above LAT) (395m above MHWS) as described in Table 10.18. The update addendum highlights the OESEA 2020 conclusions that 40km was a ‘reasonable’ and ‘substantial’ buffer from designated coastal landscapes for WTGs up to 400m high to blade tip. The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for the assessment. Further consideration of how the findings of this SLVIA relate to the recommendations of the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2020) and its Update Addendum (Suffolk County Council, 2023) are set out in the conclusions of this Chapter in Section 10.18.</p>
<p>Suffolk Coast and Heaths AONB</p>	<p><i>‘The AONB Partnership considers there is an increase in industrialisation of views from the nationally designated landscape when looking out of the AONB towards the sea, including an increasing the ‘curtain effect’ of offshore industrial development’.</i></p>	<p>The contribution of the VE array areas to the closing of the gap between the existing Galloper and Greater Gabbard and consented East Anglia TWO array is assessed as part of the CEA in Section 10.13. On balance the effect is considered not significant given the retention of some gap between VE and East Anglia TWO in the majority of views; the relatively narrow additional increase in lateral spread of the VE WTGs; their introduction as elements that are similar to those that are present or consented; and their very long distances from the SCHAONB on the sea skyline, all of which diminishes the potential ‘curtaining’ effect, and limits the cumulative effect to occurring in only the most optimum, infrequent, visibility conditions.</p>



Consultee	Consultation and key issues raised	Section where comment addressed
Suffolk Coast and Heaths AONB	<p><i>'The AONB Partnership considers that the mitigation hierarchy (avoid, minimise, restore and compensate) should be employed in relation to impacts on the AONB'.</i></p>	<p>The conclusion of the SLVIA (Section 10.18) is that significant effects on the views and special qualities of the SCHAONB are avoided. Effects have been further minimised following consultations with stakeholders, through a reduction in the maximum height of the VE WTGs, which has been reduced from 424 m blade tip height to 399 m blade tip height (above LAT), leading to a reduction in the ZTV and apparent scale of the WTGs as described in Table 10.18. The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for the assessment.</p>



Consultee	Consultation and key issues raised	Section where comment addressed
Suffolk Coast and Heaths AONB	<i>'The AONB Partnership considers that to conform to EN1 and EN3 that the proposed developments should not significantly negatively impact nationally designated landscape. Where there are significant adverse impacts these should be outweighed by environmental, social and economic benefits'.</i>	The conclusion of the SLVIA (Section 10.18) is that significant adverse effects on special qualities of the SCHAONB will be avoided and the assessed effects would not undermine the statutory purpose of the SCHAONB nor compromise the purposes of the SCHAONB designation. The full reasoning for this conclusion is set out fully in Section 10.18.
Suffolk Coast and Heaths AONB	<i>'The AONB Partnership considers that Five Estuaries Offshore Wind Farm Ltd as a statutory undertaker is required to pay due regard to the purpose of the AONB when undertaking its operations and decision making'.</i>	The Project has had due regard to the statutory purpose of the SCHAONB (to 'conserve and enhance' natural beauty) through the siting and design of the VE array areas, which include measures that avoid significant effects, minimise 'harm' and avoid 'compromising' the purposes of the SDNP.
Suffolk Coast and Heaths AONB	<i>'The AONB Partnership considers that the Five Estuaries Offshore Wind Farm Ltd proposals for development require the proposals to meet the aims of the statutory AONB Management Plan'.</i>	The Projects has sought to avoid damage or harms to the natural beauty of the AONB. The effects of the VE array areas on AONB special qualities are assessed as not significant and were reduced further through a reduction in the maximum height of the VE WTGs to 399 m blade tip height (above LAT) and distance from the SCHAONB. The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for the assessment.</p>
<p>Suffolk Coast and Heaths AONB</p>	<p><i>‘The AONB Partnership requests that an assessment of the offshore element of the proposals be undertaken against the defined natural beauty and special qualities of the Suffolk Coast & Heaths AONB. In particular an assessment of the proposals on the defined features of landscape quality, scenic quality, relative wildness and relative tranquillity.</i></p> <p><i>It considers that a further assessment of the proposed offshore development on the ability of the AONB to deliver statutory purpose should be undertaken. This should include any cumulative impacts of the proposals from existing offshore wind and other proposals in development.</i></p> <p><i>Until assessments are undertaken of impacts on the AONBs defined qualities, and not just the viewpoint assessment, the AONB Partnership will reserve its judgement on the impacts on the AONB’.</i></p>	<p>A full assessment of the effects of VE array area on the special qualities of the SCHAONB was undertaken in the PEIR (Section 10.11 of the PEIR, pages 169 to 192 (paragraphs 10.11.171 to 10.11.280) and appears to have been missed by SCHAONB partnership when reviewing the PEIR. The SCHAONB partnership have subsequently acknowledged that ‘full assessment of the effects on AONB special qualities’ was undertaken in the PEIR. This full assessment of the effects on SCHAONB special qualities is presented in Section 10.11 of this ES Chapter 10.</p>
<p>Sussex County Council</p>	<p><i>‘Given the need for accurate assessment of direct and cumulative impacts, the County Council’s view is that the preliminary position of the promoter may not have adequately</i></p>	<p>A full assessment of the effects of VE array area on the special qualities of the SCHAONB was undertaken in the PEIR (Section 10.11 of the</p>



Consultee	Consultation and key issues raised	Section where comment addressed
	<p><i>addressed the potential harm on the Suffolk Coast & Heaths Area of Outstanding Natural Beauty’.</i></p>	<p>PEIR, pages 169 to 192 (paragraphs 10.11.171 to 10.11.280) and appears to have been missed by Sussex County Council when reviewing the PEIR. This full assessment of the effects on SCHAONB special qualities is also presented in Section 10.11 of this ES Chapter 10.</p>
<p>Sussex County Council</p>	<p><i>‘The County Council have engaged with White Associates to provide an update to the Seascape Sensitivity Study which was jointly commissioned by Suffolk County Council, East Suffolk Council and the Suffolk Coast and Heaths Area of Outstanding Natural Beauty Partnership in 2020. The current sensitivity study does not take into account the parameters of the Five Estuaries project (see Map 1 appended). The County Council will provide the promotor with a copy of this addendum as soon as work is completed. However, early indications show that the conclusions of the report will be different to that of the opinion provided by the promotor’.</i></p>	<p>The findings of the update addendum to the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2023) apply to offshore windfarms with WTGs greater than 400m high. The maximum height of the VE WTGs has been reduced from 424m to 399m blade tip height (above LAT) (395m above MHWS) as described in Table 10.18. The update addendum highlights the OESEA 2020 conclusions that 40km was a ‘reasonable’ and ‘substantial’ buffer from designated coastal landscapes for WTGs up to 400m high to blade tip. The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes</p>



Consultee	Consultation and key issues raised	Section where comment addressed
		<p>the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for the assessment. Further consideration of how the findings of this SLVIA relate to the recommendations of the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2020) and its Update Addendum (Suffolk County Council, 2023) are set out in the conclusions of this Chapter in Section 10.18.</p>



10.4 SCOPE AND METHODOLOGY

OVERVIEW

10.4.1 This section sets out the scope of the ES assessment for seascape, landscape and visual. This scope has been developed as VE design has evolved and responds to feedback received to-date as set out in Section 10.3.

SPATIAL SCOPE AND STUDY AREA

10.4.2 Institute of Environmental Management and Assessment Guidance (IEMA, 2015 and 2017) recommends a proportionate ES focused on the significant effects and a proportionate ES aspect chapter. An overly large SLVIA study area may be considered disproportionate if it makes the understanding of the key impacts of the VE array areas more difficult.

10.4.3 This is supported by Landscape and Visual Impact Assessment (LVIA) Guidance produced by the Landscape Institute (GLVIA3) (Landscape Institute, 2013) (para 3.16). This guidance recommends that *'The level of detail provided should be that which is reasonably required to assess the likely significant effects'*. Para 5.2 and p70 also states that *'The study area should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner'*.

10.4.4 The spatial scope of the seascape, landscape and visual assessment is defined as 60 km from the VE array areas (comprising the maximum extent of the VE array areas within which the WTGs will be installed), which has formed the basis of the study area described in this section.

10.4.5 Broadly, the SLVIA study area, shown in Figure 10.3, is defined by the waters of the North Sea and Thames Estuary and a terrestrial area including the coasts of Suffolk, Essex and the edge of Thanet in Kent.

10.4.6 The SLVIA study area is defined as a radius of 60 km based on the outer limit of the area where significant effects could occur, based on professional judgement, guidance, the Zone of Theoretical Visibility (ZTV) (Figure 10.8) and identification of impact pathways.

10.4.7 In its Scoping Opinion (PINS, August 2020), PINS confirmed that it is content that there is unlikely to be significant seascape, landscape and visual effects outside of the 60 km radius SLVIA study area and therefore agreed that seascape, landscape and visual effects of VE outside the 60 km radius SLVIA study area could be scoped out of SLVIA.

10.4.8 The SLVIA will generally focus on locations within the SLVIA study area from where it may be possible to see the VE array areas, as defined by the Blade Tip ZTV (Figure 10.8).

TEMPORAL SCOPE

10.4.9 The temporal scope of the assessment of seascape, landscape and visual effects is the entire lifetime of VE, which therefore covers the construction, operation and maintenance, and decommissioning phases.



SCOPE OF THE ASSESSMENT

- 10.4.10 This section details the approach to identifying receptors that could be significantly affected by VE and therefore need to be taken forward for further consideration in the SLVIA. The general principle is that receptors that could be significantly affected will be identified based on their sensitivity/importance/value and the spatial and temporal scope of the assessment. Consultation has informed the selection of potential receptors that could be significantly affected by VE.
- 10.4.11 The assessment of whether an effect has the potential to be of likely significance has been based upon review of existing evidence base, consideration of commitments made (embedded environmental measures), professional judgement and where relevant, recommended aspect specific methodologies and established practice. In applying this judgement, use has been made of a simple test that to be significant an effect must be of sufficient importance that it should be taken into consideration when making a development consent decision.
- 10.4.12 The Scoping Report (Five Estuaries Wind Farm Ltd, September 2021) presented an assessment of the likely seascape, landscape and visual effects scoped in and scoped out of the SLVIA (Table 17.4, Scoping Report) and cumulative effects (Table 17.6). The effects of VE on certain seascape, landscape and visual receptors were agreed through the Scoping Opinion (PINS, 2021) in Table 10.2 as scoped out of the SLVIA and are not assessed any further in the ES.
- 10.4.13 For those matters 'scoped in' for assessment, the approach to level of assessment is tiered. A 'preliminary' or 'detailed' assessment is undertaken as follows:
- > A 'preliminary assessment' approach for an environmental aspect / effect which may include secondary baseline data collection (for example desk-based information) and qualitative assessment methodologies. A preliminary assessment of all seascape, landscape and visual receptor groups is undertaken within Section 10.11 of the ES, using desk-based information and ZTV analysis (Figure 10.12 – 11.19). The preliminary assessment identifies which seascape, landscape and visual receptors are unlikely to be significantly affected, which are subject to a preliminary assessment, and those receptors that are more likely to be significantly affected by the offshore elements of VE, which require a 'detailed assessment'; and
 - > A 'detailed assessment' approach is undertaken for seascape, landscape and visual receptors/effects that are identified in the preliminary assessment in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment as requiring detailed assessment. This detailed assessment may include primary baseline data collection (for example through site surveys), quantitative and qualitative assessment methodologies, and modelling such as ZTV analysis with Volume 6, Part 7, Annex 10.3.3 & 10.3.4 SLVIA Figures 10.12 – 10.19 and Volume 6, Part 7, Annex 10.3.6-26: SLVIA Photomontages visualisations (Figures 10.26 to 10.46).
- 10.4.14 To ensure the provision of a proportionate EIA and an ES that is focused on likely significant effects, the ES assessment considers the considerable levels of existing environmental information available, extensive local geographical knowledge and understanding of the site and surroundings gained from ongoing environmental surveys.



10.4.15 The spatial and temporal scope of the assessment enables the identification of receptors which may experience a change because of VE. The receptors identified that may experience likely significant effects for seascape, landscape and visual amenity are outlined in Table 10.4 and assessed in detail in Section 10.10 to 10.13.

IMPACTS SCOPED IN FOR ASSESSMENT

10.4.16 Potential effects on seascape, landscape and visual receptors that have been scoped in for assessment are summarised in Table 10.4. Impact numbers (16.1, 16.2 etc) are retained from the Scoping Report / Scoping Opinion for consistency with the numbering referred to within these documents.

Table 10.4: Potential effects on seascape, landscape and visual receptors scoped in for further assessment

Impact Number	Impact	Description	Receptors Scoped in
Construction			
16.1	Impact (daytime) of the construction of the VE array areas on seascape character.	Potential for short-term, temporary impacts on perceived seascape character, arising as a result of the construction activities and structures located within the VE array areas, which may alter the seascape character of the area within the Scoping Boundary itself and the perceived character of the wider seascape through visibility of these changes.	Suffolk, South Norfolk & North Essex SCTs: SCT01 - SCT06 MMO SCAs/MCAs: MCA11, 15, 16, 17, 18, 19, 20 and SCA4 Within SLVIA study area as shown in Figure 10.4.
16.2	Impact (daytime) of the construction of the VE array areas on perceived landscape character.	Potential for short-term, temporary impacts on perceived landscape character, arising as a result of the construction activities and structures located within the VE array areas, which may be visible from the coast (during good to excellent visibility conditions) and may therefore affect the perceived character of the landscape.	National Character Areas (NCAs) and Landscape Character Types (LCTs) within Suffolk and Essex within SLVIA study area as shown in Figure 10.5.



Impact Number	Impact	Description	Receptors Scoped in
16.3	Impact (daytime) of the construction of the VE array areas on special qualities of designated landscapes.	Potential for short-term, temporary impacts on perceived landscape character and special qualities of designated landscapes, arising as a result of the construction activities and structures within the VE array area, which may be visible from the coast (during good to excellent visibility conditions) and may therefore affect the perceived character and qualities of the landscape.	Landscape designations within the SLVIA study area as shown in Figure 10.6.
16.4	Impact (daytime) of the construction of the VE array areas on visual receptors / views.	Potential for short-term, temporary impacts on views and visual amenity experienced by people from principal visual receptors and representative viewpoints, arising as a result of the construction activities and structures, which may be visible from the coast (during good to excellent visibility conditions) and may therefore affect views and visual amenity.	Principal visual receptors at coastal settlements, recreational routes (including Suffolk Coast Path), main road/rail routes, visitors to tourist/visitor facilities and visitors to historic environment assets within ZTV. Receptors at representative viewpoints listed in Table 10.16.
Operation and maintenance			
16.5	Impact (daytime) of the operation and maintenance of the VE array areas on seascape character.	Potential for long-term, reversible impacts on perceived seascape character (SCTs), arising as a result of the operational WTGs, substations and maintenance activities located within the VE array areas, which may alter the seascape character of the array area itself and the	Suffolk, South Norfolk & North Essex SCTs: SCT01 - SCT06 MMO SCAs/MCAs: MCA11, 15, 16, 17, 18, 19, 20 and SCA4 Within SLVIA study area as shown in Figure 10.4.



Impact Number	Impact	Description	Receptors Scoped in
		perceived character of the wider seascape.	
16.6	Impact (daytime) of the operation and maintenance of the VE array areas on perceived landscape character.	Potential for long-term, reversible impacts on perceived landscape character of LCAs/LCTs and qualities of designated landscapes, arising as a result of the operational WTGs, substations and maintenance activities, which may be visible from the coast (during good to excellent visibility conditions) and may therefore affect the perceived character and qualities of the landscape.	National Character Areas (NCAs) and Landscape Character Types (LCTs) within Suffolk and Essex within SLVIA study area as shown in Figure 10.5.
16.7	Impact (daytime) of the operation and maintenance of the VE array areas on special qualities of designated landscapes.	Potential for long-term, reversible impacts on perceived landscape character and special qualities of designated landscapes, arising as a result of the operational WTGs, substations and maintenance activities, which may be visible from the coast (during good to excellent visibility conditions) and may therefore affect the perceived character and qualities of the landscape.	Landscape designations within the SLVIA study area as shown in Figure 10.6.
16.8	Impact (daytime) of the operation and maintenance of the VE array areas on visual receptors / views.	Potential for long-term, reversible impacts on views and visual amenity experienced by people as principal visual receptors and representative viewpoints, arising as a result of the operational WTGs, substations and maintenance activities when	Principal visual receptors at coastal settlements, recreational routes (including Suffolk Coast Path), main road/rail routes, visitors to tourist/visitor facilities and visitors to historic environment assets within ZTV. Receptors at



Impact Number	Impact	Description	Receptors Scoped in
		visible from the coast during very good to excellent visibility conditions. WTGs will often be seen behind the operational wind farms, however their taller height and horizontal spread of the WTGs may result in effects on views.	representative viewpoints listed in Table 10.16.
16.9	Impact (night-time) of the operation and maintenance of the VE array areas lighting on visual receptors / views	Potential for long-term, reversible impacts on views and visual amenity experienced by people from principal visual receptors and representative viewpoints, including from within the SCHAONB, arising as a result of the marine navigation and aviation lights. Potential for impacts on perception of dark night skies quality of the SCHAONB arising from lighting of VE array areas in views from the coast of the seascape outside the SCHAONB.	Receptors at representative night-time viewpoints identified in Table 10.16. Receptors within the SCHAONB where opportunities to experience areas with relatively dark skies.
16.19	Impact of the VE array areas lighting on seascape and landscape character at night during operation and maintenance.	Potential for long-term, reversible impacts on perceived seascape and landscape character at night during operation.	The Inspectorate considers that effects of lighting during operation should be assessed to fully understand the potential impacts on seascape and landscape character, together with cumulative effects with other existing and proposed wind farms to be able (PINS, November 2021).
Decommissioning			
16.10	Impact (daytime) of the decommissioning of the VE array areas on	Potential for short-term, temporary impacts on perceived seascape character, arising as a result of the	The residual effects on seascape character arising as a result of the decommissioning of the VE array areas are likely to be



Impact Number	Impact	Description	Receptors Scoped in
	seascape character.	decommissioning activities and structures located within the VE array areas, which may alter the seascape character of the area within the Scoping Boundary itself and the perceived character of the wider seascape through visibility of these changes.	assessed as being the same magnitude and significance as those arising from construction, with the residual effects being short-term and temporary occurring during the length of the decommissioning phase.
16.11	Impact (daytime) of the decommissioning of the VE array areas on perceived landscape character and special qualities of designated landscapes.	Potential for short-term, temporary impacts on perceived landscape character, arising as a result of the decommissioning activities and structures within the VE array areas, which may be visible from the coast (during good to excellent visibility conditions) and may therefore affect the perceived character and qualities of designated landscapes.	The residual effects on perceived landscape character arising as a result of the decommissioning of the VE array areas are likely to be assessed as being the same magnitude and significance as those arising from construction, with the residual effects being short-term and temporary occurring during the length of the decommissioning phase.
16.12	Impact (daytime) of the decommissioning of the VE array areas on visual receptors / views.	Potential for short-term, temporary impacts on views and visual amenity experienced by people from principal visual receptors and representative viewpoints, arising as a result of the decommissioning activities and structures within the VE array areas, which may be visible from the coast (during good to excellent visibility conditions).	The residual effects on visual receptors / views arising as a result of the decommissioning of the VE array areas are likely to be assessed as being the same magnitude and significance as those arising from construction, with the residual effects being short-term and temporary occurring during the length of the decommissioning phase.
Cumulative			
16.24	Cumulative effect (daytime) of the construction, operation and	Potential for cumulative short-term and long-term, reversible impacts on perceived seascape	Seascape, landscape and visual receptors identified above as scoped in for impacts 16.1 – 16.12.



Impact Number	Impact	Description	Receptors Scoped in
	maintenance, and decommissioning of VE array areas on seascape character, landscape character and views / visual receptors.	character (SCTs), landscape character of LCAs/LCTs and qualities of designated landscapes, and views / visual amenity experienced by people arising as a result of visibility of the operational WTGs, substations and maintenance activities located within the array area cumulatively with other projects located within the study area	Tier 1 – 4 projects within the SLVIA study area as shown in Figure 10.22, consisting the operational Greater Gabbard, Galloper, East Anglia ONE, London Array, Gunfleet Sands and Thanet which will be considered as part of the baseline; and the consented East Anglia ONE North and East Anglia TWO, which is assessed as part of Tier 1 cumulative effects assessment (Section 10.13); and the scoping stage North Falls project which is considered as part of the Tier 2 cumulative effects assessment (Section 10.13). The potential effects of the VE array areas with the Sizewell C project are also be scoped into the Tier 2 cumulative effects assessment.

IMPACTS SCOPED OUT OF ASSESSMENT

10.4.17 On the basis of the baseline environment and the project description outlined in Volume 6, Part 2, Chapter 1: Offshore Project Description and in accordance with the Scoping Opinion (PINS, 2021), a number of impacts have been scoped out (see Table 10.5), these include:



Table 10.5: Potential effects on seascape, landscape and visual receptors scoped out for further assessment

Impact Number	Impact	Rationale for Scoping Out
Construction		
16.13	Construction phase seascape, landscape and visual impacts of the offshore elements of VE array areas outside the 60 km radius SLVIA study area.	On the basis of the justification provided in paragraph 16.2.8 of the Scoping Report, the Inspectorate agrees this matter can be scoped out of the seascape, landscape and visual assessment (PINS, November 2021).
16.14	Impacts of the construction of the VE array areas on physical aspects of landscape character.	The Scoping Report seeks to scope out this matter on the grounds that landscape character is likely to experience low levels of change during the construction phase. The Inspectorate agrees that this matter can be scoped out of the SLVIA (PINS, November 2021).
16.15	The seascape, landscape and visual impacts of the offshore cable route construction.	The Scoping Report seeks to scope out this matter on the grounds that much of the offshore construction activities involve vessels which are an existing seascape component and that the construction activities are temporary in nature. The Inspectorate agrees that this matter can be scoped out of the SLVIA (PINS, November 2021).
16.16	Impact of the array area lighting on seascape and landscape character at night during construction.	The Scoping Report seeks to scope out this matter on the grounds that navigational lights associated with construction buoyage and construction vessels will not be visible from the coast. The Scoping Report states that aviation marking lights may be required on top of cranes, but this will be temporary in nature. The Inspectorate agrees that this matter can be scoped out of the SLVIA (PINS, November 2021).
Operation and maintenance		
16.17	Operation and maintenance phase seascape, landscape and visual impacts of the offshore elements of VE array areas outside the 60 km radius SLVIA study area (Figure 17.1).	The Scoping Report seeks to scope this matter out on the basis that at distances over 60 km, visibility of the Proposed Development will be limited. On the basis of the justification provided in paragraph 16.2.8 of the Scoping Report, the Inspectorate agrees this matter can be



Impact Number	Impact	Rationale for Scoping Out
		scoped out of the SLVIA (PINS, November 2021).
16.18	The seascape, landscape and visual effects of the operation of the offshore cable route.	The Scoping Report seeks to scope out this matter on the grounds that the offshore cable will be located below the surface of the sea. The Inspectorate agrees that this matter can be scoped out of the SLVIA (PINS, November 2021).
16.20	Impact of the operation and maintenance of the VE array areas on the views experienced by offshore visual receptors.	The Scoping Report seeks to scope out this matter on the basis that the array will be located in the vicinity of other wind farms which are already operational and that offshore receptors are not of a high sensitivity. The Inspectorate also notes that offshore visual receptors are only likely to be subject to temporary effects and agrees that this matter may be scoped out of the SLVIA.
Decommissioning		
16.21	Decommissioning phase seascape, landscape and visual impacts of the offshore elements of VE array areas outside the 60 km radius SLVIA study area (Figure 17.1).	The Scoping Report seeks to scope this matter out on the basis that at distances over 60 km, visibility of the Proposed Development will be limited. On the basis of the justification provided in paragraph 16.2.8 of the Scoping Report, the Inspectorate agrees this matter can be scoped out of the SLVIA.
16.22	Impacts of the decommissioning of the VE array areas on physical aspects of landscape character.	The Scoping Report seeks to scope this matter out on the basis that landscape character is likely to experience low levels of change during the decommissioning phase. The Inspectorate agrees that this matter can be scoped out of the SLVIA.
16.23	Impact of the array area lighting on seascape and landscape character at night during decommissioning.	The Scoping Report seeks to scope this matter out on the basis that navigational lights associated with decommissioning will not be visible from the coast and that any aviation marking lights required will be temporary in nature. The Inspectorate agrees that this matter can be scoped out of the seascape, landscape and visual assessment.



Impact Number	Impact	Rationale for Scoping Out
Cumulative effects		
16.24	Cumulative effects during construction, operation and maintenance with offshore windfarms within French, Belgian and Dutch territorial waters	The Scoping Report seeks to scope this matter out on the grounds that the offshore windfarms in French, Belgian and Dutch territorial waters are over 80 km away from the UK coast. The Inspectorate agrees this matter can be scoped out of further assessment.

METHODOLOGY FOR BASELINE DATA GATHERING

DESK STUDY

10.4.18 The baseline data sources that have been collected and used to inform this SLVIA are summarised in Table 10.6.

Table 10.6: Data sources use to inform the SLVIA

Source	Summary	Coverage of Study Area
Galloper Wind Farm ES.	Characterisation for the existing operational Galloper OWF site (including seascape, landscape character and viewpoints).	Galloper Wind Farm ES has partial coverage of the SLVIA study area.
Campaign to Protect Rural England (CPRE) (2016)	Interactive maps of the UK's light pollution and dark skies as part of a national mapping project (LUC/CPRE, 2016). Open Source data used to understand and illustrate baseline lighting levels. (available online: https://www.nightblight.cpre.org.uk/)	Full coverage of SLVIA study area.
English Heritage (2020)	Any specific visitor attractions / tourist destinations (available online: https://www.english-heritage.org.uk/visit/places)	Full coverage of SLVIA study area.
Essex County Council	Essex Landscape Character Assessment (2003).	Essex



Source	Summary	Coverage of Study Area
Essex County Council	Landscape Character Assessment of the Essex Coast (2005).	Essex
Google Earth Pro (2020)	Aerial photography.	Full coverage of SLVIA study area.
Historic England (2020)	Registered Parks and Gardens and UNESCO World Heritage Sites (available online: https://historicengland.org.uk/listing/the-list/)	Full coverage of SLVIA study area.
Kent County Council (2004)	Landscape Character Areas (LCAs) (Kent). Landscape Assessment of Kent (available online: https://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/countryside-policies-and-reports/kents-landscape-assessment)	Kent
Long Distance Walkers Association (2020)	Overview map for Long Distance Paths and Walks (available online: https://www.ldwa.org.uk/ldp/public/ldp_overview_map.php)	Full coverage of SLVIA study area.
Met Office (2010-2020)	Visibility Data. Visibility bands every 1 km up to 30 km, then every 5 km up to 50 km, then every 10 km up to 70 km, and >70 km.	Weather stations at Weybourne and Shoeburyness.
MMO (2012)	Seascape character area assessment East Inshore and East Offshore Marine Plan Areas (2012). Available online: https://www.gov.uk/government/publications/east-marine-plan-areas-seascape-character-assessment Seascape character area assessment South East Inshore Marine Plan Area (2018). (available online: https://www.gov.uk/government/publications/seascape-assessment-for-the-south-marine-plan-areas-mmo-1037)	East Inshore, East Offshore and South-East Inshore Marine Plan Area
National Trust (2020)	Any specific visitor attractions / tourist destinations (available online: https://www.nationaltrust.org.uk/days-out)	Full coverage of SLVIA study area.



Source	Summary	Coverage of Study Area
Natural England (2014)	National Character Area profiles (available online: https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles)	Full coverage of SLVIA study area.
Natural England (2019)	GIS datasets for: National Parks (https://data.gov.uk/dataset/334e1b27-e193-4ef5-b14e-696b58bb7e95/national-parks-england). Areas of Outstanding Natural Beauty (AONB) (https://data.gov.uk/dataset/8e3ae3b9-a827-47f1-b025-f08527a4e84e/areas-of-outstanding-natural-beauty-england) County Parks (https://data.gov.uk/dataset/e729abb9-aa6c-42c5-baec-b6673e2b3a62/country-parks-england). Open Access Land (https://data.gov.uk/dataset/05fa192a-06ba-4b2b-b98c-5b6bec5ff638/crow-act-2000-access-layer). Heritage Coasts (https://data.gov.uk/dataset/79b3515f-b00e-419a-9c7e-1d3163555886/heritage-coasts)	Full coverage of SLVIA study area.
Oceanwise	Marine and coastal mapping data, ferry routes.	Full coverage of SLVIA study area.
OPEN internal dataset (2020)	Public Rights of Way.	Full coverage of SLVIA study area.
Ordnance Survey (2019)	1:50,000 scale mapping.	Full coverage of SLVIA study area.
Ordnance Survey (2019)	1:25,000 scale mapping.	Full coverage of SLVIA study area.
Ordnance Survey Open Data (2019)	OS County Region, Local Unitary Authority, Railways, Road and Settlements.	Full coverage of SLVIA study area.



Source	Summary	Coverage of Study Area
Ordnance Survey (2019)	OS Terrain 50 Digital Terrain Model (DTM).	Full coverage of SLVIA study area.
Royal Yachting Association (RYA) (2013)	Cruising routes for recreational yachting.	Full coverage of SLVIA study area.
SCHAONB	Touching the Tide Landscape Character Assessment (2012).	SCHAONB
SCHAONB	Suffolk Coast & Heaths AONB Management Plan 2018 – 2023	SCHAONB
SCHAONB	Suffolk Coast & Heaths AONB Natural Beauty and Special Qualities Indicators (2016).	SCHAONB
Suffolk Coastal District Council	Suffolk Coastal Landscape Character Assessment (2018).	East Suffolk
Suffolk Coastal District Council	Suffolk Coastal Local Plan (2020) and Waveney Local Plan (2019).	East Suffolk
Suffolk County Council	Suffolk, South Norfolk and North Essex Seascape Character Assessment (2018).	Suffolk, South Norfolk and North Essex
Suffolk County Council	Suffolk Seascape Sensitivity to Offshore Wind Farms (2020) and Updated Addendum (June 2023).	Suffolk
Suffolk County Council	Suffolk Landscape Assessment (2011/updated 2018).	Suffolk



Source	Summary	Coverage of Study Area
Sustrans (2020)	National Cycle Network (GIS dataset) (available online: https://www.sustrans.org.uk/)	Full coverage of SLVIA study area.

SITE SURVEYS

- 10.4.19 The SLVIA undertaken as part of the ES has been informed by desk-based studies and field survey work undertaken within the SLVIA study area. The landscape, seascape and visual baseline has been informed by desk-based review of landscape and seascape character assessments, and the ZTV, to identify receptors that may be affected by VE and produce written descriptions of their key characteristics and value. Seascape, landscape and visual receptors are identified in Figures 10.3 (viewpoints), Figure 10.4 (seascape receptors), Figure 10.5 (landscape character receptors) and Figure 10.6 (landscape designations).
- 10.4.20 Interactions have been identified between the offshore elements of VE and seascape, landscape and visual receptors, to predict potentially significant effects arising and measures are proposed to mitigate effects.
- 10.4.21 For those receptors where a detailed assessment is required, primary data acquisition has been undertaken through a series of surveys. These surveys include field survey verification of the ZTV from terrestrial landscape character areas (LCAs), micro-siting of viewpoint locations, panoramic baseline photography and visual assessment survey from all representative viewpoints (Figure 10.3 and Figure 10.8). These viewpoint photography, visual assessment and landscape assessment surveys were undertaken during September 2021. Sea-based offshore surveys have not been undertaken as part of the SLVIA.
- 10.4.22 Field work over part of the duration of the ES assessment has been partly restricted due to the travel restrictions in place during the COVID-19 pandemic, including requirements for assessors to 'stay local/at home' during certain periods, restricted access to certain visitor locations due to closures and limited accommodation availability.

10.5 ASSESSMENT CRITERIA AND ASSIGNMENT OF SIGNIFICANCE

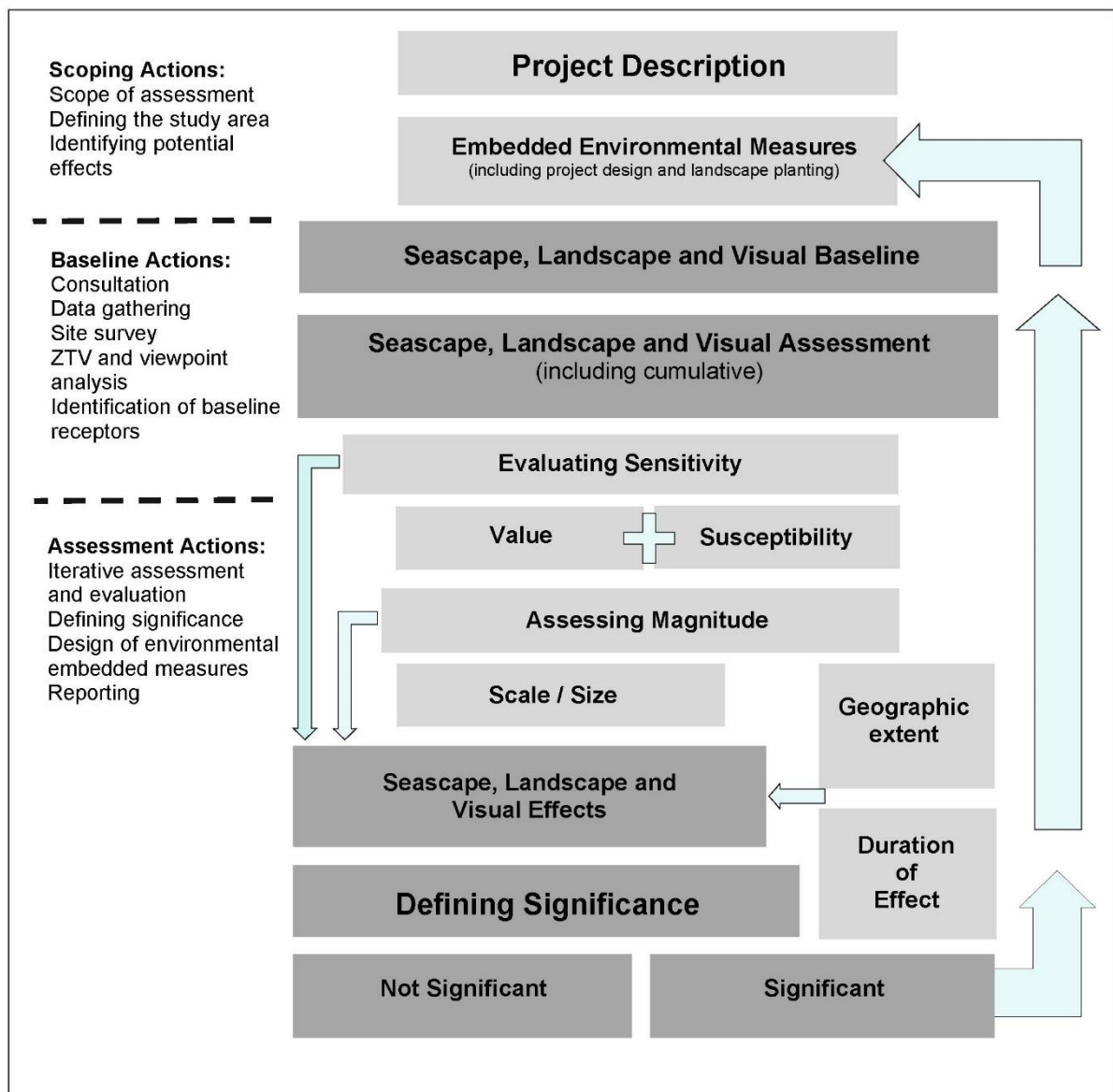
OVERVIEW

- 10.5.1 The project-wide generic approach to assessment is set out in Volume 6, Part 1, Chapter 3: EIA Methodology. The methodology for the assessment of seascape, landscape and visual impacts of VE is set out in full in Volume 6, Part 7, Annex 10.1: Seascape, Landscape and Visual Methodology. An overview is provided in the following sections.



10.5.2 The assessment has been undertaken in accordance with the Landscape Institute and IEMA (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3), and other best practice guidance. An overview of the SLVIA process is provided here and illustrated, diagrammatically in Table 10.7.

Table 10.7: Overview of approach to SLVIA



10.5.3 The SLVIA assesses the likely effects that the construction, operation and decommissioning of VE on the seascope, landscape and visual resource, encompassing effects on seascope/landscape character, designated landscapes, visual effects and cumulative effects.

10.5.4 The SLVIA is based on the project description in Volume 6, Part 2, Chapter 1: Offshore Project Description and the maximum design scenario identified as appropriate for the SLVIA as described in Section 10.8. In compliance with EIA regulations, the likely significant effects of a realistic 'worst case' scenario are assessed and illustrated in the SLVIA.



- 10.5.5 In each case an appropriate and proportionate level of assessment has been undertaken and agreed through consultation at the scoping stage. The level of assessment may be 'preliminary' (requiring desk-based data analysis) or 'detailed' (requiring site surveys and investigations) in addition to desk-based analysis.
- 10.5.6 The seascape, landscape and visual assessment unavoidably, involves a combination of quantitative and qualitative assessment and wherever possible a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.
- 10.5.7 Essentially, the seascape, landscape and visual effects (and whether they are significant) is determined by an assessment of the 'sensitivity' of each receptor or group of receptors and the 'magnitude of change' that would result from the generation assets of the Project.
- 10.5.8 The evaluation of sensitivity to change takes account of the value of the seascape/landscape or visual resource and susceptibility of these receptors to the change arising from the Project in order to assess how sensitive the receptor is to what is proposed. The assessment of sensitivity to change is then combined with an assessment of the magnitude of change arising from the Project, which takes account of the size and scale of the proposed change. By combining assessments of sensitivity to change and magnitude of change, the level of seascape, landscape or visual effect can be evaluated and determined. The resulting level of effect is described in terms of whether it is significant or not significant, and the geographical extent, duration and the type of effect is described as either direct or indirect; temporary or permanent (reversible); cumulative; and beneficial, neutral or adverse.

DEFINITIONS OF SENSITIVITY, VALUE AND MAGNITUDE

- 10.5.9 The sensitivity of a seascape/landscape or visual receptor is an expression of the combination of the judgements made about the value of the seascape/landscape or visual resource and the susceptibility of the receptor to the specific type of change arising from the Project. An overall assessment of the sensitivity of each receptor to change has been made by combining the assessment of the value of the receptor and its susceptibility to change.
- 10.5.10 An evaluation of sensitivity has been applied for each receptor – high, medium-high, medium, medium-low and low – by combining individual assessments of the value of the receptor and its susceptibility to change. The basis for the assessments has been made clear using evidence and professional judgement in the evaluation of sensitivity for each receptor, informed by criteria that tend towards higher or lower sensitivity, which are set out in Volume 6, Part 7, Annex 10.1: Seascape, Landscape and Visual Methodology (Table 1.2). An assessment of the sensitivity assessment of the seascape/landscape and visual receptor has been made by combining the assessment of the value of the seascape/landscape or visual receptor and its susceptibility to change. The basis for the assessments has been made clear using evidence and professional judgement in the evaluation of sensitivity for each receptor. Criteria that tend towards higher or lower sensitivity are set out in Volume 6, Part 7, Appendix 10.1: SLVIA Methodology (Table 1.2).



10.5.11 The magnitude of change affecting seascape/landscape and visual receptors is an expression of the scale of the change that will result from the generation assets of the Project and is dependent on a number of variables regarding the size or scale of the change that will be experienced. The magnitude of change resulting from the generation assets of the Project is described as 'High', 'High-medium', 'Medium', 'Medium-low' 'Low' and 'Negligible' for seascape/landscape and visual receptors as defined in Table 10.8 and is described further in Volume 6, Part 7, Annex 10.1 Seascape, Landscape and Visual Methodology.

Table 10.8: Definition of magnitude of change

Magnitude	Definition
High	<p>Seascape/landscape: VE will result in a large-scale change and major loss of key landscape elements / characteristics or the addition of large scale or numerous new and uncharacteristic features or elements that will affect the seascape/landscape character and the special landscape qualities / integrity of a landscape designation.</p>
	<p>Visual: VE will result in a high level of alteration to the baseline view, forming the prevailing influence and/or introducing elements that are substantially uncharacteristic in the existing view. The addition of the generation assets of the Project will result in a high change, loss or addition to the baseline view.</p>
Medium-high	Intermediate rating with combination of criteria from high or medium magnitude.
Medium	<p>Seascape/landscape: VE will result in a medium scale change and moderate loss of some key landscape elements / characteristics or the addition of some new medium scale uncharacteristic features or elements that could partially affect the seascape/landscape character and the special landscape qualities / integrity of a landscape designation.</p>
	<p>Visual: VE will result in a medium level of alteration to the baseline view, forming a readily apparent influence and/or introducing elements that are potentially uncharacteristic in the existing view. The addition of the generation assets of the Project will result in a medium change, loss or addition to the baseline view.</p>
Medium-low	Intermediate rating with combination of criteria from medium or low magnitude.
Low	<p>Seascape/landscape: VE will result in a small-scale change and minor loss of a few landscape elements / non key characteristics, or the addition of some new small-scale features or elements of limited characterising influence on seascape/landscape character / designations.</p>
	<p>Visual: VE will result in a low level of alteration to the baseline view, providing a slightly apparent influence and/or introducing elements that are characteristic in the existing view. The addition of the generation</p>



Magnitude	Definition
	assets of the Project will result in a low change, loss or addition to the baseline view.
Negligible	Seascape/landscape: VE will result in a very small-scale change that may include the loss or addition of some landscape elements of limited characterising influence. The seascape/landscape characteristics and character will be unaffected.
	Visual: VE will result in a negligible alteration to the existing view. If visible it may form a barely discernible influence and/or introduce elements that are substantially characteristic in the baseline view. The addition of the generation assets of the Project will result in negligible change, loss or addition to the baseline view.

DEFINING IMPACT SIGNIFICANCE

- 10.5.12 The matrix presented in Table 10.9 is used as a guide to illustrate the SLVIA process helps to inform the threshold of significance when combining sensitivity and magnitude to assess significance. In line with the emphasis placed in GLVIA3 upon the application of professional judgement, an overly mechanistic reliance upon a matrix is avoided through the provision of clear and accessible narrative explanations of the rationale underlying the assessment made for each landscape and visual receptor.
- 10.5.13 The significance of the effect on each seascape/landscape character and visual receptor is dependent on all of the factors considered in the sensitivity of the receptor and the magnitude of change resulting from VE. Factors which influence levels of sensitivity and magnitude of change assessed in the SLVIA are set out in full in Volume 6, Part 7, Annex 10.1: Seascape, Landscape and Visual. Judgements on sensitivity and magnitude of change are combined to arrive at an overall assessment as to whether VE will have an effect that is significant or not significant on each seascape, landscape and visual receptor.
- 10.5.14 Significant landscape and visual effects are shaded red in Table 10.9. They relate to all those effects that result in a 'Major' or a 'Major / Moderate' level of effect. Moderate levels of effect (shaded orange) may be significant or not significant subject to the assessor's professional judgement, with these assessments explained further with additional narrative and explanation where they occur. White or un-shaded boxes in Table 10.9 indicate a non-significant effect. In those instances where there would be no effect, the magnitude has been recorded as 'Zero' and the level of effect as 'None'.



Table 10.9: Matrix to determine effect significance

Magnitude of change						
Sensitivity	High	Medium-high	Medium	Medium-low	Low	Negligible
High	Major (significant)	Major (significant)	Major / Moderate (significant)	Moderate (significant or not significant)	Moderate / Minor (not significant)	Minor (not significant)
Medium-high	Major (significant)	Major / Moderate (significant)	Moderate (significant or not significant)	Moderate (significant or not significant)	Moderate / Minor (not significant)	Minor (not significant)
Medium	Major / Moderate (significant)	Moderate (significant or not significant)	Moderate (significant or not significant)	Moderate / Minor (not significant)	Minor (not significant)	Minor (not significant)
Medium-low	Moderate (significant or not significant)	Moderate (significant or not significant)	Moderate / Minor (not significant)	Minor (not significant)	Minor (not significant)	Negligible (not significant)
Low	Moderate / Minor (not significant)	Moderate / Minor (not significant)	Minor (not significant)	Minor (not significant)	Negligible (not significant)	Negligible (not significant)

GEOGRAPHICAL EXTENT

10.5.15 The geographic extent over which the seascape, landscape and visual effects will be experienced is also assessed, which is distinct from the size or scale of effect. This evaluation is not combined in the assessment of the level of magnitude, but instead expresses the extent of the receptor that will experience a particular magnitude of change and therefore the geographical extents of the significant and not significant effects.

10.5.16 The extent of the effects varies depending on the specific nature of the project and is principally assessed through analysis of the extent of perceived changes through visibility of VE.

DURATION AND REVERSIBILITY

10.5.17 The duration and reversibility of seascape, landscape and visual effects is based on the period over which VE are likely to exist and the extent to which it will be removed and its effects reversed at the end of that period. OP-EN's methodology does not include duration and reversibility as part of magnitude of change, as there is potential that the reversibility aspect could alter or reduce potentially significant effects even though they are long-term. The duration and reversibility of the effects is instead determined separately in relation to the assessed effects.

10.5.18 Long-term, medium-term and short-term seascape/ landscape effects are defined as follows:

- > long-term – more than 10 years;



- > medium-term – 6 to 10 years; and
- > short-term – 1 to 5 years.

10.5.19 Duration and reversibility are not incorporated into the assessment of magnitude of change, but are stated separately in relation to the assessed effects (i.e. as short/medium/long-term and temporary/permanent) and are considered as part of drawing conclusions about significance, combining with other judgements on sensitivity and magnitude, to allow a final judgement to be made on whether each effect is significant or not significant.

VISUAL REPRESENTATIONS METHODOLOGY

10.5.20 The methodology for the production of visual representations (photomontages and ZTVs) of the generation assets of the Project is set out in full in Volume 6, Part 7, Annex 10.1 Seascape, Landscape and Visual Methodology.

10.5.21 The visual representations presented in Figures 10.26 to Figure 10.46, have been produced in accordance with Visual Representation of Wind farms (SNH, 2017) and Visual Representation of Development Proposals (TGN 06/19) (Landscape Institute, 2019).

10.5.22 The ZTVs in Figures 10.7 to Figure 10.21 have also been produced in line with guidance in Visual Representation of Wind farms (SNH, 2017) and are generated using GIS software (ArcPro Version 3.1) to model the theoretical visibility of the generation assets of the Project.

CUMULATIVE EFFECT ASSESSMENT METHODOLOGY

10.5.23 The cumulative effect assessment (CEA) considers other plans, projects and activities that may impact cumulatively with VE. As part of this process, the assessment considers which of the residual impacts assessed for VE on their own have the potential to contribute to a cumulative impact, the data and information available to inform the cumulative assessment and the resulting confidence in any assessment that is undertaken. Volume 6, Part 1, Annex 3.1: Cumulative Effects Assessment Methodology provides further details of the general framework and approach to the CEA.

10.5.24 For SLVIA the potential cumulative effects include additional changes to the seascape, landscape and visual amenity caused by VE in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future. These include cumulative seascape/landscape effects that can impact on either the physical fabric or character of the seascape/landscape, or any special values attached to it; and cumulative visual effects caused by combined visibility, which occur where the observer is able to see two or more developments from one viewpoint and / or sequential effects which occur when the observer has to move to another viewpoint to see different developments.

10.5.25 The additional contribution of VE to the cumulative effect upon the baseline character/view is assessed and information provided on *'how the effects of the applicant's proposal would combine and interact with the effects of other development'* (PINS, 2019).



10.5.26 In undertaking this CEA for VE, it is important to bear in mind that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside VE. Therefore, a tiered approach has been adopted. This provides a framework for placing relative weight upon the potential for each project/plan to be included in the CEA to ultimately be realised, based upon the project/plan's current stage of maturity and certainty in the projects' parameters. The tiered approach which will be utilised within the CEA of VE employs the following tiers as set out in Table 10.10.

Table 10.10: Tiered Approach to CEA

Tier	Description
Tier 1	Permitted (consented) application(s), whether under the PA2008 or other regimes, but not yet implemented; and Submitted application(s) whether under the PA2008 or other regimes but not yet determined.
Tier 2	Projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted.
Tier 3	Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted. Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that there will be limited information available on the relevant proposals. Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

10.6 UNCERTAINTY AND TECHNICAL DIFFICULTIES ENCOUNTERED ASSUMPTIONS AND LIMITATIONS

- 10.6.1 There are some data limitations relating to seascape, landscape and visual amenity however these do not affect the robustness of the assessment in this ES as the gaps are limited and will not affect the assessments of likely significance assessed for relevant receptors. Where there are gaps in information, these will be addressed in the ES, as agreed with the ETG.
- 10.6.2 There are limitations in the production of photomontage and wireline visualisations and ZTVs as assessment tools, and limitations in the accuracy of digital terrain model (DTM) data, which are described in Volume 6, Part 7, Annex 10.1: Seascape, Landscape and Visual. The use of detailed terrain models (OS Terrain 5), production of visualisations to recognised standard and field survey assessment of impacts minimises these limitations.



- 10.6.3 Met Office visibility data has limitations in its application to judgements about wind farm visibility. The visibility data provides some understanding and evidence basis for evaluating the visibility of the wind turbines against their background. Effects have not been downgraded either in magnitude or significance due to variations as a result of weather/visibility and how frequently/infrequently the effects will be experienced. Effects are based on the worst-case with clear visibility and need to be considered in context of the limited time effects will actually occur.

10.7 EXISTING ENVIRONMENT

SEASCAPE CHARACTER

SEASCAPE DEFINITION

- 10.7.1 In England, Seascape Character principally applies to coastal and marine areas seaward of the low water mark. Seascape, like landscape is about the relationship between people and place and the part it plays in forming the setting to our everyday lives. Seascape results from the way that the different components of the environment – both natural and cultural - interact and are understood and experienced by people. Seascape is defined by Natural England in its position statement on All Landscapes Matter (2010) as: *“An area of sea, coastline and land, as perceived by people, whose character results from the actions and interactions of land with sea, by natural and/or human factors”*. A summary of what constitutes seascape is presented in ‘An Approach to Seascape Character Assessment’ (Natural England 2012).
- 10.7.2 A definition of seascape is also set out in NPS EN3 (2.8.199): *“Where necessary, assessment of the seascape should include an assessment of three principal considerations on the likely effect of offshore windfarms on the coast:*
- Limit of visual perception from the coast under poor, good and best lighting conditions;*
- The effects of navigation and hazard prevention lighting on dark night skies;*
- Individual landscape and visual characteristics of the coast and the special qualities of designated landscapes, such as World Heritage Sites and National Parks, which limits the coasts capacity to absorb a development; and*
- How people perceive and interact with the coast and natural seascape”*.
- 10.7.3 The SLVIA takes into account these definitions of seascape and that set out in the UK Marine Policy Statement (UK Government, 2011), which states that *‘...references to seascape should be taken as meaning landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other’*.
- 10.7.4 Although seascape character therefore *‘principally applies to coastal and marine areas seaward of the low-water mark’* and landscape character *‘principally applies to terrestrial areas lying to the landward side of the high-water mark’* (Natural England, 2012, p7, Box 1), there is in fact a subtler transition between seascape and landscape and the importance of the interaction of sea, coastline and land as perceived by people is highlighted in definitions of seascape in the Natural England guidance (Natural England, 2012) and Marine Policy Statement (UK Government, 2011).



- 10.7.5 The seascape impact assessment in this SLVIA therefore focuses particularly on areas of onshore landscape with views of the coast or seas and marine environment, as perceived by people, on the premise that the most important effect of offshore windfarms is on the perception of seascape character from the coast.

SEASCAPE OVERVIEW

- 10.7.6 The seascapes of Suffolk and north Essex within the SLVIA study area, are varied and interesting seascapes, which are valued natural and cultural assets. They contain important habitats; contribute to the setting of designated landscapes (notably the SCHAONB); are important from an economic perspective, with major ports, seaside resorts and commercial activities at sea and along the coast; and contribute to the culture and identity of local communities.
- 10.7.7 The seascape character of the SLVIA study area is defined at a national scale in the seascape assessments published by the MMO for the East Inshore and East Offshore marine plan area (MMO, 2012) and for the South East Inshore marine plan area (MMO, 2018). The Marine Character Areas (MCAs) identified within these MMO seascape assessment (Figure 10.4) will form the baseline for the southern portion of the SLVIA study area, within the Outer Thames Estuary and off the north Kent (Thanet) coast.
- 10.7.8 The seascape character of the SLVIA study area is also defined at the regional level within the Suffolk, South Norfolk and North Essex seascape character assessment (Suffolk County Council, 2018). The SCTs identified within this Suffolk, South Norfolk and North Essex seascape assessment (Figure 10.4) provide the baseline seascape characterisation and mapping for the central and northern portion of the SLVIA study area, against which the seascape effects of the VE array areas will be assessed. These SCTs also form the baseline for the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2020) (herein Suffolk Seascape Sensitivity Study) and its updated addendum (Suffolk County Council, 2023).
- 10.7.9 The Suffolk Seascape Sensitivity Study identifies the sensitivity of seascape and Suffolk's adjacent coastal landscapes and designations (SCHAONB) to offshore wind farm development. The VE array areas are located within Zone SCZ 08: East Anglia Outer Offshore, which is assessed in the Suffolk Seascape Sensitivity study as being of medium-low sensitivity to change. The supporting sensitivity assessments include descriptions of Zone SCZ 08 as *'an area of more limited seascape/visual constraints, especially to the east'*, where *'an extension of Greater Gabbard/ Galloper to the east and south east within the area may cause limited effects'* and *'the effects on these receptors are significantly modified and reduced by the minimum distance of the zone offshore which means that most developments would be perceived as small and would be visible/perceptible between 10-20% of the time'*.



- 10.7.10 The Suffolk Seascape Sensitivity study (Figure 6) identifies 39.5km as the distance representing an average low visual magnitude of change for WTGs of between 301-400m blade tip height. Figure 8 of the Suffolk Seascape Sensitivity study also identifies a recommended buffer for the SCHAONB/Heritage Coast of 40km for WTGs between 226 – 400m blade tip height. This is in line with the OESEA (2020) Visual Buffer Study (Table 13.4), which suggests a buffer of 40km for offshore wind farm development off AONBs/Heritage Coasts (based on a limit of visual significance).
- 10.7.11 The findings of the update addendum to the Suffolk Seascape Sensitivity study (Suffolk County Council, 2023) apply to offshore windfarms with WTGs greater than 400m high. The update addendum highlights the OESEA 2020 conclusions that 40km was a 'reasonable' and 'substantial' buffer from designated coastal landscapes for turbines up to 400m high to blade tip. With regards Zone SCZ 08 the update addendum recommends that a buffer of 42.5km should be considered to guide developments with WTGs of 400-425m high to blade tip. Further consideration of how the findings of this SLVIA relate to the recommendations of the Suffolk Seascape Sensitivity study and its update addendum are set out in the conclusions of this Chapter in Section 10.18.
- 10.7.12 Seascape character receptors within the SLVIA study area and the ZTV for the VE array areas are identified in Table 10.11. The VE array areas are located within the Offshore Waters SCT (06) (Figure 10.4). A preliminary assessment of the potential effect of the VE array areas on these seascape character receptors is undertaken in Table 10.19 of Section 10.11. A description of the baseline seascape character and sensitivity to change for each seascape receptor that is identified in the preliminary assessment (Table 10.19) as requiring detailed assessment, is set out in Section 10.11.



Table 10.11: Seascape character receptors within SLVIA study area

Seascape Receptor within SLVIA study area and ZTV	
Suffolk, South Norfolk and North Essex Seascape Character Assessment (Suffolk County Council, 2018)	
SCT01	Inland Navigable Waters
SCT02	International Ports and Approaches
SCT03	Nearshore Waters
SCT04	Developed Nearshore Waters
SCT05	Coastal Waters
SCT06	Offshore Waters
Seascape Character Assessment East Inshore and East Offshore Marine Plan Areas (MMO, 2012)	
SCA4	East Anglian Shipping Waters
SCA10	Suffolk Coastal Waters
Seascape Character Assessment for the South-east Inshore Marine Plan Area (MMO, 2018)	
MCA11	Goodwin Sands and North Dover Strait
MCA15	Eastern English Channel Approaches
MCA16	Swale, Kentish Flats and Margate Sand
MCA17	Thanet Shipping Waters
MCA18	Thames and Medway Estuaries
MCA19	Essex and South Suffolk Estuaries and Coastal Waters
MCA20	Thames Approaches

OFFSHORE WATERS SCT (06)

10.7.13 The seascape within which the VE array areas are located is defined by the Offshore Waters SCT (06) (Figure 10.4). Situated at a distance of approximately 18 km from the coastline and extending to the seaward extents of the SLVIA study area, the Offshore Waters SCT is formed by an open expanse of sea with consistently deep waters, generally in excess of 30 m. The seascape is visually unified, with an expansive open character, but the character is influenced by the presence of commercial vessels crossing these busy shipping waters, to and from major coastal ports, which are often visible from the shore. The existing Greater Gabbard and Galloper offshore windfarms, together with the recently constructed East Anglia ONE offshore windfarm, form a key characteristic in the baseline character of the southern and central parts of the SCT.



10.7.14 The key characteristics of the Offshore Waters SCT (06) within which the VE array areas are located are identified as follows:

- > Open expanse of sea with consistently deep waters, generally in excess of 30m becoming shallower towards landward limits of the SCT.
- > Seabed is characterised by undisturbed sediments with the bedrock rarely exposed on the seafloor.
- > Sediments include those laid down by ancient river channels prior to the formation of the North Sea.
- > There is potential in offshore sediments for evidence of Palaeolithic communities that occupied the area prior to the formation of the North Sea.
- > Busy shipping waters with several established commercial shipping routes, predominantly travelling to and from major coastal ports, and east - west across the area. Large-scale shipping vessels are visible on the skyline in views from the shore in periods of very good/excellent visibility.
- > Commercial shipping transiting the study area includes cargo vessels, passenger craft and tankers, in part managed by a major Traffic Separation Zone.
- > Commercial fishing activity from larger vessels.
- > Industrial activity includes dredging for aggregates and gas fields.
- > Three operational offshore wind farms are located within this SCT and form characteristic elements - Greater Gabbard and Galloper which form a grouping to the south; and East Anglia ONE to the north-east.
- > The onshore visual influence of offshore wind farms is confined to the southern grouping of Greater Gabbard and Galloper, which are sometimes visible from the coast, subject to weather conditions, however East Anglia ONE is not visible/perceived from the coast.
- > Large military practice area. The (past) strategic importance of the coast, principally associated with military actions from the First and Second World Wars, also connects to the offshore seascape, and to the known and as yet unrecorded heritage assets that lie on the seabed near to the East Anglia TWO windfarm site.
- > Visually unified, expansive open character with consistent panoramic horizons, over extensive tracts of sea.
- > Wild and isolated qualities, although views to large vessels, dredging activity, gas wells, vessels and offshore wind farms become important points of orientation and scale in an otherwise vast and featureless seascape.
- > Limited visibility to shoreline. Views restricted to major landmarks onshore from landward extents of the SCT, and very dependent on weather conditions.

10.7.15 SCT 06: Offshore Waters is located offshore from Suffolk Heritage Coast and SCHAONB, separated by areas of Nearshore Waters and Coastal Waters. The long distance offshore waters of SCT 06: Offshore Waters are visible offshore from all representative viewpoints (Figures 10.26 to 11.46).



LANDSCAPE CHARACTER

OVERVIEW

10.7.16 Landscape character principally applies to terrestrial areas lying to the landward side of the high-water mark. There is a hierarchy of published Landscape Character Assessments (LCAs) that describe the baseline landscape character of the landscape in the SLVIA study area, at the National, County and District level.

NATIONAL LANDSCAPE CHARACTER

10.7.17 The English Landscape is classified at the national level by National Character Areas (NCAs). The 159 NCAs, which cover the country, were originally identified by the Countryside Agency. This mapping and the associated descriptions have been revised and developed by Natural England into NCA profiles, which provide a recognised, national, spatial framework.

10.7.18 At the National level, the SLVIA study area is characterised by the following NCAs, as shown in Figure 10.5:

- > Greater Thames Estuary (NCA 81);
- > Suffolk Coast and Heaths (NCA 82);
- > South Norfolk and High Suffolk Claylands (NCA 83);
- > Northern Thames Basin (NCA 111); and
- > North Kent Plain (NCA 113).

10.7.19 The Suffolk Coast and Heaths NCA (82) covers the largest part of the SLVIA study area and is located approximately 37.3 km from the closest point of the VE array areas and in the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the Suffolk Coast and Heaths NCA (82). The Suffolk Coast and Heaths NCA lies on the North Sea coast between Great Yarmouth in the north and Harwich in the south, forming a long, narrow band that extends between 10-20 km inland. The distinctive landscape character is a product of its underlying geology, shaped by the effects of the sea and the interactions of people. It is mainly flat or gently rolling, often open but with few commanding viewpoints. In many places, and especially near the coast, wildlife habitats and landscape features lie in an intimate mosaic, providing diversity. Farming utilises much of the total land area, however the remaining land consists of coast and lowland heaths (known locally as the Sandlings) and form distinctive features, although traditional heath is now much fragmented. The coast is interrupted by five estuaries (Stour, Orwell, Deben, Alde/Ore and Blyth) with extensive intertidal areas of mudflat and salt marsh. The importance of the coast for biodiversity is recognised by its many wildlife designations. The shoreline consists of predominantly shingle beaches, often extensive in nature. Shingle structures, such as Orford Ness, form important geomorphological features.



10.7.20 The Greater Thames Estuary NCA (81) covers the Essex coastline within the SLVIA study area between Harwich and Clacton-on-Sea but extends south to encompass the coastlines of South Essex and North Kent, along with a narrow strip of land following the path of the Thames into East London. It is located approximately 52.8km from the closest point of the VE array areas and 54.1 km from the closest indicative WTG location within the array area. It is predominantly a remote and tranquil landscape of shallow creeks, drowned estuaries, low lying islands, mudflats and broad tracts of tidal salt marsh and reclaimed grazing marsh that lies between the North Sea and the rising ground inland, including areas around Hamford Water and Horney Island, providing a stark contrast to the nearby busy urban and industrial areas where population density is high.

COUNTY LANDSCAPE CHARACTER

10.7.21 The landscape assessment of the onshore parts of the study area is informed by these NCAs, however is primarily described and assessed in relation to the published County Council Landscape Character Assessments that describe the associated coastal landscapes within the SLVIA study area shown in Figure 10.6, as follows:

- > Essex Landscape Character Assessment (2003);
- > Landscape Assessment of Kent (2004); and
- > Suffolk Landscape Assessment (2011/updated 2018).

10.7.22 These provide a county-wide, consistent character framework as a background for more detailed assessments (such as at the district level). They are considered to be of an appropriate scale to allow assessment of the effects of VE array areas over the relatively wide SLVIA study area, at a sufficient level of detail. More detailed district or specific coastal LCAs/LCTs will be utilised to support additional description of character or qualities where required, including:

- > Landscape Character Assessment of the Essex Coast (2005);
- > Shotley Peninsula and Hinterland Landscape Character Assessment (Stour and Orwell Society 2013);
- > Suffolk Coastal Landscape Character Assessment (2018);
- > Tendring District Landscape Character Assessment (2001); and
- > Touching the Tide Landscape Character Assessment (2012).

10.7.23 Broadly the coastline of East Suffolk to the north of Felixstowe/River Deben is within the SCHAONB and consists of gently rolling landform of shingle ridges or coastal dunes at the coast, flat marshlands of coastal levels and fens, beside estuaries, slightly interrupted by a series of low cliffs of Estate Sandlands along the coast, backed by Sandlings Forests and Heaths. To the south, the coastline of southern Suffolk and north Essex is extensively urbanised in places particularly around Felixstowe, Harwich and Walton-on-the-Naze, except for the large inter-tidal estuarine inlet of Hamford Water and its complex pattern of saltmarsh, creeks, mud and reed fringed islands.



10.7.24 VE array areas are likely to influence the visual aspects of perceived character experienced in sea views from several landscape types forming a narrow strip of the immediate coastal LCTs forming the closest parts of the East Suffolk and North Essex coastlines. These are relatively long stretches of coastline which are varied in character, with geographic extents likely to be concentrated on the narrow strip of immediate coastal landscape, including stretches of the Coastal Dunes/Single Ridges (05) and Estate Sandlands (07) LCTs of Suffolk and the Coastal Landscapes (F) LCT of Essex, primarily the Brightlingsea-Clacton-Frinton Coast (F7) and Hamford Water (F8) LCAs.

10.7.25 Landscape character receptors within the SLVIA study area and within the ZTV for the VE array areas are identified in Table 10.12. LCTs/LCAs with a coastal association are highlighted in yellow. All other LCAs that are not within the ZTV are scoped out of the SLVIA and are not considered further. A preliminary assessment of the potential effect of the VE array areas on these landscape character receptors is undertaken in Table 10.24. A description of the baseline character and sensitivity to change for each landscape receptor that is identified in the preliminary assessment (Table 10.24) as requiring detailed assessment, is set out in Section 10.11.

Table 10.12: Landscape character receptors within SLVIA study area

Landscape Receptor within SLVIA study area and ZTV	
Essex Landscape Character Assessment (2003)	
E2	South Colchester Farmlands
F7	Brightlingsea-Clacton-Frinton Coast
F8	Hamford Water
F9	Stour Estuary Slopes
F10	Stour Estuary
Landscape Assessment of Kent (2004)	
C3	St Peter's Undulating Chalk Farmland
F2	Foreness Point and North Foreland
G1	Ramsgate and Broadstairs Cliffs
G2	North Thanet Coast
Suffolk Landscape Assessment (2011/updated 2018)	
1	Ancient Estate Claylands
2	Ancient Estate Farmlands
3	Ancient Plateau Claylands
4	Ancient Rolling Farmlands
5	Coastal Dunes and Shingle Ridges
6	Coastal Levels



ID	Landscape Receptor within SLVIA study area and ZTV
7	Estate Sandlands
8	Open Coastal Fens
10	Plateau Claylands
11	Plateau Estate Farmlands
14	Rolling Estate Claylands
15	Rolling Estate Farmland
16	Rolling Estate Sandlands
17	Rolling Valley
19	Rolling Valley Farmlands and Furze
20	Saltmarsh and Intertidal Flats
25	Valley Meadowlands
26	Valley Meadows and Fens
28	Wooded Fens
31	Urban

10.7.26 The SLVIA presents a baseline description of relevant LCAs from these County Council Landscape Character Assessments in Section 10.11 and assesses the likely significant effects of the VE array areas on their landscape character. In the context of the construction, operation and decommissioning of the VE array areas, only the visual/perceptual characteristics of onshore LCAs are likely to be relevant when considering potential effects, given that there will be no alteration to physical features of these LCTs as a result of the VE array areas.

LANDSCAPE DESIGNATIONS

10.7.27 The VE array areas are located outside any areas subject to international, national or regional landscape designation intended to protect landscape quality, as shown in Figure 10.6. A number of designated landscapes or defined areas found occur in the wider landscape of the SLVIA study area that are designated or defined due to their scenic qualities or historic landscape qualities and are of relevance to the SLVIA as shown on Figure 10.6 and identified in Table 10.13. A preliminary assessment of the potential effect of the VE array areas on these landscape designations/defined areas is undertaken in Table 10.25 of Section 10.11. A description of the baseline character and sensitivity to change for each designation that is identified in the preliminary assessment (Table 10.25) as requiring detailed assessment, is set out in Section 10.11.



Table 10.13: Landscape designations within SLVIA study area

ID	Landscape Designations and Defined Areas within SLVIA study area and ZTV
AONBs	SCHAONB
Heritage Coasts	Suffolk Heritage Coast
Registered Parks and Gardens (RPGs)	Bawdsey Manor
	Henham
	Heveningham Hall
	Glemham Hall
	Campsey Ashe Park
	Woodbridge Cemetery
	Cliff Gardens and Town Hall Garden

REGISTERED PARKS AND GARDENS (RPG)

10.7.28 There are several Registered Parks and Gardens (RPG) in the study area (Figure 10.6) as identified in Table 10.13, the closest of which to the VE array areas is Bawdsey Manor, located 47.2 km from the closest point of the VE array areas and 48.3 km from the closest indicative WTG location within the array area.

SUFFOLK HERITAGE COAST

10.7.29 The Suffolk Heritage Coast is located within the SLVIA study area, approximately 35.8 km from the closest point of the VE array areas and 37.2 km from the closest indicative WTG location within the array area (Figure 10.6).

10.7.30 The Suffolk Heritage Coast was defined in 1973 and is largely contained within the SCHAONB. It runs from Kessingland to Felixstowe and incorporates the Blyth, Alde/Ore and lower Deben estuaries.

10.7.31 There are no statutory requirements or powers associated with the Heritage Coast definition, however it is noted that it includes objectives for conserving the environmental health and biodiversity of inshore waters and beaches, and to extend opportunities for recreational, educational, sporting and tourist activities that draw on, and are consistent with, the conservation of their natural beauty and the protection of their heritage features.

10.7.32 The purpose of Heritage Coast is similar to that of the SCHAONB. As its geographic area is largely within the AONB and its protection policies are now incorporated into the AONB Management Plan, the effects of VE on the perceived character of the Suffolk Heritage Coast designation is considered as integral to the assessment of the SCHAONB. Broadly, the Suffolk Heritage Coast is identified as representing the geographic extent of the SCHAONB most likely to experience effects arising from the VE array areas.



10.7.33 Cultural heritage matters are also addressed in Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage of this ES.

SUFFOLK COAST AND HEATHS AONB

10.7.34 The SCHAONB covers approximately 403 km² stretching from Kessingland in the north to the River Stour in the south. The SCHAONB is located approximately 37.3 km from the closest point of the VE array areas and in the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB (Figure 10.6). It is a mainly flat or gently rolling landscape, often open but with few commanding viewpoints and near the coast, habitats and landscape features lie in an intimate mosaic, providing great diversity in a small area. Where it joins the sea, the AONB consists of predominantly shingle beaches, often extensive in nature, and backed in places by sandy cliffs. The coastline is interrupted by five river estuaries (Blyth, Alde/Ore, Deben, Orwell and Stour) with extensive wildlife-rich intertidal areas of mudflat and saltmarsh. In some places, old estuary mouths have become blocked, creating large areas of marshland. The area includes both distinctive features of the coast and lowland heath which give the AONB its name. The area's heathland, known locally as the Sandlings and now much fragmented, is situated just inland from the coast. Elsewhere, the SCHAONB comprises mainly farmland. Other main components of the landscape are forestry plantations, low-lying freshwater marshes, intertidal estuaries, heathland, the coast, small villages and iconic coastal market towns. The SCHAONB remains a lightly populated, undeveloped area, popular for outdoor recreation and tourism. The area is valued for its tranquillity, the quality of the environment and culture and for its wildlife.

10.7.35 The scenic qualities and interest are particularly defined by the coast and views out to sea; shingle features of the coast, some vegetated, notably Orford Ness; prominence of short sections of crumbling soft cliffs, such as at Dunwich and Covehithe; bodies of water (broads/saline lagoons) Shingle Street, Benacre and Easton Broads; and seascape setting of the coastal areas of the AONB. There are pockets of relative wildness associated with coast, in this largely farmed and settled landscape. A number of coastal locations within the AONB provide opportunities to experience attributes of relative wildness, including Orford Ness, Minsmere, Dunwich Heath and the marshlands/estuaries, where the character of the landscape and views afforded out to sea and along the coast are highly valued. The seascape setting of the coastal areas of the AONB contributes to the perception of wildness attributes and relative tranquillity.

10.7.36 The unique character of the AONB is a product of its underlying geology, shaped by the effects of the sea and the interaction of people with the landscape. It is a mainly flat or gently rolling landscape, often open but with few commanding viewpoints. In many places, and especially near the coast, habitats and landscape features lie in an intimate mosaic, providing great diversity in a small area.

10.7.37 The main LCTs that make up the Suffolk Coast & Heaths AONB are:

- > Coastal Dunes and Shingle Ridges (LCT 05);
- > Coastal Levels (LCT 06);
- > Open Coastal (LCT 08) and Wooded Fens (LCT 29);



- > Estate Sandlands (LCT 07);
- > Estate Farmlands (LCT 11 and 15);
- > Rolling Estate Sandlands (LCT 16);
- > Saltmarsh and Intertidal Flats (LCT 20); and
- > Valley Meadowlands (LCT 26).

10.7.38 The statutory purposes of National Parks as set out in the National Parks and Access to the Countryside Act 1949 are:

- > 'To conserve and enhance the natural beauty, wildlife and cultural heritage of the National Parks.
- > To promote opportunities for the public understanding and enjoyment of the special qualities of the Parks'.

10.7.39 The 'special qualities' of the SCHAONB are set out in the SCHAONB Natural Beauty and Special Qualities Indicators report ('the 'Special Qualities Report') (EDF Energy, SCHAONB Partnership, Suffolk County Council, Suffolk Coastal District Council and Waveney District Council, 2016), with the purpose of establishing what constitutes the natural beauty and special qualities of the AONB.

10.7.40 The 'special qualities' of the AONB identified in Section 3.0 of the Special Qualities Report (EDF Energy et al, 2016) are considered somewhat intangible for the purpose of assessment of seascape, landscape and visual effects, often considering factors which are related to, but are not specifically 'landscape' quality criteria, such as health and well-being, family heritage, food culture and tourism.

10.7.41 The approach to the assessment of the effects on landscape character of the AONB undertaken in the SLVIA, has been to base the assessment on the more tangible and clearly landscape focused 'natural beauty' indicators, identified in Section 2.0 of the Special Qualities Report (EDF Energy et al, 2016), i.e. landscape quality; scenic quality; relative wildness; relative tranquillity; natural heritage features; and cultural heritage. This approach is consistent with other recent assessments of AONB qualities, such as that undertaken by Natural England for the AONB Boundary Variation Project (Natural England 2017) and those undertaken for the East Anglia ONE North and East Anglia TWO offshore wind farm projects (Scottish Power Renewables, October 2019).

10.7.42 The natural beauty indicators of the AONB, which inform its special qualities, and are described in full in Table 10.14 quoting from the Special Qualities Report and assessed further in Section 10.11.



Table 10.14: SCHAONB Special Qualities

Factor	SCHAONB Indicator
Landscape quality	
Intactness of the landscape in visual, functional and ecological perspectives	<p><i>Close-knit interrelationship of semi-natural and cultural landscapes (notably sea, coast, estuaries, reedbeds, Sandlings heath, forest, farmland and market towns) and built heritage features (such as Martello towers, pill boxes, river walls), creating a juxtaposition of elements in a relatively small area.</i></p> <p><i>The AONB contains important areas of heath and acid grassland, and it supports a high number of protected species populations. As such it has importance in a national context for biodiversity.</i></p>
The condition of the landscape's features and elements	<p><i>Strong overall character, albeit that the evolving nature of intensively farmed arable land with agricultural fleece/polythene and outdoor pig rearing can divide opinion on landscape condition in visually sensitive locations such as on valley sides.</i></p>
The influence of incongruous features or elements (whether man-made or natural) on the perceived natural beauty of the area	<p><i>A small number of large scale and long established elements on the coast of the AONB divide opinion, being regarded by some as incongruous features and by others as enigmatic; for example the complex military site at Orford Ness. The power stations at Sizewell also divide opinion in this way, however in many views, particularly of the B station, the apparent uncluttered simple appearance and outline as well as the lack of visible human activity, partially mitigate the adverse visual impacts.</i></p> <p><i>Offshore wind turbines at Greater Gabbard, Galloper and the more distant London Array are visible from some stretches of the coastline. These create a cluttered horizon and, like the large scale elements onshore, also divide opinion.</i></p>
Scenic quality	
A distinctive sense of place	<p><i>Unique character defined by semi-natural and cultural landscapes (notably sea, coast, estuaries, reedbeds, Sandlings heath, forest, farmland and villages) and built heritage features (such as Martello towers, pill boxes, river walls), creating a juxtaposition elements in a relatively small area.</i></p>
Striking landform	<p><i>Sea cliffs and shingle beaches contrasting to flat and gently rolling Sandlings heaths and farmland.</i></p> <p><i>Extensive shingle beaches and shallow bays provide opportunities for long distance and panoramic views including out to sea and along the Heritage Coast. Views to coastal landform also possible from locations offshore.</i></p>



Factor	SCHAONB Indicator
	<p><i>Landscape displays a 'rhythm' dictated by a series of east-west rivers and estuaries, and the interfluves that lie between them.</i></p> <p><i>Coastal cliffs, shingle spits, estuaries and beaches are striking landform features.</i></p>
<p>Visual interest in patterns of land cover</p>	<p><i>Varied habitats and land cover in intricate mosaic corresponding to natural geography (landform, geology, soils & climate) and displaying seasonal differences, either as a result of natural processes or past and current farming and land management regimes.</i></p> <p><i>Elevated vantage points provide impressive views over low lying coastal marshes, estuaries, beaches and expansive long distance views out to sea. Views to the coastline from out at sea are also noted.</i></p>
<p>Appeal to the senses</p>	<p><i>Close-knit interrelationship of constituent features creates a juxtaposition of colours and textures (such as coniferous forests, reedbeds, intertidal mud flats and heathland, sand dunes and shingle beaches) that is further enhanced by seasonal changes.</i></p> <p><i>Strong aesthetic, spatial and emotional experiences - for example in the contrast between open and exposed areas on the coast, seaward or within estuaries with more traditional enclosed farmland areas.</i></p>
<p>Memorable or unusual views and eye-catching features or landmarks</p>	<p><i>Large open vistas across heaths and along the coast, out to sea and from sea to the coastline. Landmarks include historic structures such as medieval churches, Martello towers and lighthouses, the House in the Clouds (Thorpeness) and Snape Maltings, the riverside at Woodbridge with iconic Tide Mill, along with more modern structures including Sizewell A and B and former military site at Orford Ness.</i></p>
<p>Characteristic cognitive and sensory stimuli (e.g. sounds, quality of light, characteristic smells, characteristics of the weather)</p>	<p><i>Sensory stimuli enhanced by quality of light/space (the big 'Suffolk skies'), areas with dark skies and sound (e.g. bird calls, curlews on heath and geese on estuaries, the wind through reeds in estuaries, waves on shingle).</i></p>
<p>Relative wildness</p>	
<p>A sense of remoteness</p>	<p><i>Absence of major coastal road or rail route, due to estuaries, and intermittent 'soft edged', often lightly trafficked access routes across the AONB to the coastline from main routes inland, has</i></p>



Factor	SCHAONB Indicator
	<p><i>contributed to the relatively undeveloped character of the Suffolk coast.</i></p> <p><i>Pockets of relative wildness associated with coast, estuary and forests in this largely farmed and settled landscape.</i></p>
<p>A relative lack of human influence</p>	<p><i>Semi-natural habitats evident, notably on the Sandlings heaths, marshes, reedbeds, estuaries and along the coastline.</i></p> <p><i>Largely undeveloped coastline and offshore areas and areas of semi-natural habitat including Sandlings heath, forests, reedbeds, estuaries and marshland.</i></p> <p><i>Landscape interspersed with isolated villages, and built heritage assets such as Martello towers, pill boxes, river walls that contribute to character.</i></p> <p><i>A small number of large scale and industrial elements on the coast of the AONB are long established, notably Sizewell A and B and the former military site at Orford Ness, whilst offshore wind turbines at Greater Gabbard, Galloper and the more distant London Array are visible from stretches of the coastline.</i></p>
<p>A sense of openness and exposure</p>	<p><i>Big 'Suffolk skies' and expansive views offshore emphasise sense of openness and exposure on open and exposed coastline and on the Sandlings heaths.</i></p>
<p>A sense of enclosure and isolation</p>	<p><i>Forestry plantations create sense of enclosure and isolation contrasting to open and more exposed areas along the coast and on the Sandlings heaths.</i></p>
<p>A sense of the passing of time and a return to nature</p>	<p><i>Significant areas of semi natural landscape and seascape notably along the coastline, offshore and within undeveloped estuaries where there is little evidence of apparent human activity despite the sea walls and coastal marshes.</i></p>
<p>Relative tranquillity</p>	
<p>Contributors to tranquillity</p>	<p><i>Areas of semi natural habitat, where there is a general absence of development and apparent human activity, contribute to a sense of relative tranquillity. Further enhanced by sounds (bird calls, the wind through reeds in estuaries, waves on shingle) and relatively dark skies.</i></p>
<p>Detractors from tranquillity</p>	<p><i>Some local detractors from tranquillity include the seasonal influx of visitors to coastal towns, low flying aircraft noise and urban development on fringes of the AONB.</i></p>
<p>Natural heritage features</p>	



Factor	SCHAONB Indicator
Geological and geomorphological features	<p><i>Boundary of the AONB is broadly geological marking the border between the inland boulder clay and the coastal fringe.</i></p> <p><i>Visible and striking expressions of geology and sedimentation on faces of crumbling coastal cliffs.</i></p> <p><i>Use of flint, local crag and Aldeburgh brick for building are indicators of local geology.</i></p> <p><i>Low crumbling cliffs and steep banks of pebbles on shingle beaches contribute to a landscape of constant change.</i></p> <p><i>Striking and memorable geomorphological features include the vast cusped foreland shingle spit of Orford Ness and river estuaries such as the estuary of the River Alde.</i></p>
Wildlife and habitats	<p><i>Varied, nationally and internationally protected sites such as Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPA) and Special Areas of Conservation (SAC), semi natural habitats designated for their nature conservation interest and range of species supported (including shingle beaches, intertidal and offshore areas, reedbeds, grazing marshes and Sandlings heaths).</i></p> <p><i>Intricate mosaic, highly dynamic and sensitive regimes (due to periodic flooding) along with rapid transitions add to biodiversity interest, distinctive landscape character and scenic quality.</i></p> <p><i>Varied protected species across major habitat types, for example breeding and wading birds in estuaries and reedbeds; rare communities of salt tolerant plants on the coast; and birds and invertebrates on the Sandlings heaths.</i></p>
Cultural heritage	
Built environment, archaeology and designed landscapes	<p><i>Villages and small towns, particularly at 'end of the road' coastal and estuary locations, such as Pin Mill, Ramsolt and Walberswick and built heritage assets such as military structures (e.g. Martello towers, castle at Orford and pillboxes); Low Countries influence on architecture (as at Aldeburgh); and use of soft hued red brick and pink render with thatch or pantiles contribute to sense of place.</i></p> <p><i>Archaeological and historic sites and features include prehistoric and later burial monuments (including the Anglo-Saxon burial ground at Sutton Hoo); early medieval churches (many of which pre-date the Domesday survey); historic field and settlement patterns; and evidence of land reclamation dating back to the 12th century.</i></p> <p><i>Distinctive vernacular use of flint, clunch and brick.</i></p>



Factor	SCHAONB Indicator
	<p><i>Designed landscapes are important notably along southern estuaries and in the northern part of the AONB, including Thorpeness Model Village.</i></p>
<p>Historic influence on the landscape</p>	<p><i>Field patterns reflect process of land management and enclosure stretching back many centuries.</i></p> <p><i>Evidence of reclamation of former intertidal areas to form freshwater grazing marsh dating back to the 12th century.</i></p> <p><i>Prehistoric and later burial monuments (such as at Sutton Hoo), early medieval churches/religious houses and castles.</i></p> <p><i>There is also more recent military and infrastructure elements particularly on the coast (e.g. Martello towers, former military installations at Orford Ness), WW11 airfields, radar installations and pillboxes that form part of the long history of “Suffolk’s Defended Shore”.</i></p> <p><i>More latterly the Sizewell nuclear complex highlights evidence of time depth across the landscape. Both the nuclear complex and the nearby infrastructure associated with offshore energy generation are part of a developing story of the Suffolk’s Energy Coast.</i></p> <p><i>There are often strong associations between these features and areas of more remote coastal landscape character.</i></p> <p><i>Some of the military structures by reason of their scale, design, and cultural importance have now become an accepted part of the landscape, such as the Martello towers or the pagodas. Whereas other infrastructure, such as electricity pylons and the power stations are still cited by some as visual detractors in the landscape, despite the test of time.</i></p> <p><i>Rural landscape and smaller settlements (notably using vernacular building materials) display a harmonious balance between natural and cultural elements in the landscape, some of which date back several hundreds of years.</i></p> <p><i>Association between reedbeds and thatched roofs and local crag and flint where used as building materials.</i></p> <p><i>History of river use with Thames barges indicating links to past maritime heritage, and contemporary recreational use of the estuaries and coast, with many boatyards and in-river moorings.</i></p>
<p>Characteristic land management practices</p>	<p><i>Landscape character and diversity of habitat types dependent on wide range of land management practices, several of which date back many centuries. Examples include pasturing; grazing on coastal marshes; forestry; extensive grazing to maintain</i></p>



Factor	SCHAONB Indicator
	<p><i>heathland; reed cutting; and ditch/marshland and hydrological management.</i></p> <p><i>Small scale fishing industry results in boats, nets, pots and storage buildings on some stretches of coastline.</i></p>
Associations with written descriptions	<p><i>Associations with numerous writers including George Crabbe, (e.g. the poem 'The Borough', 1810), P.D. James and Arthur Ransome.</i></p>
Associations with artistic representations	<p><i>Landscape, towns, coastal areas and the sea captured in, or formed the inspiration for, the works of various artists and composers including J.M.W. Turner (e.g. 'Aldborough, Suffolk' c.1826) and Benjamin Britten (e.g. the opera 'Peter Grimes' c.1945).</i></p> <p><i>Annual arts and music festival established in 1948, by Benjamin Britten along with singer Peter Pears and writer Eric Crozier.</i></p>
Associations of the landscape with people, places or events	<p><i>Wide range of 'stories' describing historical events or activities relate to the landscape and features within the landscape, including stories related to smuggling; the creation of Minsmere; and the loss of Dunwich to the sea.</i></p> <p><i>More recent stories include the discovery of the Sutton Hoo ship burial in 1939, the 1953 flood, and experimental projects; Cobra Mist at Orford Ness and Radar at Bawdsey Manor.</i></p>

IEWS AND VISUAL AMENITY

BLADE TIP ZTV

- 10.7.43 The visual baseline focuses on and describes the area in which VE may be visible, as defined by its Zone of Theoretical Visibility (ZTV), the different groups of people (visual receptors) who may experience views of VE, the viewpoints where they will be affected and nature of views at those points.
- 10.7.44 Visual effects will only occur where the introduction of the VE array areas changes or influences the visual amenity and views experienced by people in the area. The areas where the visual baseline may be altered is defined by the Blade Tip ZTV shown in Figure 10.8 (A3) and Figure 10.9 (A1). The ZTVs shown in Figure 10.8 to Figure 10.19 are based on WTGs of 399 m to blade tip (above LAT) and represents the Maximum Development Scenario (MDS) for the SLVIA.



- 10.7.45 The ZTV shows the main area in which the VE array areas will theoretically be visible, highlighting the different areas where people may experience views of VE and assisting in the identification of viewpoints where they may be affected. The ZTV illustrates where there will be no visibility of these WTGs, as well as areas where there will be lower or higher numbers of WTGs theoretically visible. These ZTVs are however, a worst-case overstatement of visibility as they are based on bare-earth terrain models and also do take account of atmospheric clarity where there may be a theoretical line of sight, however VE may not be visible due to the weather conditions.
- 10.7.46 The Blade Tip ZTV shows the main areas of theoretical visibility of the VE array areas will be along the East Suffolk coastline and immediate hinterland, between Southwold in the north and Felixstowe in the south; and from the North Essex coastline of Tendring District between Harwich, the Naze and Clacton-on-Sea in the south. The closest areas of theoretical visibility of the VE array areas will be at Orford Ness which is located approximately 37.3 km from the closest point of the VE array area and in the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from Orford Ness.
- 10.7.47 The area of theoretical visibility of the VE array areas become more fragmented from the hinterland and inland areas of the SLVIA study area, where views of the sea become increasingly screened within the main river valleys, either by adjacent rising land or coastal landforms (such as Orford Ness). Actual visibility from these hinterland and inland areas also becomes increasingly screened by vegetation, such as woodland and hedgerows, and/or built development and settlement. There are relatively few elevated areas affording wider views of the sea from inland areas of the SLVIA study area. Visibility from streets, open spaces and low storey buildings within coastal, urban areas will typically be contained within the urban environment by surrounding built form, with most visibility of VE array areas likely at the coastal edge and sea-front.

BLADE TIP ZTV WITH SURFACE FEATURES

- 10.7.48 The ZTV in Figure 10.10 (A1) shows the theoretical visibility when screening from woodland and buildings (both defined by OS OpenMap Local and indicatively modelled at 10m height) are included in the surface model and illustrates the reduced theoretical visibility when taking these surface features into account. It provides a more realistic impression of the likely ZTV, with visibility of the VE array areas likely to become low and very limited and scattered in extent, moving inland away from the coastal edge due to the intervening screening provided by areas of built development along parts of the coast and hinterland.
- 10.7.49 Visibility from streets, open spaces and low storey buildings within coastal, settled areas will typically be contained within the urban environment by surrounding built form, with most visibility of the VE array areas at the sea-front or where buildings or intervening open areas allow visibility from further back. Views to the sea and the VE array areas from inland areas in particular, are notably restricted by intervening buildings within settled areas and areas of vegetation and woodland, as shown in Figure 10.10. There is likely to be very limited visibility of VE from the low inland landscape of the Suffolk Claylands due to the screening effect of vegetation, woodland and built up coastal urban areas.



HORIZONTAL ANGLE ZTV

- 10.7.50 The 'horizontal angle ZTV' in Figure 10.11 measures how much of the horizontal field of view (HFoV) is occupied by the VE array areas, in theoretical views. It measures the maximum spread from the furthest left to the furthest right theoretically visible WTG within the windfarm site, as a horizontal angle in degrees. The horizontal angle ZTV provides further information on which to judge of the likely visual effects of VE because the results reflect the effect that distance has on its apparent size and horizontal spread: a large object up-close has more visual impact than the same sized object further away (all other things being equal) and this is shown in the horizontal angle ZTV by how much of the horizontal field of view is occupied. The horizontal angle ZTV is displayed using coloured bands showing incremental degrees of horizontal angle, in order to highlight areas of higher effect.
- 10.7.51 The horizontal angle ZTV shows that the widest horizontal field of view is occupied in close proximity to the VE array areas, particularly within and between the array areas, where the WTGs occupy more than 180 degrees (50%) of the field of view, and within approximately 10 km to the east and west, where it will occupy 90 - 180 degrees (25 to 50%) of the field of view. These areas of greatest effect on the HFoV occur only from areas of seascape and will not be experienced to this extent in coastal views, in which the HFoV is much reduced to less than 40 degrees, and generally between 20-30 degrees of the HFoV, due to the distance between the coast and the VE array areas.
- 10.7.52 The horizontal angle ZTV also allows the following assessments to be made:
- > the horizontal field of view occupied by VE decreases considerably with distance;
 - > VE will occupy less than 40 degrees of the HFoV from all onshore areas in the SLVIA Study Area with visibility;
 - > from a small geographic area around Orford Ness, the VE array area will occupy a HFoV of between 30-40 degrees;
 - > from the majority of the remainder of the Suffolk coastline between Covehithe in the north and Felixstowe in the south, the VE array area will occupy a HFoV of between 20-30 degrees;
 - > from the Essex coastline between Harwich and Clacton-on-Sea, the VE array area will also occupy a HFoV of between 20-30 degrees;
 - > the HFoV occupied by the VE array area will reduce to the north, occupying a HFoV of between 10-20 degrees between Covehithe and Lowestoft; and
 - > from some of the estuaries, visibility is further reduced and the VE array area will occupy a HFoV of between 5-10 degrees.
- 10.7.53 The horizontal angle ZTV illustrates how the visual effect of the VE array area will diminish with distance; with less visual effect from distant locations, where it occupies a small angle of view, and a greater visual effect from locations at very close proximity in the sea near to the VE array areas, where it occupies a larger angle of view at close range.
- 10.7.54 It should also be noted that this theoretical measure includes the full angle from the furthest left to the furthest right extent of the VE array areas, and that in reality the WTGs are sited with visible space/gaps between them, which allow views through the site to the seascape or skyline beyond.



VISUAL RECEPTORS - OVERVIEW

10.7.55 The principal visual receptors in the SLVIA study area are focused along the closest sections of the East Suffolk and North Essex coastline, including people within settlements, driving on roads, visitors to tourist facilities or historic environment assets, and people engaged in recreational activity such as on walking and cycle routes where the sea is a strong influence in the baseline view.

10.7.56 Broadly, the principal visual receptors are identified as follows:

- > **Coastal settlements.** The larger settlements within the extent of ZTV are generally coincident with the coastline, where the main focus of views is typically 'land to sea'. Some of the seafront views, notably from areas around Clacton-on-Sea, also include an element of 'coast across sea to land' views. The principal coastal settlements with potential for views of VE are Lowestoft (59 km), Southwold (47 km), Dunwich (45 km), Sizewell (41 km), Aldeburgh (39 km), Felixstowe (51 km), Harwich (54 km), Walton-on-the-Naze (55 km), Frinton-on-Sea (56 km) and Clacton-on-Sea (60 km).
- > **Recreational Routes.** The principal recreational routes with potential for views of VE are: the Suffolk Coast Path, England Coast Path, Sandlings Walk and Regional Cycle Routes 30 and 31.
- > **Public Rights of Way.** A more general concentration of Public Rights of Way is notable within the extents of the SCHAONB and the coast, associated with its open landscape and focus as a centre for outdoor recreation. Sea front promenades, typically associated with the main settlements, provide further linear route vantage points.
- > **Main road routes.** The principal highway route with capacity for sea views is the A12, which connects Lowestoft and Ipswich. Smaller roads leading off the A12 to the coast which may provide sea views include the A1094, A1095, B1083, B1084, B1122, B1125 and the B1387.
- > **Rail routes.** The East Suffolk line is the principal rail line along the coast. It runs between Ipswich and Lowestoft via Westerfield, Woodbridge, Melton, Wickham Market, Saxmundham, Darsham, Halesworth, Brampton, Beccles and Oulton Broad South.
- > **Tourist and visitor locations.** Concentrations of recreational and visitor locations associated with the main coastal resort towns, with their sea front promenades, piers and shingle beaches, including Southwold, Aldeburgh, Thorpeness, Walton and Clacton-on-Sea; and nature reserves/visitor centres.
- > **Historic environment assets.** Visitors to historic environment assets such as Dunwich Heath, Orford Ness, Orford Castle, Landguard Fort and the series of Martello Towers along the Suffolk coast.

10.7.57 A preliminary assessment of the potential effect of the VE array areas on these principal visual receptors is undertaken in Table 10.28 of Section 10.11 and further baseline information is described in the detailed assessment of each receptor that has potential to be significantly affected in Section 10.11.



NATURE OF VIEWS - OVERVIEW

- 10.7.58 An initial understanding of the baseline visual resource is provided in the Suffolk, South Norfolk and North Essex Seascape Character Assessment (Suffolk County Council, 2020) *'The MMO online marine planning mapping tool.... indicates that visibility extends to a maximum of approximately 20 km (11nm) from the coast within the study area. However, this is only a tool, and the degree of inter-visibility between the coast and sea and along the coast is dependent on several factors including atmospheric conditions and weather. In clear conditions views can be extensive. However, sea fogs and coastal mists can significantly restrict views. Views to sea and along the coastline from the shore can make a significant contribution to sense of place and experiential qualities that are unique to coastal areas. The nature of views varies dependent on the viewing location, orientation and objects in the view. Views directly offshore can be to a vast and uninterrupted horizon, although in some location's views to wind turbines and shipping are possible, subject to conditions'*.
- 10.7.59 Views from the inshore waters nearest the terrestrial coastline are described as being *'Expansive views offshore' and 'encompass largely undeveloped seascape', although 'offshore shipping and wind farms are visible in adjacent seascape character types, subject to weather conditions'. The seascape is described as having a 'strong visual relationship with the predominantly rural coastline'; and with 'occasional coastal towns and large-scale developments including energy and military infrastructure evident in some views'*.
- 10.7.60 Views from the inland navigable waters along the coast are described as being *'Long distance and relatively expansive views inland, especially across adjacent low-lying marshes'* and there are *'views to adjacent towns, major ports and infrastructure (including river crossings)'* which *'have localised urbanising effect from the inland waters'*.
- 10.7.61 The visual context of the seascape of the SLVIA study area includes a number of key elements and components, which include:
- > Extensive shingle beaches and shallow bays, which provide opportunities for long distance and panoramic views including out to sea, along the SCHAONB and Heritage Coast, and over low-lying coastal marshes, estuaries and beaches;
 - > Large open vistas across heaths and along the coast, out to sea and from sea to the coastline, often with memorable or unusual views and eye-catching features or landmarks;
 - > Large scale but relatively flat coastal landforms and simple relationship of shingle beach, sea and big skies, including extensive shingle beaches and the substantial spit formed by Orfordness which extends along much of the Suffolk coast;
 - > A dense concentration of shipping activity, extensive offshore commercial activities such as fishing and dredging, windfarm developments and gas fields, although otherwise visually unified and expansive open water character with few surface features;
 - > The southern portion of the seascape setting of the AONB is currently influenced by the existing Greater Gabbard (140 x 170m blade tip height) and Galloper (56 x 180.5m blade tip height) OWFs, and the more distance and the more distant London Array, which create a cluttered horizon;



- > Sizewell A and B Nuclear Power Station, which form incongruous elements including the large-scale, 'brutalist' concrete mass of Sizewell A adjacent to the simple dome of Sizewell B in views along the coastline;
- > Orford Ness Transmitting Towers, at 11 in number and 106.7m in height, are seen widely in views across Orford Ness and Sudbourne Marshes;
- > The Port of Felixstowe, which is the UK's busiest container port and includes major port infrastructure and busy shipping waters containing numerous large vessels visible from the coast;
- > The general built form within the extensive, coastal, urban environment in the southern parts of the study area which predominates between Felixstowe, Harwich, Frinton-on-Sea and Clacton-on-Sea; and
- > Some areas provide opportunities to experience relatively dark skies, however aviation lighting on existing offshore wind farms, lighting of vessels and urban areas to the south influences seaward and coastal views at night.

VISIBILITY

10.7.62 Whilst ZTV mapping can model the theoretical visibility of the VE array areas, it is important to note that atmospheric conditions will affect visibility. The Met Office defines visibility as *"the greatest distance at which an object can be seen and recognised in daylight, or at night could be seen if the general illumination were raised to a daylight level"* (Met Office, 2000).

10.7.63 A quantitative description of the existing visibility is provided using METAR visibility data from the closest Met Office weather station at Manston, to highlight potential trends in the visibility conditions of the SLVIA study area. This 'visibility data' shows a 10-year average of the frequency of observations at measured distances from the station.

10.7.64 Visibility range and frequency is mapped in Figure 10.19 in the context of the windfarm site using visibility ranges based on Met Office visibility definitions: < 1 km Very Poor; 1 - 4 km Poor; 4 -10 km Moderate; 10 - 20 km Good; 20 - 40 km Very Good; 40 km > Excellent. The visibility range is shown in bands extending from the VE array areas and is combined with the ZTV of VE array areas to show the likely frequency of visibility over 10 years at difference distances, as shown in Table 10.15.

Table 10.15 Visibility Frequency

Visibility range	Visibility definition	% Visibility frequency (over 10 years)	Days per year visibility frequency (10 year average)
1 km	Very Poor	1.32	4.82
1 - 4 km	Poor	4.81	17.56
4 - 10 km	Moderate	14.80	54.02
10 - 20 km	Good	27.85	101.65
20 - 40 km	Very good	36.87	134.58
40 - 50 km	Excellent	10.29	37.58
50 - 60 km	Excellent	4.04	14.74



Visibility range	Visibility definition	% Visibility frequency (over 10 years)	Days per year visibility frequency (10 year average)
60 km >	Excellent	0	0

10.7.65 Based on the Met Office visibility data, the WTGs within the VE array areas will only be visible in ‘very good’ or ‘excellent’ visibility, since the array area is located approximately 38 km from the coast at its closest point. Based on visibility at 38 km, the Met Office visibility data indicates that WTGs within the VE array areas will have a visibility frequency of approximately 21% i.e. approximately 76 days of the year on average (or approximately one-fifth of the year) with visibility over 35 km.

10.7.66 The Met Office visibility data allows some quantification of the likely frequency of visibility of the VE array areas from individual viewpoints, based on the distance of each viewpoint location from the array areas. The Met Office visibility frequency data is used to inform an assessment of the ‘likelihood of effect’ from each viewpoint, in order to qualify any significant effects assessed in optimum visibility conditions with how likely they are to actually occur given the prevailing weather/ visibility conditions. The viewpoints included in the SLVIA range from 38 km to 60 km from the VE array areas, with assessments of likelihood of effect varying from 21% at the closest viewpoint (Viewpoint 9, Orfordness), to 0.01% at the more distant viewpoints (such as Viewpoint F, Clacton-on-Sea), with assessments varying between a medium-low likelihood of effects occurring at the closest viewpoints to a low likelihood at the more distant viewpoints.

VIEWPOINTS

10.7.67 The term ‘viewpoint’ is used to define a place from where a view is gained, and that represents specific conditions or viewers (visual receptors).

10.7.68 Viewpoints have been compiled in Table 10.16 based on the ZTV for VE array areas (Figure 10.8 to Figure 10.18), the landscape and visual receptors described above, field surveys and informed by other projects including the viewpoints selected for Galloper, Greater Gabbard and East Anglia TWO projects.

10.7.69 Consultation on the viewpoint locations proposed in Table 10.16 has been undertaken with stakeholders to agree these viewpoints, including Natural England, Historic England, Suffolk County Council, East Suffolk District Council, Essex County Council, Tendring District Council and SCHAONB Partnership.

10.7.70 Representative and illustrative viewpoints proposed for the visual assessment are identified in Table 10.16 and mapped in Figure 10.8 to Figure 10.18.

- > Representative viewpoints – are selected to represent the experience of different types of visual receptor within an area where larger numbers of viewpoints cannot all be included. A combination of baseline panorama, cumulative wireline and full photomontage visualisations will be produced. Detailed assessment of the visual effects from these viewpoints will be undertaken in the SLVIA that have the potential to experience significant visual effects, while others may be scoped out during the simple assessment, if no potential for significant effects is identified.
- > Illustrative viewpoints – are chosen specifically to demonstrate a particular effect or specific issue (including restricted visibility). A baseline panorama and wireline



visualisation (90 degrees field of view) will be produced, but a written assessment of the visual effects from these viewpoints will not be included in the SLVIA.

10.7.71 The viewpoint locations selected take into account a range of factors, including:

- > A range of viewpoints from where there are likely to be significant effects;
- > Those representative of views within the SLVIA study area, from specific viewpoints and illustrative of certain effects;
- > The accessibility to the public, and potential number and sensitivity of viewers who may be affected;
- > The viewing direction, distance and elevation, including a range of distances between 38 km and 60 km to test threshold of significance from coastal to inland areas);
- > The nature of the viewing experience and activities (e.g. Static views, views from settlements, tourist destinations, and views from sequential points along roads and recreational routes, such as the south downs way);
- > The view type (for example panorama, vistas and glimpses);
- > Areas of high landscape, scenic or recreational value (such as the SCHAONB);
- > Various landscape character areas and local authority administrative areas;
- > The potential for combined views of the project with existing operational wind farms; and
- > Potential for integrated approach – viewpoints representing several aspects from the same location, such as visual effects of the offshore and onshore infrastructure, or views representing onshore cultural heritage assets.

10.7.72 A preliminary assessment of the potential effect of the VE array areas on these viewpoints is undertaken in Table 10.27 of Section 10.11 and further baseline information is described in the detailed assessment of each view that has potential to be significantly affected in Section 10.11. Baseline panoramas showing the existing view from these viewpoints are shown in the relevant baseline panoramas that are cross referenced for each viewpoint in Table 10.16.



Table 10.16 Viewpoints included in the SLVIA

Viewpoint	Grid Ref	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Landscape Designation	Visual receptors	
Representative viewpoints in Suffolk						
1	Southwold (Gun Hill) (Figure 11.26)	65081827 5766	47.1	48.2	SCHAON B / Suffolk Heritage Coast	Residents (Southwold); Beach users/visitors to sea front; Walkers (Suffolk Coast Path/England Coast Path); Recreational boating (Southwold Harbour).
2	Dunwich Beach (Figure 11.27)	64795327 0755	45.5	46.8	SCHAON B / Suffolk Heritage Coast	Residents of the edges of Dunwich village; Beach users (Dunwich Beach); Visitors to Dingle Marshes RSPB reserve; Walkers (Suffolk Coast Path/Engla



Viewpoint	Grid Ref	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Landscape Designation	Visual receptors	
					nd Coast Path).	
3	Dunwich Heath (Figure 11.28) (Coastguard Cottages)	647689267783	43.8	45.2	SCHAON B / Suffolk Heritage Coast	Visitors to Dunwich Heath and Beach (including National Trust Coastguard Cottages); Walkers (Suffolk Coast Path/England Coast Path).
4	Sizewell Beach (Figure 11.29)	647547262850	41.0	42.4	SCHAON B / Suffolk Heritage Coast	Residents (Sizewell); Beach users (Sizewell Beach); Walkers Suffolk Coast Path/England Coast Path); Workers (Sizewell A and B Nuclear Power Station).



Viewpoint	Grid Ref	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Landscape Designation	Visual receptors	
5	Thorpeness (Figure 11.30)	647280259494	39.4	40.9	SCHAON B / Suffolk Heritage Coast	Residents (Thorpeness); Beach users (Thorpeness beach); Tourist visitors to Thorpeness; Walkers (Suffolk Coast Path/England Coast Path).
6	Aldeburgh (Figure 11.31)	646582256851	38.9	40.3	SCHAON B / Suffolk Heritage Coast	Residents (Aldeburgh); Beach users/visitors to seafront (Aldeburgh Beach); Recreational boating (Aldeburgh Yacht Club); Walkers (Suffolk Coast Path/England Coast Path).
7	Orford Castle (Figure 11.32)	641944249869	40.9	42.3	SCHAON B / Suffolk Heritage Coast	Visitors to the roof of Orford Castle;



Viewpoint	Grid Ref	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Landscape Designation	Visual receptors	
					Residents of Orford.	
8	Burrow Hill (Suffolk Coast Path) (Figure 11.33)	639001248468	43.5	44.8	SCHAON B / Suffolk Heritage Coast	Walkers (England Coast Path).
9	Orfordness (Bomb Ballistics Building) (Figure 11.34)	644559249211	38.2	39.6	SCHAON B / Suffolk Heritage Coast	Visitors to Orford Ness.
10	Shingle Street (Figure 11.35)	636589242467	45.1	46.4	SCHAON B / Suffolk Heritage Coast	Residents (Shingle Street); Walkers (Suffolk Coast Path/ England Coast Path); Visitors/beach users.
11	Old Felixstowe (Figure 11.36)	632377236242	49.0	50.3	SCHAON B / Suffolk Heritage Coast	Residents (Old Felixstowe); Beach users/visitors to seafront; Walkers (Suffolk Coast Path/ England



Viewpoint	Grid Ref	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Landscape Designation	Visual receptors
					Coast Path).
Representative viewpoints in Essex					
12	The Naze, Walton (Figure 11.37)	626533223557	53.0	54.3	No landscape designation Residents (Walton-on-the-Naze); Visitors to Naze Tower/car park; Beach users/visitors to seafront. Walkers (England Coast Path).
13	Walton Pier (Figure 11.38)	625453221600	54.1	55.3	No landscape designation Residents (Walton-on-the-Naze); Visitors to Walton sea front. Walkers (England Coast Path).
14	Walton, Mill Lane (Figure 11.39)	625229222055	54.3	55.5	No landscape designation Residents (Walton-on-the-Naze); Visitors to Martello Tower. Walkers



Viewpoint	Grid Ref	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Landscape Designation	Visual receptors
					(England Coast Path).
Illustrative viewpoints					
A	Covehithe (Figure 11.40)	652370281104	50.3	51.2	SCHAON B / Suffolk Heritage Coast Visitors to Covehithe broad, beach and cliffs.
B	Southwold Pier (Figure 11.41)	651144276648	47.6	48.6	SCHAON B / Suffolk Heritage Coast Visitors to sea front and pier.
C	Bawdsey Manor (Figure 11.42)	633526237749	48.0	49.2	SCHAON B / Suffolk Heritage Coast Walkers (path along coastal edge). Walkers (Suffolk Coast Path/ England Coast Path).
D	Landguard Fort (Figure 11.43)	628590231869	51.9	53.1	No landscape designation Visitors to Landguard Fort and Nature Reserve. Walkers (Suffolk Coast Path).
E	Harwich (Figure 11.44)	625142230614	55.1	56.3	No landscape designation Residents (Harwich); Beach



Viewpoint	Grid Ref	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Landscape Designation	Visual receptors	
				designatio n	users/visit ors to sea front. Walkers (England Coast Path).	
F	Clacton- on-Sea (Figure 11.45)	61947721 5721	59.8	61.1	No landscape designatio n	Residents (Clacton- on-Sea); Beach users/visit ors to sea front. Walkers (England Coast Path).
G	Foreness Point (Kent) (Figure 11.46)	61947721 5721	58.4	60.6	No landscape designatio n	Walkers (Thanet Coastal Path); residents (Cliftonville /Kingsgate areas); Beach users/visit ors to sea front (Botany Bay, Palm Bay, Kingsgate Bay).
Night-time viewpoints						
2	Dunwich Beach	64768926 7783	43.8	46.8	SCHAON B / Suffolk	Visitors to Dunwich



Viewpoint	Grid Ref	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Landscape Designation	Visual receptors	
(Figure 11.28)				Heritage Coast	Beach and Heath; Walkers (Suffolk Coast Path/England Coast Path).	
6	Aldeburgh (Figure 11.31)	646582256851	38.9	40.3	SCHAON B / Suffolk Heritage Coast	Residents (Aldeburgh); Beach users/visitors to seafront (Aldeburgh Beach); Recreational boating (Aldeburgh Yacht Club); Walkers (Suffolk Coast Path/England Coast Path).
11	Old Felixstowe (Figure 11.36)	632377236242	49.0	50.3	SCHAON B / Suffolk Heritage Coast	Residents (Old Felixstowe); Beach users/visitors to seafront; Walkers (Suffolk Coast Path/England



Viewpoint	Grid Ref	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Landscape Designation	Visual receptors
					Coast Path).
12	The Naze (Figure 11.37)	626533223557	53.0	54.	No landscape designation Residents (Walton-on-the-Naze); Visitors to Naze Tower/car park; Beach users/visitors to seafront; Walkers (England Coast Path).

NIGHT-TIME BASELINE LIGHTING

10.7.73 The baseline lighting conditions across the SLVIA study area vary considerably and there is no single data source that serves to provide a detailed or quantitative evidence base. To provide some context to the assessment, Figure 10.20 illustrates information relating to light pollution in the study area information provided by Campaign to Protect Rural England (CPRE), who have produced interactive maps of the UK's light pollution and dark skies as part of a national mapping project. This is based upon data from the National Geophysical Data Center, part of the National Center for Environmental Information (NCEI) in the USA. Land Use Consultants (LUC) has processed this satellite data to prepare a map showing the areas of relative light pollution across England (LUC/CPRE, 2016). This Open Source data has been used to help understand and illustrate the existing baseline lighting levels of the Study Area and is mapped in Figure 10.20.

10.7.74 Each pixel in the mapping shows the level of radiance (night lights) shining up into the night sky, which have been categorised into colour bands to distinguish between different light levels, from colour band 1 (darkest) to 9 (brightest). The map clearly identifies the main concentrations of night-time lights, creating light pollution that spills up into the sky.



- 10.7.75 Most notably, this existing lighting pollution is within and around the main settlements due to the influence of street and building lighting, particularly the urban areas of Lowestoft, Ipswich, Felixstowe, Harwich, Walton-on-the-Naze, Frinton-on-Sea and Clacton-on-Sea falling within the brighter light influence categories, with high night light pollution at the greatest, light-influenced end of the spectrum. Smaller coastal settlements also show as areas of higher night-time lighting, including Kessingland, Southwold/Reydon, Walberswick, Leiston, Thorpeness and Aldeburgh, as well as scattered villages further inland. Areas of higher night-time lighting levels are also present around the Sizewell A and B Nuclear Power Station. The seascape of the SLVIA study area includes a number of visible aviation and/or navigation lighting associated with the operational offshore windfarms (Greater Gabbard, Galloper, Gunfleet Sands, London Array and Thanet) as well as lit vessels, rigs and cardinal buoys that are visible in the sea at night.
- 10.7.76 By contrast, Figure 10.20 also identifies areas where there are lower levels of existing night-time lighting falling into the lowest colour bands, containing areas where the sky would be expected to be 'dark' from areas set back from the light influenced urban areas. These areas with lower levels of existing night-time lighting include the rural areas of the SCHAONB, including its coastline and rural areas set back from the coast. The character of the night sky contributes to the landscape character of the SCHAONB and contribute to its special qualities in these locations that dark skies are to be found. Dark skies do not feature notably in the description of the special qualities of the SCHAONB however they nevertheless are an important component of the natural beauty of the designation, where the opportunity to experience a dark night sky is limited within England due the extensive distribution of urban light pollution.
- 10.7.77 The impression gained from Figure 10.20 is borne out by the assessment experience from visiting and inspecting the study area at night. Higher levels of darkness are experienced from the more remote estuaries and pockets along the coast and rural areas, interspersed with lighting of nucleated villages, with a general transition of reducing darkness towards urban development to the north around Lowestoft and to the south around the Thames Estuary and the corridor between Felixstowe and Ipswich. These are more heavily influenced by visible lighting at night that arises as consequence of a number of light sources including:
- > Towns and settlements (street lighting/ buildings/ retail areas);
 - > Roads and road junctions, including service areas
 - > Industrial developments including power stations and existing onshore WTGs;
 - > Vehicles using the road network, including occasional construction vehicles with flashing lights;
 - > Lighting of entertainments on several piers, including at Lowestoft, Southwold, Felixstowe, Walton and Clacton-on-Sea that extend into the sea and spill light onto the water;
 - > Red aviation lights on tall structures including construction cranes, communication masts and the ports;
 - > Lighting of cardinal buoys and vessels in the sea; and



- > The operational offshore windfarm aviation and marine navigational lights which can be seen out to sea, lighting the offshore windfarm groupings at Greater Gabbard, Galloper, Gunfleet Sands, London Array and Thanet.

10.7.78 Lighting at these locations provides a considerable level of baseline illumination which is apparent when travelling through and around the coastal parts of the study area, from the transition between the urban environment and the more rural areas inland. Lighting within this urbanised coastline is demonstrably intrusive in interrupting the transition between dark landscape and dark skies above in views towards the seascape.

EVOLUTION OF THE BASELINE

10.7.79 The baseline character of the landscape in the study area is likely to change in the future as a result of the effects of climate change, land use policy, environmental improvements and development pressures, regardless of whether VE progresses to construction or not.

10.7.80 A range of policies impact on the management of the landscape, ranging from European Directive, national policy and regulation, through to community strategies and development frameworks. Landscape planning policies covering the coastal landscape within the study area, such as the SCHAONB, generally seek to conserve and enhance the natural beauty of the area, while recognising the need to adapt to inevitable change over time, particularly in such a dynamic coastal landscape shaped by coastal processes, and the need to respond to development pressures that reflect the changing needs of society.

10.7.81 There is overwhelming evidence that global climate change, influenced by the human use of fossil fuels, raw materials and intensive agriculture, is occurring (IPCC 2014). Any notable change in climate is likely to present potential changes to the coastline of the study area in a variety of ways. The legislative framework already exists to ensure that no net loss of internationally important habitat occurs, but there remains a need to increase understanding of the potential effects of climate change on the characteristic landscapes of the study area and to develop longer term strategies that will mitigate any adverse effects of climate change.

10.7.82 Suffolk County Council has produced 'Suffolk Climate Action Plan 3' (2017) which presents a summary of the County's climate change strategy. The Action Plan states *"Extremes of weather are fast becoming the 'new normal', which presents particular challenges to this, the most vulnerable region in the UK to the impacts of climate change, and the most low-lying with up to 30 per cent of land below sea level. This is also the driest area of the UK, with less annual average rainfall than parts of the Middle East, and yet our population is fast growing too, which brings into sharp focus the need to manage our year-round precious water resources. The rainfall we do get is increasingly falling in high intensity events, presenting significant management challenges."*

10.7.83 In respect of the study area associated with VE, higher sea levels will affect much of the Suffolk coastline, with some coastal areas predicted to being lost to the sea. Droughts and flooding will affect the productivity of agricultural land and the stability of farm businesses, while woodlands and other semi-natural landscapes, would be affected both in dry periods and wet periods, with long-term water-logging in low-lying parts presenting a particular problem.



- 10.7.84 The nationally designated SCHAONB landscape within the study area is subject to changes implemented from the aims and objectives of the SCHAONB Management Plan (SCHAONB 2018 - 2023). The baseline conditions of the SCHAONB landscape are likely to change gradually over time in response to the implementation of the objectives set out in the SCHAONB Management Plan (Section 5), such as expansion of the area of Sandlings Heath, forest diversification and implementation of new agri-environment schemes to help wildlife, improve access, restore landscape and retain heritage features.
- 10.7.85 Recent development management decisions/planning decision precedent has established and accepted landscape change from offshore windfarm development in the seascape of the study area. Several large scale offshore windfarms are operating and visible in the seascape of the study area, including Greater Gabbard and Galloper in the offshore waters of the southern part of the study area; East Anglia ONE offshore windfarm in the distant offshore waters and other windfarms such as London Array and Gunfleet Sands (I, II and III) also being visible in the seascape outside the study area to the south, off the north Essex coastline. The baseline conditions are likely to change as a result of further offshore wind energy development in this seascape, with East Anglia ONE North and East Anglia TWO projects recently consented, which are anticipated to change the baseline of the seascape to the north of the array areas.
- 10.7.86 National Grid Ventures (NGV) is bringing forward proposals for a Multi-Purpose Interconnector (MPI) called LionLink, which will deliver a new electricity link between Great Britain to the Netherlands. The LionLink project requires a convertor station site (typically 5ha) on land, connected via a cable corridor to a cable landfall site where the subsea cables are brought on to land. Onshore siting and routing options were presented as part of a non-statutory consultation between October and December 2022, to help identify preferred locations for the onshore infrastructure associated with the project. These cable landfall options include sites near Southwold, Walberswick, Dunwich and Thorpeness; and convertor station site options between Leiston and Saxmundham.
- 10.7.87 NGV is also bringing forward proposals for a MPI called Nautilus and ran a non-statutory consultation for Nautilus, which proposed a connection at Friston. NGV holds a connection agreement on the Isle of Grain in Kent as part of its development portfolio and is currently investigating if this could be a potential location for Nautilus. Until this is confirmed to be technically feasible, Nautilus is included as part of NGVs coordination work in East Suffolk.
- 10.7.88 Lack of detail and uncertainty about the site locations for landfall and convertor stations dictates that these NGV LionLink and Nautilus projects cannot be fully considered as part of the SLVIA. There is potential for LionLink, if implemented, to increase the influence of construction within the SCHAONB during its construction phase and increase the influence of onshore energy infrastructure outside the SCHAONB in East Suffolk between Leiston and Saxmundham.



- 10.7.89 An application by NNB Generation Company (SZC) for a Development Consent Order (DCO) for the Sizewell C Nuclear Power Station ('Sizewell C') was granted by the Secretary of State in July 2022. The construction and operational elements of Sizewell C will result in considerable change to the baseline landscape and visual conditions of the area to the north of the existing Sizewell A and B Nuclear Power Station. The key elements are the main site, comprising the Sizewell C nuclear power station itself, offshore works, land used temporarily to support construction including an accommodation campus, and a series of off-site associated development sites in the local area, including new road and rail access and beach landing facility.
- 10.7.90 Further development pressures which may change the baseline conditions, include suburbanisation and increased tourist development influences, particularly around the coastal landscapes and established coastal towns within the study area, which have potential to increase the developed influence and reduce perceived naturalness of the coastline.

10.8 KEY PARAMETERS FOR ASSESSMENT

- 10.8.1 The final design of VE will be confirmed through detailed engineering design studies that will be undertaken post consent to enable the commencement of construction. To provide a precautionary but robust impact assessment at this stage of the development process, a realistic worst-case scenario has been defined in terms of the potential effects that may arise. This approach to EIA, referred to as the Rochdale Envelope, is common practice for developments of this nature, as set out in Planning Inspectorate Advice Note Nine: Rochdale Envelope (PINS, 2018). The Rochdale Envelope for a project outlines the realistic worst-case scenario for each individual impact, so that it can be safely assumed that all lesser options will have less impact. Further details are provided in Volume 6, Part 1, Chapter 3: EIA Methodology.
- 10.8.2 The realistic worst-case scenario for the SLVIA are summarised in
- 10.8.3 Table 10.17. These are based on the project parameters described in Volume 6, Part 2, Chapter 1 Offshore Project Description, which provides further details regarding specific activities and their durations.
- 10.8.4 The ES assessment presents assessment of the maximum height WTGs proposed as the worst-case effect scenario in Section 10.11. The parameters of the maximum height WTGs layout represent the parameters that would have maximum effects on seascape, landscape and visual receptors, in accordance with the Rochdale Envelope approach set out in Planning Inspectorate Advice Note Nine: Rochdale Envelope (PINS, 2018).
- 10.8.5 The realistic worst-case effect is evident in comparison of the smaller ZTV for the lower height/ maximum number of WTGs (Figure 10.7) compared to the wider ZTV for the maximum height/ lowest number of WTGs (Figure 10.8); and when comparing the visualisations showing the appearance of the lower height/maximum number of WTGs compared to the maximum height/lowest number of WTGs (Figure 10.26 – 11.46).



10.8.6 The maximum height/lowest number of WTGs represent the parameters that would have maximum effects on seascape, landscape and visual receptors and it is the effects of this one clear worst-case scenario that is assessed in the ES. Effects arising from any other scenario within these maximum parameters would not be greater than those assessed in this SLVIA.

10.8.7 The realistic worst-case scenario for the SLVIA is summarised in

10.8.8 Table 10.17.

Table 10.17: Maximum design scenario for the project alone

Potential effect	Maximum adverse scenario assessed	Justification
Construction and decommissioning		
Offshore cable corridor	The seascape, landscape and visual impacts of the offshore cable route construction have been scoped out of the SLVIA.	Scoped out on the grounds that much of the offshore construction activities involve vessels which are an existing seascape component and that the construction activities are temporary in nature. The Inspectorate agrees that this matter can be scoped out of the SLVIA (PINS, November 2021).
WTGs	<p><u>Maximum height WTGs scenario:</u></p> <p>Maximum number of WTGs: 41</p> <p>Maximum blade tip height above LAT (m): 399 m (395 m above MHWS)</p> <p>Maximum rotor diameter (m): 360 m</p> <p>WTG type: Horizontal axis</p> <p>Number of rotor blades: 3</p> <p>WTG blade colour: Light grey, with red circles and red blade tips as required by MGN543.</p> <p>Minimum turbine spacing (centre to centre) (m): 830 m</p> <p>Assumed locations/layout as per Figure 10.1.</p> <p><u>WTG installation:</u></p> <p>WTG installation spreads (small group of vessels engaged in same task): 3 small and 3 large</p>	The parameters represent the maximum influence of construction of the WTGs in the VE arrays that would potentially affect seascape, landscape and visual receptors during the construction phase.



Potential effect	Maximum adverse scenario assessed	Justification
	Max vessels per WTG installation spread: 5 small and 5 large Total WTG installation vessels: 15 Number of WTG installation spread round trips: 71 small and 37 large	
Foundation substructures	<u>Multi-leg foundations installation:</u> Foundation installation spreads (small group of vessels engaged in same task): 2 small and 2 large Number of vessels per WTG foundation per spread (includes tugs and feeders): 8 small and 8 large Number of foundation installation spread round trips: 498 small and 328 large	The parameters represent the maximum influence of construction of the foundation substructures in the VE arrays that would potentially affect seascape, landscape and visual receptors during the construction phase.
Offshore substation platforms (OSP)	Maximum number of OSPs: 2 Topside structure length and width: 125 m x 100 m Topside height: 105 m above LAT (excluding helideck and crane) Topside height (including crane): 195 m above LAT (excluding helideck and crane) Assumed locations of OSPs as per Figure 10.1. OSP foundation installation vessels spread round trips: 16 small and 16 large OSP topside installation vessels spread round trips: 8 small and 8 large	The parameters represent the maximum influence of construction of the OSPs in the VE arrays that would potentially affect seascape, landscape and visual receptors during the construction phase.
Operation and maintenance		
WTGs	<u>Maximum height WTGs scenario:</u> Maximum number of WTGs: 41	The ES assessment presents assessment of the maximum height WTGs proposed as the worst-case effect scenario in



Potential effect	Maximum adverse scenario assessed	Justification
	<p>Maximum blade tip height above LAT (m): 399 m (395 m above MHWS)</p> <p>Maximum rotor diameter (m): 360 m</p> <p>WTG type: Horizontal axis</p> <p>Number of rotor blades: 3</p> <p>WTG blade colour: Light grey, with red circles and red blade tips as required by MGN543.</p> <p>Minimum turbine spacing (centre to centre) (m): 830 m</p> <p>Assumed locations/layout as per Figure 10.1.</p>	<p>Section 10.11. The parameters of the maximum height WTGs layout represent the parameters that would have maximum effects on seascape, landscape and visual receptors. The MDS layout (Figure 10.1) has WTGs located to full extent of the VE arrays and in positions that are weighted towards the coastward perimeters of the wind farm site, to represent the maximum effect in terms of the proximity, scale and spread of the WTGs in coastal views in all directions. WTGs with the highest 399 m blade tip height (above LAT) will have a wider geographic extent of effect over a larger Zone of Theoretical Visibility (ZTV) than the lower 324 m blade tip height WTGs. 399 m (above LAT) WTGs will appear to have a larger scale in views, both in terms of their overall blade tip height, but also in terms of the appearance of the larger rotor of the WTG. The larger 399 m blade tip WTG will also result in a greater scale contrast with the operational WTGs. The potential effect that results from additional WTGs of smaller size is considered to be outweighed by the larger height and scale of the 399 m WTGs, with the overall area occupied by WTGs being equal.</p>
<p>Foundation substructures</p>	<p>Multi-leg foundations (jacket)</p> <p>Number of legs per WTG: 4</p> <p>Height of platform above LAT (m): 35 m</p> <p>WTG foundation / transition piece colour: yellow up to approx. 35 m above LAT</p>	<p>The worst case for the SLVIA assumes that the foundation substructure design will be a 4-legged jacket foundation substructure. Field survey and experience of the visual effects of existing offshore wind farms suggests that jacket foundations are worst case for visual impacts. The foundation substructures are</p>



Potential effect	Maximum adverse scenario assessed	Justification
		<p>assumed to have a working platform and tower interface, where the tower connects with the jacket foundation structure. The height of the platform level is assumed to be 35 m above LAT. The jacket foundations are assumed to have four sides and four legs, supported by cross braces and painted yellow for navigational marking.</p>
WTG lighting	<p><u>Maximum height WTGs scenario:</u></p> <p>Hub height (height of aviation light) (m) above LAT: 219 m</p> <p>Red, medium intensity aviation warning lights (2000 candela (cd)) located on either side of WTG nacelle of all peripheral WTGs of layout shown in Figure 10.21.</p> <p>Marine aid to navigation lights fitted at platform level on significant peripheral structures (SPS) as shown in Figure 10.21.</p>	<p>The parameters represent the maximum WTG lighting that may potentially affect seascape, landscape and visual receptors at night. The WTGs and offshore substations will be lit in accordance with the International Association of Lighthouse Authorities (IALA) standards and Civil Aviation Authority (CAA) requirements, based on the following further assumptions:</p> <p>Aviation warning lights will flash simultaneously with a Morse W flash pattern and be able to be switched on and off by means of twilight switches;</p> <p>Aviation warning lights will have reduced intensity at and below the horizontal and allow a further reduction in lighting intensity when the visibility in all directions from every WTG is more than 5 km;</p> <p>Search and rescue (SAR) lighting of each of the non-periphery WTGs will be combi infra-red (IR)/200 cd steady red aviation hazard lights are not assessed, as they will not be switched during normal operations and only during SAR operations;</p> <p>All WTGs could be fitted with a low intensity light for the purpose of</p>



Potential effect	Maximum adverse scenario assessed	Justification
		<p>helicopter winching (green hoist lamp) and could also be fitted with suitable illumination (minimum one 5 cd light) for ID signs; and</p> <p>Marine aid to navigation lights will be synchronized to display simultaneously an IALA “special mark” characteristic, flashing yellow, with a range of not less than five (5) nautical miles.</p>
<p>Offshore substation platforms (OSP)</p>	<p>Maximum number of OSPs: 2</p> <p>Topside structure length and width: 125 m x 100 m</p> <p>Topside height: 105 m above LAT (excluding helideck and crane)</p> <p>Topside height (including crane): 195 m above LAT (excluding helideck and crane)</p> <p>Assumed locations of OSPs as per Figure 10.1.</p>	<p>The parameters represent the maximum number, size and proximity of OSPs to the coast that would potentially affect seascape, landscape and visual receptors. Indicative locations of the OSPs have been assumed for the SLVIA, located along the shoreward perimeter of the windfarm site, as shown in Figure 10.1. The SLVIA maximum design scenario assumes that each OSP will have a topside structure of maximum size 125 m x 100 m and a maximum height (excluding helideck and crane) of 105 m above LAT. The foundation type for the construction operation and maintenance platform is assumed to be jacket foundations, supported with cross braces and painted yellow for navigational marking. OSPs are shown in a selection of photomontage visualisations from the closest viewpoints from the VE array areas.</p>



10.9 MITIGATION

10.9.1 Mitigation measures that were identified and adopted as part of the evolution of the project design (embedded into the project design) and that are relevant to seascape, landscape and visual are listed in Table 10.18. General mitigation measures, which would apply to all parts of the project, are set out first. Thereafter mitigation measures that would apply specifically to seascape, landscape and visual issues associated with the VE arrays, are described separately. The subsequent assessment in Sections 10.10 to 10.13 is based on the VE project design with these embedded mitigation measures.

Table 10.18: Mitigation relating to seascape, landscape and visual

Parameter	Mitigation measures
WTGs	The number of WTGs will not exceed 79 at the minimum blade tip height (324m above LAT) and 41 at the maximum blade tip height (399m above LAT). This commitment defines the maximum number of WTGs that could be installed under the DCO.
WTGs	The maximum blade tip height will be 399 m above LAT and the maximum rotor diameter will be 360 m. This commitment defines the maximum height of WTGs that could be installed under the DCO. The maximum height of the WTGs has been reduced from the 424 m blade tip height considered in the PEIR, leading to a reduction in the ZTV and apparent scale of the WTGs.
WTGs	The spatial extent of the windfarm site was reduced between the Scoping and PEIR, such that the offshore windfarm site now occupies 279.2 km ² compared to the 313.14 km ² at Scoping. The reduced spatial extent ensures that there is a reduction in the apparent lateral spread of WTGs when viewed from the coast, with a section of the northern array removed to help avoid filling in the 'gap' between existing wind farms as seen from the Suffolk coast.
Foundation substructures	The selection of the foundation type will primarily be based upon the site conditions combined with the WTG that is selected. The following foundation types are being considered: Monopile and Jacket (multi-leg).
OSPs	There will be up to two OSPs installed. The exact locations, design and visual appearance will be subject to a structural study and electrical design, which is expected to be completed post consent. The offshore substations will be installed on jacket or monopile foundations.
Export cable	The subsea export cable ducts will be drilled underneath the beach using horizontal directional drilling (HDD) techniques.
Lighting	VE will comply with legal requirements with regards to shipping, navigation and aviation marking and lighting. Marking and lighting of the WTGs and OSPs within the VE array areas will be undertaken in accordance with relevant industry guidance and as advised by



Parameter	Mitigation measures
	relevant stakeholders. This commitment ensures compliance with lighting and marking requirements but also sets the relevant parameters for the SLVIA in relation to night-time effects assessment. Marine navigational lights will be fitted at the platform level on significant peripheral structures, synchronised to display IALA 'special mark' characteristic, flashing yellow, with a range not less than five nautical miles.

10.10 ENVIRONMENTAL ASSESSMENT: CONSTRUCTION PHASE

IMPACT 16.1: IMPACT (DAYTIME) OF THE CONSTRUCTION OF VE ARRAY AREAS ON SEASCAPE CHARACTER

- 10.10.1 The construction of the VE array areas has the potential to result in significant effects on the perceived seascape character of SCT03, SCT05, SCT06 and MCA19, scoped into the detailed assessment in Table 10.19.
- 10.10.2 Construction phase effects on seascape character will occur as a result of the construction activities, including the presence of jack-up vessels and/or heavy lift vessels during the construction phase for the installation of foundations substructures and WTGs; windfarm service vessels and accommodation vessels; and partially constructed offshore elements; all of which may combine to alter the seascape character of the area within the VE array areas and the perceived character of the wider seascape through visibility of the construction activities.
- 10.10.3 The effects arising as a result of the construction of the VE array areas are assessed as being of the same magnitude and significance on all seascape character receptors as those arising due to their operation and maintenance, as assessed in Section 10.11, differing primarily as the effects will be short-term and temporary, during the length of the construction phase. There may also be some variation in appearance of the construction activities, compared to the operational and maintenance phase, mainly due the influence of offshore jack-up installation vessels and WTG installation, that will not be present during the operational phase. For all seascape receptors these impacts during construction are assessed to be of no greater magnitude and effects of no greater significance than the effects assessed during operation and maintenance.

IMPACT 16.2: IMPACT (DAYTIME) OF THE CONSTRUCTION OF VE ARRAY AREAS ON PERCEIVED LANDSCAPE CHARACTER

- 10.10.4 The construction of the VE array areas has the potential to result in significant effects on the perceived character of the landscape character areas scoped into the detailed assessment in Table 10.24.



- 10.10.5 Construction phase effects on perceived landscape character will occur as a result of the construction activities, including the presence of jack-up vessels and/or heavy lift vessels during the construction phase for the installation of foundations substructures and WTGs; windfarm service vessels and accommodation vessels; and partially constructed offshore elements; all of which may combine to alter the perceived character of the wider landscape through visibility of the construction activities.
- 10.10.6 The effects arising as a result of the construction of the VE array areas are assessed as being of the same magnitude and significance on all landscape character receptors as those arising due to their operation and maintenance, as assessed in Section 10.11, differing primarily as the effects will be short-term and temporary, during the length of the construction phase. There may also be some variation in appearance of the construction activities, compared to the operational and maintenance phase, mainly due to the influence of offshore jack-up installation vessels and WTG installation that will not be present during the operational phase. For all landscape receptors these impacts during construction are assessed to be of no greater magnitude and effects of no greater significance than the effects assessed during operation and maintenance.

IMPACT 16.3: IMPACT (DAYTIME) OF THE CONSTRUCTION OF VE ARRAY AREAS ON SPECIAL QUALITIES OF DESIGNATED LANDSCAPES

- 10.10.7 The construction of the VE array areas has the potential to result in significant effects on the perceived character of the SCHAONB and Suffolk Heritage Coast scoped into the detailed assessment in Table 10.25.
- 10.10.8 Construction phase effects on perceived landscape character will occur as a result of the construction activities, including the presence of jack-up vessels and/or heavy lift vessels during the construction phase for the installation of foundations substructures and WTGs; windfarm service vessels and accommodation vessels; and partially constructed offshore elements; all of which may combine to alter the perceived character of the wider landscape through visibility of the construction activities.
- 10.10.9 The effects arising as a result of the construction of the VE array areas are assessed as being of the same magnitude and significance on the SCHAONB and Suffolk Heritage Coast as those arising due to their operation and maintenance, as assessed in 10.11, differing primarily as the effects will be short-term and temporary during the length of the construction phase. There may also be some variation in appearance of the construction activities, compared to the operational and maintenance phase, mainly due to the influence of offshore jack-up installation vessels and WTG installation will not be present during the operational phase. For all landscape designations these impacts during construction are assessed to be of no greater magnitude and effects of no greater significance than the effects assessed during operation and maintenance.

IMPACT 16.4: IMPACT (DAYTIME) OF THE CONSTRUCTION OF VE ARRAY AREAS ON VISUAL RECEPTORS / VIEWS

- 10.10.10 The construction of the VE array areas has the potential to result in significant effects on the views and visual amenity of the visual receptors scoped into the detailed assessment in Table 10.28.



- 10.10.11 Construction phase effects on views and visual amenity will occur as a result of the construction activities, including the presence of jack-up vessels and/or heavy lift vessels during the construction phase for the installation of foundations substructures and WTGs; windfarm service vessels and accommodation vessels; and partially constructed offshore elements; all which may combine to alter the views and visual amenity through visibility of these changes.
- 10.10.12 The effects arising as a result of the construction of the VE array areas are assessed as being of the same magnitude and significance on all viewpoints and visual receptors as those arising due to their operation and maintenance, as assessed in Section 10.11, differing primarily as the residual effects will be short-term during the length of the construction phase. There may also be some variation in appearance of the construction activities, compared to the operational and maintenance phase, mainly due the influence of the offshore jack-up installation vessels and WTG installation that will not be present during the operational phase. For all visual receptors these impacts during construction are assessed to be of no greater magnitude and effects of no greater significance than the effects assessed during operation and maintenance.

10.11 ENVIRONMENTAL ASSESSMENT: OPERATIONAL PHASE

IMPACT 16.5: IMPACT (DAYTIME) OF THE OPERATION AND MAINTENANCE OF THE VE ARRAY AREAS ON SEASCAPE CHARACTER

PRELIMINARY ASSESSMENT

- 10.11.1 A preliminary assessment of the effects of the operation and maintenance of the VE array areas on the seascape character receptors within the SLVIA Study Area is presented in Table 10.19 with reference to the ZTV analysis in Volume 6, Part 7, Annex 10.3.3: Seascape, Landscape and Visual Figures 10.11 – 10.15 (Figure 10.12). A detailed assessment follows for each receptor that is identified in the preliminary assessment as requiring detailed assessment.



Table 10.19: Preliminary Assessment of Seascape Character Receptors

Seascape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
Potential for significant effects that require detailed assessment:			
SCT03 Nearshore Waters	32.0 km	33.3 km	Potential for long-term, reversible impacts on perceived seascape character of these SCTs, arising as a result of the construction, operation and maintenance, and decommissioning of the VE array areas within this SCT, which may therefore alter the pattern of elements and its perceived character. Potential impacts require further assessment, undertaken in paragraphs 10.11.2 to 10.11.4.
SCT05 Coastal Waters (including SCA10 Suffolk Coastal Waters)	19.3 km	20.6 km	
SCT06 Offshore Waters (including SCA04 East Anglian Shipping Waters)	0 km (VE array area is within this SCT)	0 km (VE array area is within this SCT)	Potential for long-term, reversible impacts on perceived seascape character of these SCTs, arising as a result of visibility of the construction, operation and maintenance, and decommissioning of the VE array areas, from these SCTs (during very good and excellent visibility conditions), which may therefore alter their perceived character. Potential impacts require further assessment, undertaken in paragraphs 10.11.7 to 10.11.21.
MCA19 Essex and South Suffolk Estuaries and Waters	42.0 km	43.0 km	



Seascape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
<p>Considered in preliminary assessment but found to have no potential for significant effects – scoped out of detailed assessment:</p>			
SCT01 Inland Navigable Waters	38.3 km	39.5 km	<p>SCT01 is located at long distance from the VE array area and the majority of its area falls outside the ZTV, or shows low levels of visibility, due to the nature of these waters, rivers and inlets which extend inland away from the coast, or behind major landform features (Orford Ness), and become increasingly sheltered from sea views. There are views inland across adjacent low-lying marshes and views to adjacent towns, major ports and infrastructure, which have localised urbanising effect and reduce the sensitivity of the SCT to changes associated with the VE array areas located at long distance out to sea. The fundamental character of the SCT is defined by the sheltered estuarine waters and gently meandering tidal rivers, which are likely to be subject to negligible levels of change as a result of the addition of the VE array areas outside this MCA at long distance offshore, subsumed behind the existing Greater Gabbard and Galloper OWFs. There is distinct separation between the SCT and the VE array areas, including areas of terrestrial landscape, which combined with distance and limited ZTV, contributes to avoiding significant effects on its character. There is no potential for the baseline seascape character to be significantly affected by the VE array areas.</p>
SCT02 International Ports and Approaches	46.0 km	47.1 km	<p>SCT02 is located around the approaches to Harwich Harbour/ Felixstowe in the southern part of the inshore part of the SLVIA study area and is heavily used by a range of shipping including container vessels and ferries. The</p>



Seascape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			<p>presence of shipping and associated infrastructure, as well as the extensively developed coastline and associated major port infrastructure, reduce the sensitivity of the SCT to changes associated with VE. The SCT is located a very long distance from the closest point of the VE array areas and with reduced amount of the VE WTGs visible due to the earth curvature and distance, and likely low frequency of effect at such range. Baseline character is influenced by presence of operational OWFs, including Greater Gabbard and Galloper OWFs located between this SCT and the VE array areas, which reduce sensitivity of the MCA to changes in the seascape beyond these existing arrays. The fundamental character of the MCA is defined by the international port infrastructure and approaches, which are likely to be subject to low levels of change as a result of the addition of the VE array areas outside this MCA and subsumed behind the existing Greater Gabbard and Galloper OWFs. There is distinct separation between the SCT and the VE array areas which, combined with distance, contributes to avoiding significant effects on its character. There is no potential for the baseline seascape character to be significantly affected by the VE array areas.</p>
SCT04 Developed Nearshore Waters	53.0 km	53.4 km	<p>SCT04 is located around the developed coastline of Lowestoft in the northern part of the inshore part of the SLVIA study area and is heavily used by a range of shipping vessels. The presence of shipping and extensively developed coastline and associated port infrastructure at Lowestoft, reduce the sensitivity of the SCT to changes associated with VE. The SCT is located a very long distance from the closest point of the VE array areas and with reduced amount of the VE WTGs visible due to the earth curvature and</p>



Seascape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			<p>distance, and likely low frequency of effect at such range. Baseline character is influenced by presence of operational OWFs, including Greater Gabbard and Galloper OWFs located between this SCT and the VE array areas, which reduce sensitivity of the MCA to changes in the seascape beyond these existing arrays. The fundamental character of the MCA is defined by the developed nearshore waters around Lowestoft with almost continuous development, which are likely to be subject to low levels of change as a result of the addition of the VE array areas outside this MCA and subsumed behind the existing Greater Gabbard and Galloper OWFs. There is distinct separation between the SCT and the VE array areas which, combined with distance, contributes to avoiding significant effects on its character. There is no potential for the baseline seascape character to be significantly affected by the VE array areas.</p>
MCA11 Goodwin Sands and North Dover Strait	55.2 km	57.3 km	<p>MCA11 is largely outside the SLVIA Study Area, with only small areas of the MCA being located within the SLVIA Study Area, at a very long distance from the closest point of the VE array areas and with reduced amount of the VE WTGs visible due to the earth curvature and distance, and likely low frequency of effect at such range. Baseline character is influenced by presence of Thanet OWF at close range, with London Array, Greater Gabbard and Galloper OWFs also located within the seascape between this MCA and the VE array areas, which reduce sensitivity of the MCA to change. The fundamental character of the MCA is defined by the Goodwin Sands and North Dover Strait, which are outside the SLVIA study area and likely to be subject to negligible change as a result of the addition of the VE array areas</p>



Seascape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			outside this MCA and subsumed behind the existing OWFs. There is no potential for the baseline seascape character to be significantly affected by the VE array areas.
MCA15 Eastern English Channel Approaches	47.1 km	49.2 km	MCA15 is partially outside the SLVIA Study Area, with only the northern areas of the MCA being located within the SLVIA Study Area, a very long distance from the closest point of the VE array areas and with reduced amount of the VE WTGs visible due to the earth curvature and distance, and likely low frequency of effect at such range. Baseline character is influenced by presence of Thanet OWF at close range, with London Array, Greater Gabbard and Galloper OWFs also located within the seascape between this MCA and the VE array areas, which reduce sensitivity of the MCA to change. The fundamental character of the MCA is defined by the open seascape of the approaches to the English Channel off the Kent coast, which is heavily influenced by shipping traffic and outside the SLVIA study area, such that the MCA is likely to be subject to negligible change as a result of the addition of the VE array areas outside this MCA and subsumed behind the existing OWFs. There is no potential for the baseline seascape character to be significantly affected by the VE array areas.
MCA16 Swale, Kentish Flats and Margate Sand	51.7 km	53.8 km	MCA16 is largely outside the SLVIA Study Area, with only small areas of the MCA being located within the SLVIA Study Area, at very long distance from the closest point of the VE array areas and with reduced amount of the VE WTGs visible due to the earth curvature and distance, and likely low frequency of effect at such range. Baseline character is influenced by



Seascape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			<p>presence of Kentish Flats OWF within MCA, with London Array, Greater Gabbard and Galloper OWFs also located within the seascape between this MCA and the VE array areas, which reduce sensitivity of the MCA to change. The fundamental character of the MCA is defined by the Kentish Flats and Margate Sands, which are outside the SLVIA study area and likely to be subject to negligible change as a result of the addition of the VE array areas outside this MCA and subsumed behind the existing OWFs. There is no potential for the baseline seascape character to be significantly affected by the VE array areas.</p>
MCA17 Thanet Shipping Waters	34.1 km	36.1 km	<p>MCA17 is located almost entirely within the SLVIA Study Area, however at long distance from the closest point of the VE array areas and is located entirely offshore, with no immediately adjacent coastline. Baseline character is influenced by presence of Thanet OWF within MCA, with London Array also at close proximity on its northern edge. Greater Gabbard and Galloper OWFs are also located in the seascape between this MCA and the VE array areas, which reduce sensitivity of the MCA to change. The fundamental character of the MCA is defined by the busy shipping waters around Thanet, between the Thames Estuary and English Channel, and the existing arrays of WTGs. This baseline character is likely to be subject to low levels of change as a result of the addition of the VE array areas outside this MCA and subsumed behind the existing OWFs. There is no potential for the baseline seascape character to be significantly affected by the VE array areas.</p>



Seascape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
MCA20 Thames Approaches	26.7 km	28.3 km	<p>MCA20 is located partially outside the SLVIA Study Area, with the northern and eastern areas of the MCA being located within the SLVIA Study Area, however at long distance from the closest point of the VE array areas and is located entirely offshore, with no immediately adjacent coastline. Baseline character is influenced by presence of London Array OWF within MCA, with Gunfleet Sands and Kentish Flats OWF also at close proximity on its edge. Greater Gabbard and Galloper OWFs are also located in the seascape between this MCA and the VE array areas, which reduce sensitivity of the MCA to change. The fundamental character of the MCA is defined by the busy shipping waters of the approaches to the Thames Estuary, and the existing arrays of WTGs. This baseline character is likely to be subject to low levels of change as a result of the addition of the VE array areas outside this MCA and subsumed behind the existing OWFs. There is no potential for the baseline seascape character to be significantly affected by the VE array areas.</p>



SCT03 NEARSHORE WATERS

LOCATION AND BOUNDARIES

10.11.2 SCT03 Nearshore Waters extends along the coastline between Old Felixstowe and Lowestoft (Figure 10.4). It occupies the shallower coastal waters associated with the largely rural Suffolk coastline. The landward extent of the SCT is broadly defined by the Low Water Mark. Its seaward extent is between 5 and 8 km from the shoreline.

SENSITIVITY TO CHANGE

10.11.3 The sensitivity of SCT03 Nearshore Waters to changes associated with VE is assessed in Table 10.20.

Table 10.20: SCT03 Nearshore Waters

SCT03 Nearshore Waters	
Sensitivity to change: High due to the combination of the High value and Medium-high susceptibility, assessed as follows.	
Value: High based on assessment of the following criteria.	
Designation:	<p>SCHAONB and Suffolk Heritage Coast encompasses 75% of the coast and directly overlooks the seascape.</p> <p>Bawdsey Manor Historic Park and Garden and associated listed structures, Felixstowe Conservation Area, Martello towers dotted along the coast.</p> <p>Outer Thames Estuary SPA, Southern North Sea SAC, Margate and Long Sands SAC.</p>
Aesthetic/scenic qualities:	<p>Scenic quality and interest influenced by the simplicity of the main elements (shingle beach/ sea/ sky) and the dynamic qualities of the seascape evident along the coast.</p> <p>Scenic qualities variously influenced by seafront development and busy waters with recreational sailing activities, at Lowestoft, Kessingland and Aldeburgh; Sizewell A and B Nuclear Power Station, in the Walberswick to Thorpeness area; and existing offshore wind farms at Aldeburgh Bay and Hollesley Bay. More natural/ remote areas around Covehithe, Dunwich, Minsmere Haven and Orford Ness.</p>
Perceptual qualities:	Sense of tranquillity and wildness is integral to the distinctiveness of the coastline.
Cultural associations:	Strong associations with visual artists. Dunwich, Southwold and Walberswick particularly popular with painters. George Orwell's association with Southwold is celebrated by a mural on Southwold Pier and plaque on his former home. Benjamin Britten closely associated with Aldeburgh, as celebrated by a steel sculpture on Aldeburgh Beach.



SCT03 Nearshore Waters

Recreational and community value:	Popular tourist area, notably for walking and nature watching with activity focussed on visitor destinations and tourist towns located along the coast. Sea fishing, sailing and water-sports activity throughout, centred on towns and approaches to navigable rivers.
Rarity:	Relatively widespread, covering band of sea between low water mark and 5-8 km offshore along the majority of the Suffolk coastline between Kessingland and Bawdsey.
Susceptibility: Medium-high based on assessment of the following criteria.	
Natural	
Coastal edge:	Mix of very gently curving bays with minor headlands, small estuaries and a very gently convex coast. Occasional low cliffs and extensive shingle beaches in places including those at Orfordness and at Shingle Street. Mix of simple shingle beaches and banks with estuarial deposits. Groynes and rock armour in places, including Felixstowe. Some small lagoons behind shingle banks.
Hinterland:	Generally low lying with some coastal plateau and some low slopes of the estate sandlands behind coastal levels. Rural in character due to the absence of a coast road or widespread development.
Tidal Range:	Relatively shallow waters up to approximately 20 m deep with sand bank systems parallel to the coastline in places.
Cultural/social	
Use of the sea:	Relatively intense commercial fishing activity along the coast; and sailing and water-sports centred on towns and river approaches. Offshore windfarms (Greater Gabbard/ Galloper) and associated support vessels lie within the Offshore Waters SCT (06), adjoining the eastern boundary.
Use of the coast/ hinterland:	Coastal edge hosts some large-scale developments, including the nuclear power stations at Sizewell and military structures at Orfordness. There are also several coastal settlements and small towns which exert an influence locally. Port at Felixstowe; related infrastructure and residential and leisure uses to the south; Suffolk Coast Path, golf course, limited settlements and Bawdsey Manor- PGL centre. Hinterland is predominantly agricultural.
Historic features on coast:	Former military and atomic research station on Orfordness to north. Napoleonic Wars fort (Landguard Fort) and numerous Martello towers, military related structures such as pagodas at Orford Ness, Bawdsey Manor Historic Park and Garden,



SCT03 Nearshore Waters	
	Orford Castle (and church) set back from the coast but overlooking it.
Quality/condition	
Intactness:	Intact with noticeable detractors further out to sea including offshore wind turbines at Greater Gabbard/ Galloper OWFs.
State of repair:	N/A
Aesthetic and perceptual	
Scale:	Large scale open sea.
Openness and enclosure:	Increasingly open away from the convex coast, with some framing/ enclosure by offshore wind turbines.
Exposure:	Highly exposed open sea and coastline with contrasting sheltered estuaries
Aspect:	East of the coast. Existing offshore turbines potentially highlighted in afternoon/ sunset, in low sun.
Seascape pattern and foci:	Very distinctive shingle spit at Orford Ness, some limited cliffs with small headlands. Small scale and low landmarks generally apart from 60 m masts at Orford Ness to the north.
Tranquillity, wildness and remoteness:	Notable sense of tranquillity and wildness with outstanding wildlife partially derived from sparse settlement pattern is integral to the distinctiveness of the coastal character coastline. Contrasting estuaries are peaceful with a strong sense of place.
Visual characteristics	
Key views:	Land to sea views from Felixstowe and Aldeburgh seafronts, Orford Castle, around Martello towers and from Suffolk Coast Path, notably at Felixstowe Ferry/ Deben estuary /edge of Bawdsey Manor, Bawdsey East Street, Shingle Street and mouth of the Alde/ Ore estuary. Sea to sea views from ferries and other passenger ships.
Intervisibility and associations:	Most of the coast is intervisible with and directly faces the Nearshore Waters SCT (03). Views from Aldeburgh are less direct. Views typically across vast expanses of open sea with large container ships and tankers and/ or smaller pleasure/ fishing craft. Coastal locations provide distant seaward views of Greater Gabbard OWF; and more distant London Array and Gunfleet Sands OWFs.
Typical receptors:	Recreational users of coast within SCHAONB and Heritage Coast; recreational users of Felixstowe's beach, promenade



SCT03 Nearshore Waters

	<p>and pier and Aldeburgh seafront; walkers on Suffolk Coast Path; tourist visitors at Felixstowe Ferry and Orford Ness.</p> <p>Passengers on Harwich ferry and other passenger ships.</p>
Seascape experience:	<p>Views offshore across vast expanses of open sea with large container ships and tankers typically sailing or at anchor on the horizon. Smaller pleasure and fishing craft sometimes visible. From south-west, the sea/ some coastal locations provide distant seaward views of Greater Gabbard OWF; and more distant London Array and Gunfleet Sands OWFs.</p> <p>Largely undeveloped with occasional structures projecting into the sea and a rural character to the hinterland. Several settlements and large-scale developments on the coastal edge. Large scale panoramic views out to sea and along the coastline where landmarks lie on a low narrow horizon.</p>

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

10.11.4 SCT03 Nearshore Waters is located approximately 32 km from the VE array areas and 33.3 km from the closest indicative WTG location within the array area. and the VE array areas will therefore not result in any direct changes to the pattern of elements with this nearshore SCT. The VE array areas have potential to lead to indirect changes to how the seascape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop to SCT03 when viewed from parts of the coast, primarily within the SCHOANB. Parts of the coastline of the SCT are visually more contained and less exposed, with limited visibility of the VE array areas from low lying marshland, fens and estuaries where intervening landform and the low-lying nature of the coast restricts views. There is more exposure to perceived changes in the seascape setting from the shingle beaches, dunes, and stretches of low cliffs and heaths that have open sea views. When viewed from these areas of the SCTs coastline within the SCHAONB and from the nearshore waters of the SCT, the VE array areas will be situated at long distance and mainly behind the baseline influence of operational offshore wind farms within the Greater Gabbard and Galloper grouping, particularly in coastal views between Orfordness and Felixstowe, such that the additional influence of the VE array areas will be perceived as being mainly subsumed behind these existing wind farms, with a limited increase in the lateral spread of development in the seascape backdrop to the SCA, experienced mainly in seascape views from Aldeburgh northwards.



10.11.5 The VE array areas will introduce elements that may partially affect the perceived seascape character of the SCT, further increasing the influence of distant offshore WTGs in the seascape backdrop of offshore waters, however due to the distance, separation and existing influence of offshore wind farms as a key characteristic of those offshore waters, its perceived character will be subject to less change as a result of the addition of elements that are already characteristic within the existing seascape. The magnitude of change to the perceived seascape character of SCT03 Nearshore Waters resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the high sensitivity of the receptor, the effect of the VE array areas on the perceived character of SCT03 Nearshore Waters is assessed as **not significant** (moderate/minor), indirect, long-term and reversible.

10.11.6 Very good or excellent visibility will be required for the perceived character of SCT03 to be affected by the VE array areas over 32km away. Met Office visibility data indicates 29% visibility frequency at this range. Moderate/minor effects that are assessed in EIA terms under 'very good' or 'excellent' visibility conditions, may be minor or negligible during the remaining period (71%) of less optimal visibility conditions.

SCT05 COASTAL WATERS (INCLUDING SCA10 SUFFOLK COASTAL WATERS)

LOCATION AND BOUNDARIES

10.11.7 The Coastal Waters SCT05 marks a transition between the Nearshore Waters SCT and Developed Nearshore Waters SCT and Offshore Waters SCT which lie further out to sea (Figure 10.4). It is located approximately 8 km from the coast, extending approximately 18 km out to sea, along the full north to south extents of the study area.

SENSITIVITY TO CHANGE

10.11.8 The sensitivity of SCT05 Coastal Waters to changes associated with VE is assessed in Table 10.21.



Table 10.21: SCT05 Coastal Waters

SCT05 Coastal Waters	
<p>Sensitivity to change: Medium-high due to the combination of the medium value and medium susceptibility, assessed as follows.</p>	
<p>Value: High based on assessment of the following criteria.</p>	
Designation:	<p>SCHAONB and Suffolk Heritage Coast encompass entire coast and overlook the seascape at a distance of 34-40 km.</p> <p>Conservation Areas at Aldeburgh, Thorpeness, Dunwich, Southwold, Lowestoft (south) and many related listed buildings, including Slaughden Martello Tower (south of Aldeburgh) and scheduled monuments, with views over sea.</p> <p>Greater Wash SPA, Outer Thames Estuary SPA, Southern North Sea SAC, Haisborough, Hammond and Winterton SAC.</p>
Aesthetic/scenic qualities:	<p>Scenic quality and interest influenced by the simplicity of the main elements (sea and sky); existing wind energy developments (Greater Gabbard and Galloper) in the backdrop of the adjacent Offshore Waters SCT, particularly to southern areas between Orford Ness and Bawdsey.</p>
Perceptual qualities:	<p>Coastal character is open and exposed, contrasting with sheltered, peaceful estuaries with a strong sense of place.</p> <p>Busy open waters within Stour, Orwell and Deben estuaries comprising commercial and recreational craft. Boating limited to the lower reaches of the smaller Blyth and Alde estuaries.</p>
Cultural associations:	<p>Strong cultural associations, notably in art.</p>
Recreational and community value:	<p>Limited recreational value, with the focus for leisure sailing on adjacent nearshore waters, sea and beach angling and walking. Very limited community value.</p>
Rarity:	<p>Relatively widespread seascape character covering band of sea 8 – 18 km from the coast, extending between Kessingland and Bawdsey.</p>
<p>Susceptibility: Medium based on assessment of the following criteria.</p>	
<p>Natural</p>	
Coastal edge:	<p>Mix of straight or very gently curving bays with small estuaries, occasional low cliffs (such as at Dunwich, Easton and Covehithe) and occasional extensive shingle beaches, including the very long spit at Orford Ness.</p>



SCT05 Coastal Waters	
Hinterland:	Generally low lying coastal plateau or very gently sloping estate sandlands either backing coastal levels and marshes or extending to the coast.
Tidal Range:	Relatively simple bathymetry generally in excess of 30 m in depth becoming shallower towards landward and seaward limits.
Cultural/social	
Use of the sea:	Busy shipping waters including several commercial shipping routes; commercial fishing activity; dredging for aggregates and offshore wind farms including East Anglia One and within the south, Greater Gabbard/ Galloper. Large military practice area and some navigation from Great Yarmouth, Lowestoft and Felixstowe.
Use of the coast/ hinterland:	Popular seaside towns along Thorpeness and Dunwich, including Southwold and Aldeburgh. Also along the coast are Sizewell A and B Nuclear Power Stations and Orfordness radio masts, to the south. Predominantly agricultural hinterland with notable areas of marsh/ coastal levels and heath. Suffolk Coast Path and National Trust Coastguard Cottages at Dunwich heath.
Historic features on coast:	Many conservation areas with associated listed buildings overlooking the Nearshore Waters SCT (03); Orford Castle tower; and Martello tower at Slaughden.
Quality/condition	
Intactness:	Intact with few detractors including East Anglia one and Greater Gabbard/ Galloper offshore windfarms, within the south.
State of repair:	N/A
Aesthetic and perceptual	
Scale:	Large scale open sea
Openness and enclosure:	Very open away from the coast.
Exposure:	Highly exposed open sea.
Aspect:	East of the Suffolk coast. Offshore wind turbines potentially highlighted in afternoon/ sunset, in low sun.
Seascape pattern and foci:	Offshore wind turbines typically provide the only fixed points of orientation and scalable visual references. Container ships and tankers, smaller vessels often associated with servicing offshore industries and fishing boats at anchor or in transit provide also provide cultural cues.



SCT05 Coastal Waters	
Tranquillity, wildness and remoteness:	Notable sense of isolation and wildness, which becomes more pronounced in poor weather, derived from the vast scale of the seascape and distance from the coast
Visual characteristics	
Key views:	Land to sea- views from Orford Castle, Suffolk Coast Path (including likely new route along coast to the north), Aldeburgh and Southwold seafronts, and Dunwich Coastguard Cottages.
Intervisibility and associations:	Most of the Suffolk coastline is intervisible with and directly faces the Coastal Water SCT (05), across the Nearshore Waters. The coastline, including the southern part of the SCHAONB/ Heritage Coast and Lowestoft South Conservation Area, is associated with the area and typically forms a low, narrow horizon, on which major landmarks are the only aids to navigation. Unified Views offshore of panoramic horizons.
Typical receptors:	Recreational users of coast within SCHAONB and Heritage Coast; walkers on Suffolk Coast Path; visitors to beaches and promenades, such as at Southwold; and leisure sailors from Southwold Harbour and Lowestoft.
Seascape experience:	Relatively busy, particularly near major ports due to the regular transit of commercial vessels. Views of the coastline limit the sense of isolation and exposure, which increases with poor weather. Tankers, passenger ships and cargo vessels utilising shipping routes, fishing boats and aggregates dredging areas may be visible alongside vessels servicing offshore wind turbines and the turbines themselves within adjacent Seascape Character Types.



MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

- 10.11.9 SCT05 Coastal Waters is located approximately 19.3 km from the closest point of the VE array areas and 20.6 km from the closest indicative WTG location within the array area. Due their distant location outside SCT05 (within the offshore waters of SCT06), the VE array areas will not result in any direct changes to the pattern of elements with this coastal SCT. The VE array areas have potential to lead to indirect changes to how the seascape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop to SCT05 when viewed from parts of the coast, primarily within the SCHOANB. Parts of the coastline of the SCT are visually more contained and less exposed, with limited visibility across this SCT and the VE array areas from low lying marshland, fens and estuaries where intervening landform and the low-lying nature of the coast restricts views. There is more exposure to perceived changes in the seascape setting from the shingle beaches, dunes, and stretches of low cliffs and heaths that have open sea views and from offshore receptors within the coastal waters of the SCT. When viewed from these areas of the SCTs coastline within the SCHAONB and from the coastal waters of the SCT, the VE array areas will be situated at long distance and mainly behind the baseline influence of operational offshore wind farms within the Greater Gabbard and Galloper grouping, particularly in coastal views between Orfordness and Felixstowe, such that the additional influence of the VE array areas will be perceived as being mainly subsumed behind these existing wind farms, with a limited increase in the lateral spread of development in the seascape backdrop to the SCA, experienced mainly in seascape views from Aldeburgh northwards.
- 10.11.10 The VE array areas will introduce elements that may partially affect the perceived seascape character of the SCT, further increasing the influence of distant offshore WTGs in the seascape backdrop of offshore waters, however due to the distance, separation and existing influence of offshore wind farms as a key characteristic of those offshore waters, its perceived character will be subject to less change as a result of the addition of elements that are already characteristic within the existing seascape. The magnitude of change to the perceived seascape character of SCT05 Coastal Waters resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the medium-high sensitivity of the receptor, the effect of the VE array areas on the perceived character of SCT05 Nearshore Waters is assessed as **not significant** (moderate/minor), indirect, long-term and reversible.
- 10.11.11 Good, very good or excellent visibility will be required for the perceived character of SCT05 to be affected by the VE array areas over 19.3 km away. Met Office visibility data indicates 54% visibility frequency at this range. Moderate/minor effects that are assessed in EIA terms under 'good', 'very good' or 'excellent' visibility conditions, may be minor or negligible during the remaining period (46%) of less optimal visibility conditions.

SCT06 OFFSHORE WATERS (INCLUDING SCA04 EAST ANGLIAN SHIPPING WATERS)

LOCATION AND BOUNDARIES

- 10.11.12 The Offshore Waters SCT lies seaward of the Coastal Waters SCT at a distance of approximately 18 km from the coastline, extending to the seaward extents of the study area (Figure 10.4).



SENSITIVITY TO CHANGE

10.11.13 The sensitivity of SCT06 Offshore Waters to changes associated with VE is assessed in Table 10.22.

Table 10.22: SCT06 Offshore Waters

SCT06 Offshore Waters	
<p>Sensitivity to change: Medium-low due to the combination of the medium-low value and medium susceptibility, assessed as follows.</p>	
<p>Value: Medium-low based on assessment of the following criteria.</p>	
Designation:	<p>SCHAONB and Suffolk Heritage Coast to the south but neither directly overlooks the seascape, which is separated from the coastline by the Nearshore Waters SCT (03), Developed Nearshore Waters SCT (04), and Coastal Waters SCT (05). SCT06 Offshore Waters plays a role in the wider seascape setting and distant offshore backdrop.</p> <p>Lowestoft (south) including listed buildings and structures with views over the sea.</p> <p>Greater Wash SPA, Outer Thames Estuary SPA, Southern North Sea SAC, Haisborough, Hammond and Winterton SAC</p>
Aesthetic/scenic qualities:	<p>Consistent, well-defined seascape with distinctive attributes. Existing offshore windfarms (Galloper, Greater Gabbard and East Anglia ONE, all within this SCT), extensive commercial shipping, dredging activity and gas wells have altered natural seascape character.</p>
Perceptual qualities:	<p>Unified, expansive and open with some wild/ isolated qualities.</p>
Cultural associations:	<p>Lowestoft is associated with major fishing industry especially herring.</p>
Recreational and community value:	<p>Leisure sailing between Lowestoft and Aldeburgh, sea and beach angling and walking. Suffolk Coast Path to the south and England Coast Path to the north are well used. Popular coastal settlements and associated beaches.</p>
Rarity:	<p>Relatively widespread seascape character covering open sea over 18 km from the coast.</p>
<p>Susceptibility: Medium-low based on assessment of the following criteria.</p>	
<p>Natural</p>	
Coastal edge:	<p>Mix of straight or very gently curving bays with occasional low cliffs, such as at Pakefield, Gunton and Corton, and a mix of sand and shingle beaches.</p>



SCT06 Offshore Waters	
Hinterland:	Generally low lying coastal plateau with very gentle slopes and valleys, predominantly agricultural.
Tidal Range:	Seaward boundary with Thames Approaches MCA (20) largely follows the 5m bathymetry contour line.
Cultural/social	
Use of the sea:	<p>Small port at Lowestoft servicing offshore energy and bulk cargoes, and a marina. Aggregate production areas lie offshore from Lowestoft, with an anchorage off Kessingland. Scroby Sands offshore wind farm lies relatively close to shore. Commercial fishing along the coast.</p> <p>Some leisure fishing, leisure sailing and watersports are focussed on Lowestoft. Beach use is focussed on tourist towns.</p>
Use of the coast/hinterland:	<p>Some industry at the major town of Lowestoft; seaside destinations including holiday developments/ caravan sites north and south of Lowestoft; and farmland.</p> <p>Recreational routes including Suffolk Coast Path and England Coast Path.</p>
Historic features on coast:	Lowestoft South Conservation Area, associated listed buildings and gardens overlooking sea and focussed more on the east-south-east.
Quality/condition	
Intactness:	Moderate but with some detractors: Galloper, Greater Gabbard and East Anglia ONE OWFs, all within this SCT.
State of repair:	N/A
Aesthetic and perceptual	
Scale:	Large, with panoramic views.
Openness and enclosure:	Openness is a key characteristic of the coast. Views out to sea from beaches are generally open with some framing within Lowestoft Conservation Area.
Exposure:	Exposed, eroding coast. Sheltered waters in river/ dock mouth.
Aspect:	Suffolk coast is separated from the Offshore Waters SCT (06) and faces east towards it, offshore turbines potentially highlighted in low sun at afternoon/ sunset.
Seascape pattern and foci:	Limited foci. Galloper, Greater Gabbard and East Anglia One offshore wind farms; some commercial, service vessels and leisure boats apparent in places.



SCT06 Offshore Waters	
Tranquillity, wildness and remoteness:	Windswept, exposed and remote character.
Visual characteristics	
Key views:	Land to sea views from Lowestoft south seafront, Gunton Warren and beach and Kessingland beach.
Intervisibility and associations:	<p>The Suffolk coast is intervisible with and faces the Offshore Waters SCT (6), across the Nearshore Waters SCT (03) and Coastal Waters SCT (04).</p> <p>Consistent panoramic horizons, beyond extensive tracts of sea. Visibility of shoreline restricted to major onshore landmarks from landward extents and very dependent on weather conditions.</p>
Typical receptors:	Users of the Suffolk Coast Path, England Coast Path and linking; visitors to beaches and promenade at Lowestoft. Leisure sailors from Lowestoft.
Seascape experience:	Predominantly wild and isolated, with large vessels, dredging activity, gas wells, vessels and offshore wind farms providing points of reference for orientation and scale in the otherwise vast and featureless seascape.

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

- 10.11.14 The VE array areas are located within SCT06 Offshore Waters therefore they will result in direct changes to the pattern of elements and characteristics of part of the seascape of this SCT that lies within the VE array areas. The operation and maintenance of the VE array areas will result in changes to the perceived character of the seascape character of SCT06 as perceived by people at sea, from the distant coastline of the SCHAONB and the low-lying coast of Essex around the Naze, where the maritime character of SCT06 is part of the associative seascape setting.
- 10.11.15 When viewed from the coastline of the SCHAONB and low-lying coast of Essex around the Naze, the VE array areas will be situated at long distance and behind the baseline influence of operational offshore wind farms within the Greater Gabbard and Galloper grouping within the intervening area between the coast and the VE array areas, such that the additional influence of the VE array areas are perceived as being largely subsumed behind existing wind farms, with a limited increase in the lateral spread of development in the seascape backdrop, experienced mainly in seascape views from Aldeburgh northwards. The VE array areas will form an extension to the existing Greater Gabbard and Galloper OWFs of the MCA, extending the influence of WTGs to the east further offshore, away from the coast, and slightly north when viewed from the northern parts of the SCHAONB.



- 10.11.16 The VE array areas will directly affect the SCT and introduce elements that could partially affect the perceived seascape character, increasing the influence of offshore WTGs to the east of the existing Gabbard and Galloper OWFs, however the VE array areas occur in an area that is further offshore at greater distance from the coast, and existing offshore wind farms already form a key characteristic of the SCT, such that its perceived character would be subject to less change as a result of the addition of elements that are substantially characteristic within the existing seascape of these offshore waters. The magnitude of change to the perceived character of SCT06 Offshore Waters resulting from the operation and maintenance of the VE array areas is assessed as medium and when combined with the medium-low sensitivity of the receptor, the effect of the VE array areas on the perceived character of SCT06 Offshore Waters is assessed as **not significant** (moderate/minor), direct, long-term and reversible.
- 10.11.17 Moderate/minor effects on perceived character that are assessed in EIA terms under 'very good' or 'excellent' visibility conditions, may be minor or negligible during periods of less optimal visibility conditions, particularly with increasing distance from the VE array areas.

MCA19 ESSEX AND SOUTH SUFFOLK ESTUARIES AND WATERS

LOCATION AND BOUNDARIES

- 10.11.18 MCA19 Essex and South Suffolk Estuaries and Waters covers the shallow coastal waters of the Essex Coast between Clacton-on-Sea and Harwich within the SLVIA study area. Within Suffolk, this national MCA is considered within the assessments of SCT03 and SCT05 in the regional seascape assessment (SCC, 2018), with the assessment of MCA19 here focusing on coastal waters off the Essex coast and within the SLVIA study area (i.e. between Clacton-on-Sea and Harwich). It includes the embayment of Hamford Water and the Essex estuaries of the Rivers Colne, Blackwater and Crouch. Its seaward boundary with MCA 20 Thames Approaches is marked by the edge of the shallow waters over the Maplin Sands and the Gunfleet Sands Wind Farm.

SENSITIVITY TO CHANGE

- 10.11.19 The sensitivity of MCA19 Essex and South Suffolk Estuaries and Waters to changes associated with VE is assessed in Table 10.23.



Table 10.23: MCA19 Essex and South Suffolk Estuaries and Waters

MCA19 Essex and South Suffolk Estuaries and Waters	
Sensitivity to change: Medium due to the combination of the medium value and medium susceptibility, assessed as follows.	
Value: Medium based on assessment of the following criteria.	
Designation:	Adjoining coast includes River Orwell and north bank of the Stour, within the SCHAONB; and the area to the west of the Stour within the Dedham Vale AONB. Outer Thames Estuary Essex Estuaries SAC, Colne Estuary SPA, Dengie SPA, Foulness SPA, Hamford Water SPA.
Aesthetic/scenic qualities:	Moderate to large scale outer estuary/ open seascape becoming very open and exposed away from the coast. Along the coastline, framing/ enclosure by coastline and offshore wind turbines which provide a focus within the seascape that becomes more expansive to seaward.
Perceptual qualities:	Strong feelings of remoteness and wilderness on extensive salt marshes, mudflats and reclaimed farmed marshland increasingly quiet and more rural further from London. Away from the ports at Harwich and Felixstowe, the areas around the rivers Orwell, Stour and Colne are largely unchanged by development.
Cultural associations:	Literary associations with Arthur Ransome, who based his novel 'Secret Water', part of the Swallows and Amazons series, on the area around the Walton Backwaters
Recreational and community value:	Popular waters for recreation including sailing, power boating, angling, canoeing and water skiing. Numerous marinas and mooring facilities support recreational yachting.
Rarity:	Widespread along the Essex coast.
Susceptibility: Medium based on assessment of the following criteria.	
Natural	
Coastal edge:	Deeply indented soft coastline of estuaries, rivers, shallow creeks, with extensive mud and sandflats, low-lying islands and tidal salt marshes.
Hinterland:	Open and predominantly arable heathlands.
Tidal Range:	Wide and complex tidal range, sheltered seas resulting from funnelling effect of surrounding landform.
Cultural/social	



MCA19 Essex and South Suffolk Estuaries and Waters

Use of the sea:	Fishing activity including commercial trawling, oyster cultivation, cockle beds, and traditional smaller-scale enterprises; offshore windfarms (Gunfleet Sands) and associated support vessels; and recreational sailing, boating, angling, canoeing and water skiing.
Use of the coast/hinterland:	Includes the busy port of Harwich, and coastal towns and villages. Light engineering works and boat-building/ repair yard at Brightlingsea. Dredged channels along rivers such as the Orwell allow access by heavy commercial traffic. Sea walls and borrow dykes run along the majority of the Essex coast.
Historic features on coast:	Coastal military heritage provides distinctive landmarks including Napoleonic military defences, forts and 20 th century pillboxes.
Quality/condition	
Intactness:	Intact with notable detractors comprising existing wind turbines at Gunfleet Sands OWF
State of repair:	N/A
Aesthetic and perceptual	
Scale:	Large scale outer estuary/ open sea.
Openness and enclosure:	Very open away from the coast, some framing/ enclosure by coastline/ offshore wind turbines.
Exposure:	Exposed outer estuary/ open sea.
Aspect:	East to south-east facing coastline. Existing offshore turbines potentially highlighted in afternoon/ sunset, in low sun.
Seascape pattern and foci:	Existing wind turbines at Gunfleet Sands OWF provide a focus within the expansive seascape.
Tranquillity, wildness and remoteness:	Strong feelings of remoteness and wilderness within extensive salt marshes, mudflats and reclaimed farmed marshland.
Visual characteristics	
Key views:	Land to sea views from Harwich, Walton-on-the-Naze and Frinton-on-Sea seafronts; Harwich redoubt; and around Martello towers. Sea to sea views from ferries and other passenger ships.
Intervisibility and associations:	Much of the adjoining Essex coast is intervisible with and directly faces the Essex and South Suffolk Estuaries and Waters MCA (19).



MCA19 Essex and South Suffolk Estuaries and Waters

Typical receptors:	Recreational users of Frinton Beach; Walton-on-the-Naze beach, promenade and pier; Dovercourt Beach and Harwich seafront.
Seascape experience:	Shallow coastal waters popular for recreation including boating and sailing and adjoining coastline with the busy port of Harwich, coastal towns and villages. Beyond these settlements much of the coastline has a strong sense of remoteness and wilderness due to low levels of settlement on the extensive salt marshes, mudflats and reclaimed farmed marshland. Increasingly quiet and more rural with distance from London.

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

10.11.20 MCA19 Essex and South Suffolk Estuaries and Coastal Waters is located approximately 42 km from the closest point of the VE array areas and 43 km from the closest indicative WTG location within the array area. Due to their distant location outside this SCT (within the offshore waters of SCT06) the VE array areas will therefore not result in any direct changes to the pattern of elements with MCA19. The VE array areas have potential to lead to indirect changes to how the seascape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop to MCA19 when viewed from parts of the coast, primarily from the low-lying coastline of Essex between Harwich, the Naze and Clacton-on-Sea. Parts of the coastline of the SCT are visually more contained and less exposed, with limited visibility of the VE array areas from low lying marshland and estuaries of Hamford Water where intervening landform and the low-lying nature of the coast restricts views. There is more exposure to perceived changes in the seascape setting from the coastal edges of the Naze and the predominantly urban coastline between Walton-on-the-Naze and Clacton-on-Sea that have open sea views. When viewed from these areas of the MCAs coastline and from the coastal waters of the SCT, the VE array areas will be situated at long distance and entirely behind the baseline influence of operational offshore wind farms within the Greater Gabbard and Galloper grouping, as well as the Gunfleet Sands OWF within this MCA, such that the additional influence of the VE array areas will be perceived as being subsumed behind these existing wind farms, with some increase in influence, density and scale of WTG development adding to the existing development, but with no increase in the lateral spread of development in the seascape backdrop to the MCA due to the position of the VE array areas further offshore and to the east of the existing wind farms.



10.11.21 The VE array areas will introduce elements that may partially affect the perceived seascape character of the MCA, further increasing the influence of distant offshore WTGs in the seascape backdrop of offshore waters, however due to the distance, separation and existing influence of offshore wind farms as a key characteristic of those offshore waters, its perceived character will be subject to less change as a result of the addition of elements that are already characteristic within the existing seascape. The magnitude of change to the perceived seascape character of MCA19 resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the medium sensitivity of the receptor, the effect of the VE array areas on the perceived character of MCA19 is assessed as **not significant** (minor), indirect, long-term and reversible.

10.11.22 Excellent visibility will be required for the perceived character of MCA19 to be affected by the VE array areas over 42km away. Met Office visibility data indicates 14% visibility frequency at this range. Minor effects that are assessed in EIA terms under 'excellent' visibility conditions, may be negligible during the remaining period (86%) of less optimal visibility conditions.

IMPACT 16.6: IMPACT (DAYTIME) OF THE OPERATION AND MAINTENANCE OF THE VE ARRAY AREAS ON PERCEIVED LANDSCAPE CHARACTER

PRELIMINARY ASSESSMENT

10.11.23 A preliminary assessment of the effects of the operation and maintenance of the VE array areas on the landscape character receptors within the SLVIA Study Area is presented in Table 10.24 with reference to the ZTV analysis in Volume 6, Part 7, Annex 10.3.3: Seascape, Landscape and Visual Figures 10.11 – 10.15 (Figure 10.13 and Figure 10.14). A detailed assessment follows for each receptor that is identified in the preliminary assessment as requiring detailed assessment.



Table 10.24: Preliminary Assessment of Landscape Character Receptors

Landscape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
Potential for significant effects that require detailed assessment:			
Essex Landscape Character			
<i>NCA81 Greater Thames Estuary</i>			
F7. Brightlingsea-Clacton-Frinton Coast	52.8 km	54.0 km	Coastal LCAs in Essex, with potential for long-term, reversible impacts on perceived character of these LCAs, arising as a result of views of the construction, operation and maintenance, and decommissioning of the VE array areas (during very good and excellent visibility conditions), which may therefore alter their perceived character. Potential impacts require further assessment, undertaken in paragraphs 10.11.24 to 10.11.67.
F8. Hamford Water	52.8 km	54.0 km	
F9. Stour Estuary Slopes	53.7 km	54.9 km	
Suffolk Landscape Character			
<i>NCA82 Suffolk Coast and Heaths</i>			
5. Coastal Dunes and Single Ridges	37.4 km	38.8 km	Coastal LCTs in Suffolk, with potential for long-term, reversible impacts on perceived character of these LCTs, arising as a result of views of the construction, operation and maintenance, and decommissioning of the VE array areas (during very good and excellent visibility conditions), which may therefore alter their perceived character. Potential impacts require further assessment, undertaken in paragraphs 10.11.69 to 10.11.168.
6. Coastal Levels	37.7 km	39.1 km	
7. Estate Sandlands	39.4 km	40.9 km	
8. Open Coastal Fens	45.5 km	46.8 km	
20. Saltmarsh and Intertidal Flats	37.4 km	38.8 km	
28. Wooded Fens	48.9 km	49.8 km	
Considered in preliminary assessment but found to have no potential for significant effects – scoped out of detailed assessment:			
Essex Landscape Character			



Landscape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
<i>NCA111 Northern Thames Basin</i>			
E3. Tendring Plain	55.8 km 10.11.168	57.1 km	LCA E3 Tendring Plain is not a coastal landscape, instead it forms part of the wider London Clay landscape of Essex that is situated inland forming a large, flat farmland plateau. Although it has an open character with wide views, E3 Tendring Plain LCA is located at very long distance from the VE array areas, where views of the Proposed Development may only occur during infrequent periods of excellent visibility at such long range and views out to sea are generally restricted by vegetation, built development, localised landforms and small river/stream valleys. There is no potential for the perceived landscape characteristics of the LCA to be significantly affected by the VE array areas.
Suffolk Landscape Character			
<i>NCA80 The Broads</i>			
19. Rolling Valley Farmlands and Furze	53.0 km	53.8 km	LCT 19 Rolling Valley Farmlands and Furze is formed by a rolling valley, within which there is almost entirely no visibility of the VE array areas from the majority of the LCT (due to visual containment of the valley), except for the urban influenced areas nearer the coast at Kessingland. VE array areas are largely subsumed behind the existing Greater Gabbard and Galloper OWFs at very long range offshore from this LCT. There is no potential for the perceived landscape characteristics of this LCA to be significantly affected by the VE array areas.
<i>NCA82 Suffolk Coast and Heaths</i>			
F10. Stour Estuary	54.8 km	56.0 km	LCT F10 Stour Estuary falls within Essex but is within the national level NCA82 Suffolk Coast and Heaths. It is formed by low-lying tidal mudflats and saltmarsh,



Landscape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			<p>within the broad, sheltered Stour Estuary and although there are open views across the estuary to Suffolk, offshore views to the east are much more enclosed by the headland at Harwich and Landguard Point and associated urban development and port related infrastructure, which result in almost entirely no visibility of the VE array areas from the majority of the LCA, which are also located at very long range offshore from this LCT subsumed behind the existing Greater Gabbard and Galloper OWFs. There is no potential for the perceived landscape characteristics of the LCA to be significantly affected by the VE array areas.</p>
20. Saltmarsh and inter-tidal flats	37.4 km	38.8 km	<p>LCT 20 comprises the saltmarsh and inter-tidal areas along the east flowing rivers Butley, Blyth, Deben, Orwell, Alde and Stour. It is very low-lying, as a fringing element to coastal marsh but varies to larger areas of mud on the flats, with limited visibility of the VE array areas. Inland areas of the LCT have limited association with the coast and the VE array areas due to concealment/screening of views out to sea and the offshore waters. Potential changes arising from the VE array area will occur at long distance from the coastal edges of the LCT and will be separated by vast areas of sea. VE array areas are largely subsumed behind the existing Greater Gabbard and Galloper OWFs at very long range. There is no potential for the perceived landscape characteristics of this LCT to be significantly affected by the VE array areas.</p>
25. Valley Meadowlands	42.4 km	43.8 km	<p>LCT 25 Valley Meadowlands is formed by flat landscapes along the valley floors of the main estuaries, within which there is almost entirely no visibility of the VE array areas from the majority of the LCT, due to its</p>



Landscape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			inland location and the visual containment of the valleys. VE array areas are largely subsumed behind the existing Greater Gabbard and Galloper OWFs at very long range offshore from this LCT. There is no potential for the perceived landscape characteristics of this LCT to be significantly affected by the VE array areas.
26. Valley Meadows and Fens	44.8 km	46.3 km	LCT 26 Valley Meadows and Fens is formed by the flat, narrow, river valley bottoms of the Minsmere River, within which there is almost entirely no visibility of the VE array areas from the majority of the LCT, due to its inland location and the visual containment of the valley. VE array areas are largely subsumed behind the existing Greater Gabbard and Galloper OWFs at very long range offshore from this LCT. There is no potential for the perceived landscape characteristics of this LCT to be significantly affected by the VE array areas.
31. Urban	38.6 km	40.1 km	LCT 31 Urban consists of the urban areas of the SLVIA study area such as Felixstowe, Ipswich, Woodbridge, Aldeburgh, Leiston, Southwold and Lowestoft. Although there is potential for the VE array areas to effect views from the coastal urban areas, these changes are unlikely to significantly affect the perceived character of an urban area, which is fundamentally defined by the urban form, settlement and built development. There is no potential for the perceived landscape characteristics of this LCT to be significantly affected by the VE array areas. Effects on views from urban areas are assessed as visual effects in Section 10.11 (Impact 16.8).

NCA83 South Norfolk and High Suffolk Claylands



Landscape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
1. Ancient Estate Claylands	43.4 km	44.7 km	<p>NCA83 South Norfolk and High Suffolk Claylands is not a coastal landscape, instead it forms the flat inland clay plateau between the Broads to the north and the Suffolk Coast and Heaths to the east and south, incorporating the estate, plateau and rolling farmlands and claylands of Suffolk. Although it has a partially open character with open views from the higher plateau areas, views are restricted by hedges, trees and scattered woodlands, and within the valleys it is a confined and more intimate landscape without coastal views. NCA83 and the identified county level LCTs within this area of Suffolk are located at very long distance from the VE array areas, where views of the Proposed Development may only occur during infrequent periods of excellent visibility at very long range and views out to sea are generally restricted by vegetation, built development, localised landforms and small river/stream valleys. There is no potential for the perceived landscape characteristics of NCA83 and the identified county level LCTs within this area of Suffolk to be significantly affected by the VE array areas.</p>
2. Ancient Estate Farmlands	55.9 km	57.1 km	
3. Ancient Plateau Claylands	56.7 km	57.8 km	
4. Ancient Rolling Farmlands	53.1 km	54.4 km	
10. Plateau Claylands	54.3 km	55.7 km	
11. Plateau Estate Farmlands	46.5 km	47.9 km	
14. Rolling Estate Sandlands	44.3 km	45.8 km	
15. Rolling Estate Farmlands	50.2 km	51.6 km	
16. Rolling Estate Sandlands	39.3 km	40.7 km	
17. Rolling Valley Claylands	51.1 km	52.6 km	
Kent Landscape Character			
<i>NCA113 North Kent Plain</i>			
C3. St Peter's Undulating Chalk Farmland	58.1 km	60.4 km	LCTs in Kent, with no potential for the VE array areas to result in significant effects on their perceived character due to their very



Landscape Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
F2. Foreness Point and North Foreland	57.7 km	59.9 km	long distance from the VE array areas (over 58km), the small apparent scale of the VE WTGs, limited frequency of visibility of the VE array areas at such long range and the existing influence of offshore wind farms in the baseline seascape context off the Thanet coast.
G1. Ramsgate and Broadstairs Cliffs	58.4 km	60.6 km	
G2. North Thanet Coast	59.1 km	61.3 km	



ESSEX LANDSCAPE CHARACTER

LCA F7. BRIGHTLINGSEA-CLACTON-FRINTON COAST

SENSITIVITY TO CHANGE

Value: Medium

- 10.11.24 The LCA encompasses seaside towns dominated by suburban development and broad bands of open arable farmland in between. One moderately large sized area of the LCA lies on the Essex coast within the SLVIA study area.
- 10.11.25 The LCA is neither designated for its scenic interest nor protected for its nature conservation value.
- 10.11.26 Some recreational value is derived from public rights of way centred on Great Holland, within countryside between Frinton-on-Sea and Clacton-on-Sea.
- 10.11.27 The scenic quality and interest of the LCA originates in its varied character which includes medium to large coastal towns, open farmland and other land in mixed recreational use; sand and shingle beaches; and significant areas of saltmarsh and mudflats along the estuary and its connecting creeks.
- 10.11.28 The scenic qualities of the LCA are varied with urban development within Frinton-on-Sea and Clacton-on-Sea dominating the LCA and a disjointed character along the coast derived from plotland developments, various caravan/ mobile home parks, golf courses and a country park.
- 10.11.29 Napoleonic Martello towers are distinctive landmarks on the coast and contribute to the aesthetic and scenic aspects of the LCA.

Susceptibility: Medium

- 10.11.30 Construction and operation of the offshore infrastructure of VE will potentially influence the LCA due to its coastal location and exposure to the sea. These potential changes will not occur in the immediate, nearshore seascape closely associated with the LCA but in the more-weakly associated and distant open sea, beyond existing offshore wind generation infrastructure.
- 10.11.31 Urban development within Frinton-on-Sea and Clacton-on-Sea screens views out to sea and the offshore waters, for much of the LCA. Exposure to the potential changes arising from VE is restricted to the seaward edge of these settlements.
- 10.11.32 The rural, open parts of the LCA are susceptible to the industrialising influence of offshore wind farm development. This is limited by the level of adjoining urban development; existing energy generation elements along the coast which influence its baseline character; and the aspect of the coastline which faces more to the south of the VE array areas.

Sensitivity: Medium

- 10.11.33 The Brightlingsea-Clacton-Frinton Coast LCA is assessed as having a medium sensitivity to change arising from construction and operation of the offshore infrastructure of VE, based on its medium value and medium susceptibility.



10.11.34 The value of the Brightlingsea-Clacton-Frinton Coast LCA is considered to be medium. The varied landscape and disjointed coastal edge is not designated for its scenic quality or value for nature conservation but has some recreational value, derived from its public rights of way.

10.11.35 The Brightlingsea-Clacton-Frinton Coast LCA's susceptibility to change arising from the construction and operation of the offshore infrastructure of VE is assessed as medium. While the seafronts of Frinton-on-Sea and Clacton-on-Sea are closely associated with the sea, the aspect of the coast means the LCA is indirectly exposed to the offshore waters hosting the VE array areas. Potential changes arising from VE will occur very far away and will be separated from the LCA by vast areas of sea which contain existing energy generation elements.

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

10.11.36 LCA F7 Brightlingsea-Clacton-Frinton Coast is located approximately 53 km from the closest point of the VE array areas and 54.0 km from the closest indicative WTG location within the array areas, and will therefore not result in any direct changes to the pattern of elements with this LCA. The VE array areas have potential to lead to indirect changes to how the landscape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop when viewed from parts of the coast, however the majority of this coastline is urbanised within the settlements of Walton-on-Sea, Frinton-on-Sea and Holland-on-Sea. The urban character that defines the majority of the LCA will not be fundamentally changed as a result of the VE array areas located at very long distance out to sea. There is no potential for offshore wind farm development of the nature proposed to change the existing urban character of this coastline, which will prevail despite any change arising in the offshore views. The main section of coast within the LCA that has potential to experience change resulting from VE is considered to be within Holland Haven Country Park, which serves as a gap between settlements where there are areas of less developed character, however the qualities in this locality are influenced by the sea defenses, golf courses, agricultural land and sewage treatment works.

10.11.37 There is some exposure to perceived changes in the seascape setting from the coastal edges of the LCA and the predominantly urban coastline between Walton-on-the-Naze and Holland-on-Sea that have open sea views. When viewed from these areas of the LCAs coastline, the VE array areas will be situated at very long distance and entirely behind the baseline influence of operational offshore wind farms within the Greater Gabbard and Galloper grouping, as well as the Gunfleet Sands OWF, such that the additional influence of the VE array areas will be perceived as being subsumed behind these existing wind farms, with some increase in influence, density and scale of WTG development adding to the existing development, but with no increase in the lateral spread of development in the seascape backdrop to the LCA due to the position of the VE array areas further offshore and to the east of the existing wind farms.



- 10.11.38 The VE array areas will introduce elements that may partially affect the open sea views from the coastal edges of the LCA, further increasing the influence of distant offshore WTGs in the seascape backdrop, however due to the urban character and development influences of the coast, its distance, separation and existing influence of offshore wind farms in the offshore waters, its perceived character will be subject to a negligible magnitude change, as a result of the addition of elements that are already a characteristic within the existing seascape. The magnitude of change to the perceived character of LCA F7 Brightlingsea-Clacton-Frinton Coast resulting from the operation and maintenance of the VE array areas is assessed as negligible and when combined with the medium sensitivity of the receptor, the effect of the VE array areas on the perceived character of LCA F7 is assessed as **not significant** (minor/negligible), indirect, long-term and reversible.
- 10.11.39 Excellent visibility will be required for the perceived character of LCA F7 to be affected by the VE array areas over 52km away. Met Office visibility data indicates 4% visibility frequency at this range. Minor effects that are assessed in EIA terms under 'excellent' visibility conditions, may be negligible during the remaining period (96%) of less optimal visibility conditions.

LCA F8. HAMFORD WATER

SENSITIVITY TO CHANGE

Value: Medium-high

- 10.11.40 The LCT encompasses the saltmarsh, creeks, mud and scattered reed fringed islands around the large estuarine inlet and is relatively widespread along the Essex coast, within the SLVIA study area.
- 10.11.41 The larger part of the LCT is protected for its nature conservation value as a SSSI/ SPA/ NNR and the aesthetic aspects of these designated areas contributes to its distinct character.
- 10.11.42 Little recreational value is derived from the LCT, which only includes farm tracks access the area, with Winding Lane following the top of the ridge at the boundary, providing the sole recreational route within it.
- 10.11.43 The scenic quality and interest of the LCT originates in the complex pattern of mudflats, narrow channels/creeks and small islands around the large and indented estuarine inlet. Surrounding semi regular arable fields bounded by low fragmented hedges, occasional pockets of scrub or straight drainage ditches, accentuates the estuarine character.
- 10.11.44 The scenic qualities of the LCT are largely consistent but urban development within Harwich and Walton-on-the-Naze influences the northern and southern extremities, respectively. Otherwise there are some natural/ remote qualities and a perception of remoteness derived from a lack of settlement and access.

Susceptibility: Medium

- 10.11.45 Construction and operation of the offshore infrastructure of VE will potentially influence the LCT due to its coastal location and exposure to the sea. These potential changes will not occur in the immediate, nearshore seascape closely associated with the LCT but in the more-weakly associated and distant open sea.



- 10.11.46 Very limited screening of views out to sea and the offshore waters means that the LCT is exposed to the potential changes arising from VE, however its low-lying elevation limits susceptibility.
- 10.11.47 The LCT's perceptual qualities of wildness, remoteness and tranquillity are susceptible to the contrasting influence of development. This is limited by the visual exposure and bleakness of the LCT and by the existing energy generation elements along the coast which influence its baseline character.

Sensitivity: Medium-high

- 10.11.48 The Hamford Water LCA is assessed as having a medium sensitivity to change arising from construction and operation of the offshore infrastructure of VE, based on its medium-high value and medium-low susceptibility.
- 10.11.49 The value of the Hamford Water LCA is considered to be medium-high. The natural qualities of its saltmarsh habitat; relative remoteness/ inaccessibility; and the dynamic qualities of the exposed landscape near the powerful forces of the sea are recognised by designation as a NNR. The landscape has some recreational value, as indicated by the presence of Titchmarsh Marina and holiday parks on the boundary with adjoining settlement.
- 10.11.50 The Hamford Water LCA's susceptibility to change arising from the construction and operation of the offshore infrastructure of VE is assessed as medium-low. The LCA has a strong inherent character associated with the indented estuarine inlet that is not likely to be readily changed by offshore development. Although strongly associated with the sea the majority of the LCA is very low-lying around the inlets and channels of the Hamford Water, which limits exposure of the LCA set further back from the coastal edge to changes in the distant seascape. Potential changes arising from VE will occur very far away and will be separated from the LCT by vast areas of sea and offshore water, which already contain existing offshore wind farms.

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

- 10.11.51 LCA F8 Hamford Water is located approximately 53 km from the closest point of the VE array areas and 54 km from the nearest indicative WTG location within the array areas, and will therefore not result in any direct changes to the pattern of elements with this LCA. The VE array areas have potential to lead to indirect changes to how the landscape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop when viewed from parts of the LCA coastline, primarily around the Naze (Viewpoint 12, Figure 10.37), parts of Hamford Water NNR and areas between Great Oakley and Harwich. Large parts of the LCA are however inaccessible, are inter-tidal or are outside the ZTV with the limited or no visibility, due to it being very low-lying. There is some potential for the natural/ remote qualities and perception of remoteness derived from a lack of settlement and access to be changed by further offshore wind farm development, however the VE array areas will be situated at very long distance and entirely behind the baseline influence of operational offshore wind farms within the Greater Gabbard and Galloper grouping, thereby reducing the level of change to the perceived character of the LCA. The additional influence of the VE array areas will be perceived as being subsumed behind these existing wind farms, with some increase in influence, density and scale of WTG development adding to the existing development, but with no increase in the lateral spread of development in the seascape backdrop to the LCA due to the



position of the VE array areas further offshore and to the east of the existing wind farms.

- 10.11.52 The VE array areas will introduce elements that may partially affect some of the qualities of the LCA, further increasing the influence of distant offshore WTGs in the seascape backdrop, however due to the existing development influences to the north and south of the LCA, its distance, separation and existing influence of offshore wind farms in the offshore waters, its perceived character will be subject to a low to negligible magnitude change, as a result of the addition of elements that are already a characteristic within the existing seascape. The magnitude of change to the perceived character of LCA F8 Hamford Water resulting from the operation and maintenance of the VE array areas is assessed as negligible and when combined with the medium sensitivity of the receptor, the effect of the VE array areas on the perceived character of LCA F8 is assessed as **not significant** (minor/negligible), indirect, long-term and reversible.
- 10.11.53 Excellent visibility will be required for the perceived character of LCA F8 to be affected by the VE array areas over 53km away. Met Office visibility data indicates 4% visibility frequency at this range. Minor effects that are assessed in EIA terms under 'excellent' visibility conditions, may be negligible during the remaining period (96%) of less optimal visibility conditions.

LCA F9. STOUR ESTUARY SLOPES

SENSITIVITY TO CHANGE

Value: Medium

- 10.11.54 The LCA encompasses the undulating arable and pasture farmland adjacent to the Stour estuary and the large port/ industrial town of Harwich. One moderately sized area of the LCA lies on the Essex coast within the SLVIA study area.
- 10.11.55 The LCA is not designated for its scenic interest. Although the LCA adjoins the southern boundary of the Stour Estuary SSSI/ SPA, little of the LCA within the SLVIA study area is protected for its nature conservation value.
- 10.11.56 Some recreational value is derived from public rights of way centred on Ramsey, at the west end of Harwich, and the Essex Way, which traverses the LCA on its way to Harwich.
- 10.11.57 The scenic quality and interest of the LCA originates in its distinctive, steep, wooded slopes associated with small peninsulas which project into the estuary; undulating farmland populated by blocks of woodland and thick hedgerows; and its semi-enclosed character and intimate scale which occasionally becomes more open with sweeping views down to the estuary.
- 10.11.58 The scenic qualities of the LCA are largely consistent but urban development within Harwich influences the eastern end. The LCA is mostly tranquil.

Susceptibility: Medium-low



- 10.11.59 Construction and operation of the offshore infrastructure of VE will potentially influence the LCA due to its coastal location and exposure to the sea. The susceptibility of the LCA is reduced by its aspect generally north over the Stour Estuary and the amount of urban development between the Stour coastline and the open seas to the east. These potential changes will not occur in the immediate, nearshore seascape closely associated with the LCA but in the more-weakly associated and distant open sea, beyond existing offshore wind generation infrastructure.
- 10.11.60 Urban development within Harwich screens views out to sea and the offshore waters, for much of the LCA. Exposure to the potential changes arising from VE is restricted to the seaward edge of Harwich.
- 10.11.61 The LCA is susceptible to the industrialising influence of offshore wind farm development. This is limited by the existing offshore wind farm elements off the coast which influence its baseline character.

Sensitivity: Medium

- 10.11.62 The Stour Estuary Slopes LCA is assessed as having a medium sensitivity to change arising from construction and operation of the offshore infrastructure of VE, based on its medium value and medium-low susceptibility.
- 10.11.63 The value of the Stour Estuary Slopes LCA is considered to be medium. The gently to moderately undulating farmland bounded by hedgerows and woodlands is not designated for its scenic quality or nature conservation. The landscape has some recreational value, derived from public rights of way and the Essex Way.
- 10.11.64 The Stour Estuary Slopes LCA's susceptibility to change arising from the construction and operation of the offshore infrastructure of VE is assessed as medium-low. While the Harwich seafront is closely associated with the sea and is directly exposed to the offshore waters hosting the VE array areas, the LCA is more strongly associated with the Stour Estuary and aspects to the north over this estuary. Potential changes arising from VE will occur very far away and will be separated from the LCA by vast areas of sea which contain existing energy generation elements.



MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

- 10.11.65 LCA F9 Stour Estuary Slopes is located approximately 54 km from the closest point of the VE array areas and 54.9 km from the closest indicative WTG location within the array areas, and will therefore not result in any direct changes to the pattern of elements with this LCA. The VE array areas have potential to lead to indirect changes to how the landscape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop when viewed from parts of the coast, however the majority of this coastline is urbanised within the settlement of Harwich. The urban character that defines the majority of the LCA will not be fundamentally changed as a result of the VE array areas located at very long distance out to sea. There is no potential for offshore wind farm development of the nature proposed to change the existing urban character of this coastline, which will prevail despite any change arising in the offshore views. There will be no visibility of the VE array areas from the upper slopes to the west of the LCA as shown in the ZTV (Figure 10.14). The main section of coast within the LCA that has potential to experience change resulting from VE is considered to be from the Harwich sea front, however the qualities in this locality are influenced by the urbanised coast.
- 10.11.66 There is some exposure to perceived changes in the seascape setting from the coastal edges of the LCA and the predominantly urban coastline through Harwich that has open sea views. When viewed from these areas of the LCAs coastline, the VE array areas will be situated at very long distance and entirely behind the baseline influence of operational offshore wind farms within the Greater Gabbard and Galloper grouping, as well as the Gunfleet Sands OWF, such that the additional influence of the VE array areas will be perceived as being subsumed behind these existing wind farms, with some increase in influence, density and scale of WTG development adding to the existing development, but with no increase in the lateral spread of development in the seascape backdrop to the LCA due to the position of the VE array areas further offshore and to the east of the existing wind farms.
- 10.11.67 The VE array areas will introduce elements that may partially affect the open sea views from the coastal edges of the LCA, further increasing the influence of distant offshore WTGs in the seascape backdrop, however due to the urban character and development influences of the coast, its distance, separation and existing influence of offshore wind farms in the offshore waters, its perceived character will be subject to a low to negligible magnitude change, as a result of the addition of elements that are already a characteristic within the existing seascape. The magnitude of change to the perceived character of LCA F9 Stour Estuary Slopes resulting from the operation and maintenance of the VE array areas is assessed as negligible and when combined with the medium sensitivity of the receptor, the effect of the VE array areas on the perceived character of LCA F9 is assessed as **not significant** (minor/negligible), indirect, long-term and reversible.
- 10.11.68 Excellent visibility will be required for the perceived character of LCA F9 to be affected by the VE array areas over 54km away. Met Office visibility data indicates 4% visibility frequency at this range. Minor effects that are assessed in EIA terms under 'excellent' visibility conditions, may be negligible during the remaining period (96%) of less optimal visibility conditions.



SUFFOLK LANDSCAPE CHARACTER

LCT5. COASTAL DUNES AND SHINGLE RIDGES

SENSITIVITY TO CHANGE

Value: High

- 10.11.69 The LCT comprises a discontinuous narrow strip along much of the immediate coastal edge of the Suffolk coastline and is widespread along the Suffolk coast.
- 10.11.70 The SCHAONB encompasses the LCT which, in combination with adjacent coastal LCTs, contributes to the special qualities that define the nationally designated scenic qualities of the AONB.
- 10.11.71 The larger part of the LCT is protected for its nature conservation value as a Site of Special Scientific Interest (SSSI)/ Special Area of Conservation (SAC)/ Special Protection Area (SPA)/ National Nature Reserve (NNR) and the aesthetic aspects of these designated areas contributes to its distinct character.
- 10.11.72 The LCT includes the substantial shingle spit of Orford Ness, which is rare in terms of its scale (the 17.7 km-long spit is the largest of its type on the east coast of England); its vegetated shingle habitat; its character; and history.
- 10.11.73 Notable recreational value is derived from the LCT's provision for many forms of recreational and visitor activity at the coast, including informal seaside recreation, bathing and walking on the Suffolk Coastal Path.
- 10.11.74 The scenic quality and interest of the LCT originates in the simplicity of the main visual elements influencing the LCT (shingle beach/ sea/ sky), the direct exposure to the seascape; and the dynamic qualities of the low-lying landscape adjacent to the powerful forces of the sea.
- 10.11.75 The scenic qualities of the LCT varies and is not always consistent between the different stretches. Between Southwold, Dunwich, Orford Ness and Bawdsey there are natural/ remote qualities. Orford Ness is particularly influenced by a perception of remoteness and elemental, desolate, austere scenic qualities. Elsewhere, scenic qualities are influenced by the presence of seafront developments and activities, in close proximity to Lowestoft, Kessingland and Aldeburgh; and the presence of Sizewell A and B Nuclear Power Station, along the Sizewell to Thorpeness stretch.

Susceptibility: Medium-high

- 10.11.76 LCT is formed by the narrow strip of the immediate coastal landscape forming the closest part of the Suffolk coastline between Southwold and Orford Ness. Key coastal areas that is most susceptible to the changes in the associative seascape setting.
- 10.11.77 Construction and operation of the offshore infrastructure of VE will potentially influence the LCT due to its coastal location and exposure to the sea. These potential changes will not occur in the immediate, nearshore seascape closely associated with the LCT but in the more-weakly associated and distant open sea.
- 10.11.78 Very limited screening of views out to sea and the offshore waters means that the LCT is clearly exposed to the potential changes arising from VE and has the highest degree of exposure of the coastal LCTs in the SLVIA study area.



10.11.79 The LCT's perceptual qualities of wildness, remoteness and tranquillity are susceptible to the contrasting influence of development. This is limited by the visual exposure and bleakness of some stretches of the LCT and by the existing energy generation elements along the coast which influence its baseline character.

10.11.80 The highly dynamic and fragile landscape is susceptible to changes arising from human activity which can damage vegetated shingle structures.

Sensitivity: High

10.11.81 The Coastal Dunes and Shingle Ridges LCT is assessed as having a high sensitivity to change arising from construction and operation of the offshore infrastructure of VE, based on its high value and medium-high susceptibility.

10.11.82 The Coastal Dunes and Shingle Ridges LCT is considered to be a highly-valued landscape that is recognised through AONB designation, whose special qualities focus on the simplicity of its main elements (shingle beach/ sea/ sky); the natural qualities of its vegetated dune and shingle habitats; its relative remoteness/inaccessibility along some stretches and traditional seaside influences of other stretches; the unique character of Orford Ness; and the dynamic qualities of the exposed landscape near the powerful forces of the sea. The landscape is also highly valued for recreation and the focus of visitor activity at the coast.

10.11.83 The Coastal Dunes and Shingle Ridges LCT's susceptibility to change arising from the construction and operation of the offshore infrastructure of VE is assessed as medium-high. The LCT is strongly associated with the sea and is directly exposed to the offshore waters hosting the VE array areas, with very limited screening between the two. However, potential changes arising from VE will occur far away and will be separated from the LCT by vast areas of sea.

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

10.11.84 LCT5 Coastal Dunes and Shingle Ridges is located approximately 37.4 km from the closest point of the VE array areas (at Orford Ness) and 38.8 km from the closest indicative WTG location within the array areas, and will therefore not result in any direct changes to the pattern of elements with this LCT. The VE array areas have potential to lead to indirect changes to how the landscape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop when viewed from parts of the coast.

10.11.85 Geographically, the area of the LCT that may experience change as a result of visibility of the VE array areas is confined to the narrow band of Coastal Dunes and Shingle Ridges along the Suffolk coast between Southwold and Felixstowe. The geographic extent of potential change resulting from the VE array areas on this LCT is confined in terms of it occurring almost entirely along the coast, within a narrow strip adjacent to the sea, however this LCT also extends along the majority of the Suffolk coastline in the study area, so there is potential for changes to occur at a regional extent. The ZTV (Figure 10.14) shows that there will be theoretical visibility from almost the entirety of this LCT along the coastal edge, although the dunes and shingle ridges do provide some visual concealment/screening at the micro-level amongst this landform.



- 10.11.86 The scale of change to the key characteristics of the LCT is likely to be increased by the lack of intervening coastal elements between the LCT and VE array areas, such that changes in the sea are experienced readily from this LCT, however the VE array areas will be situated at long distance and mainly behind the baseline influence of operational offshore wind farms within the Greater Gabbard and Galloper grouping, thereby reducing the level of change to the perceived character of the LCT. The construction and operation of the VE array areas will result in a partial loss of open sea skyline due to the further northward lateral spread of WTGs on the seaward horizon to the north of Greater Gabbard and Galloper OWFs, when viewed from northern areas of the LCT between Southwold and Orford Ness.
- 10.11.87 The addition of further WTG elements may also further increase the amount of visual clutter and density of the existing arrays in the wind turbine influenced section of the horizon, increasing the influence of WTGs as focal points and the wind farm influence in the seaward aspect of the LCT. Although the introduction of wind turbines on the sea skyline located well outside and at distance from the LCT (over 37km) would be at variance to some characteristics of the LCT, such as its open, vast character, and its perceived natural qualities, it is also in keeping with other characteristics such as its large scale, exposure and existing offshore wind energy generation influences.
- 10.11.88 Greater Gabbard and Galloper windfarms are more notable as features in the baseline seascape context from the southern parts of the LCT, between Aldeburgh and Felixstowe. When viewed from these areas of the LCTs coastline, the VE array areas will be situated behind the baseline influence of the Greater Gabbard and Galloper wind farms, such that the VE array areas are subsumed behind these existing wind farms, with some increase in influence, density and scale of WTGs adding to the existing development, but with no increase in the lateral spread of development due to the position of the VE array areas further offshore and to the east of the existing wind farms.
- 10.11.89 The VE array areas will introduce elements that may partially affect the open sea views from the coastal edges of the LCT, further increasing the influence of distant offshore WTGs in the seascape backdrop, however due to the distance, separation and position to the east of the existing offshore wind farms, the perceived character of the LCT will be subject to a low magnitude change. The magnitude of change to the perceived character of LCT5 Coastal Dunes and Shingle Ridges resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the high sensitivity of the receptor, the effect of the VE array areas on the perceived character of LCT5 is assessed as **not significant** (moderate/minor), indirect, long-term and reversible.
- 10.11.90 Very good or excellent visibility will be required for the perceived character of LCT5 to be affected by the VE array areas over 37km away. Met Office visibility data indicates 21% visibility frequency at this range. Moderate/minor effects that are assessed in EIA terms under 'very good' or 'excellent' visibility conditions, may be minor or negligible during the remaining period (79%) of less optimal visibility conditions.



LCT6. COASTAL LEVELS

SENSITIVITY TO CHANGE

Value: High

- 10.11.91 The coastal LCT covers extensive areas of marshland along and extending inland from the coast along river estuaries at several different locations. The LCT is relatively widespread within the SLVIA study area.
- 10.11.92 The SCHAONB encompasses the LCT which, in combination with adjacent coastal LCTs, contributes to the special qualities of the AONB.
- 10.11.93 Much of the LCT is protected for its nature conservation value by designations including SSSI/ SAC/ SPA/ NNR and the aesthetic aspects of these designated areas contributes to its distinct character.
- 10.11.94 The LCT has some value for recreational activity, particularly within the RSPB nature reserves at Minsmere, Havergate Island, Boyton and Hollesley Marshes. The Suffolk Coastal Path passes through many parts of the LCT, but it is one of the few ways of crossing this marshy landscape.
- 10.11.95 Some perceptual qualities of wildness, remoteness and tranquillity derives from the LCT's relative lack of access, challenging ground conditions and its exposed position by the sea.
- 10.11.96 The scenic qualities of the LCT are consistent, intact, well defined and distinctive. These scenic qualities relate to the natural qualities of the marshland habitats; and the dynamic qualities of the low-lying exposed landscape adjacent to the powerful forces of the sea and major rivers.
- 10.11.97 Areas of the LCT have been converted to arable use, which has led to some degradation of the cultural pattern and simplification of the dyke network.

Susceptibility: Medium

- 10.11.98 Construction and operation of the offshore infrastructure of VE will potentially influence the LCT, due to the coastal location of the LCT and its potential exposure to visible changes occurring in the seascape backdrop.
- 10.11.99 The LCT's perceptual qualities of wildness, remoteness and tranquillity are susceptible to the contrasting influence of development. Dunes/ shingle landform along its eastern edge visually contains the LCT and weakens the association between this low-lying marshland landscape and the VE array areas.
- 10.11.100 While the LCT is strongly associated with the sea, it is not directly exposed to the offshore waters hosting the VE array areas due to a notable degree of screening by dunes/ shingle ridges.

Sensitivity: Medium-high

- 10.11.101 The Coastal Levels LCT is assessed as having a medium-high sensitivity to change arising from construction and operation of the offshore infrastructure of VE, based on its high value and medium susceptibility.



10.11.102 The Coastal Levels LCT is a highly-valued landscape, recognised through the AONB designation whose special qualities focus on the natural qualities of its marshland habitats; its relative remoteness/ inaccessibility; profound sense of exposure; and the dynamic qualities of marine and fluvial processes on the low-lying and exposed landscape.

10.11.103 The Coastal Levels LCT's susceptibility to changes arising from the construction and operation of the offshore infrastructure of VE is assessed as medium. While the LCT has strong associations with the sea, the LCT is not always directly exposed to the offshore waters hosting the VE array areas and extensive raised dunes/ shingle ridges provide a notable degree of concealment/ screening along the coastal edge.

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

10.11.104 LCT6 Coastal Levels is located approximately 37.7 km from the closest point of the VE array areas and 39.1 km from the closest indicative WTG location within the array areas, and will therefore not result in any direct changes to the pattern of elements with this LCA. The VE array areas have potential to lead to indirect changes to how the landscape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop when viewed from parts of the coast.

10.11.105 Geographically, the area of the LCT that may experience change as a result of visibility of the VE array areas tends to be restricted to the areas of the LCT that are closest to the coast, with visibility becoming limited as these marshlands extend inland along river valleys/estuaries. Although the geographic extent of potential change is restricted to areas of the LCT closest to the coast, this LCT occurs in multiple separate locations along the coastline in the study area, where the main rivers meet the coast, including from north to south:

- > Marshes flanking the Hundred River from Kessingland Beach westward through the Kessingland Levels up to Henstead.
- > Marshes flanking the River Blyth and Buss Creek from Walberswick westward up to Wolsey Bridge.
- > Marshes of the Minsmere Level extending westward to Eastbridge in Theberton.
- > The area of a former large meare lying to the south of the existing Meare at Thorpeness and the northern outskirts of Aldeburgh.
- > Marshes flanking the sides of the Rivers Alde, Ore and Butley from Aldeburgh south past Orford, to East Lane in Bawdsey.
- > Marshes flanking the Deben estuary, from Bawdsey to Ramsholt.

10.11.106 The ZTV (Figure 10.14) shows that there will be varying theoretical visibility from these different areas of the LCT, generally with higher theoretical visibility of the VE array areas near to the coast, becoming very limited further inland along each of the main river valleys/estuaries, where views of the VE array areas are often entirely avoided due to the intervening landforms and vegetation in the surrounding landscape.



- 10.11.107 The VE array areas are assessed as resulting in a negligible magnitude of change to the perceived character of the marshes flanking the Hundred River and the marshes flanking the Deben estuary, due to the low level of theoretical visibility, or the lack of any theoretical visibility of the VE array areas from parts of these valleys extending inland.
- 10.11.108 **Marshes flanking the River Blyth** – Only a very small part of this LCT extends down to the coast, with the majority set back ‘behind’ Southwold (to its north and west), where there is limited visibility shown on the ZTV and further screening by intervening urban development. There is very limited visibility from the Town Marshes / Havenbeach Marshes area, due to intervening raised shingle/dunes landforms towards the sea which ‘shelter’ the coastal levels on its inland side. The large majority of this area of LCT6 does not have a seascape setting and is set back ‘behind’ Southwold and Reydon, where there are prominent existing development influences in the context of the LCT. Areas of inter-visibility between this LCT and its’ seascape setting and thereby the VE array area are very limited. The magnitude of change to the perceived character of this area of LCT6 would be low and when combined with the medium-high sensitivity of the receptor, the effect of the VE array areas on the perceived character of this area of LCT6 is assessed as **not significant** (minor), indirect, long-term and reversible. The aesthetic and perceptual aspects that define its baseline marshland character will not be lost and will remain fundamental to defining its character and the perceived character of this area of LCT6 will not be significantly affected.
- 10.11.109 **Marshes of the Minsmere Level** - the sea/coastline and VE array areas will be intermittently visible from this area of the LCT, due to the long shingle ridge running along at the edge of the LCT which obscures views. There will be negligible/no visibility of the VE array areas from low-lying area around ‘the Scrape’ where views are concealed/screened by the intervening dunes/shingle landform rising between this LCT and the sea. Although there is higher theoretical visibility further west into Minsmere levels, they are still very low lying, with the distant array of VE WTGs likely to be visible partially behind the existing Greater Gabbard/Galloper grouping and partially extending it northwards, beyond the horizon formed by dunes/shingle ridges in the coastal backdrop to the marshland/coastal levels located at long distance from the LCT. The addition of the VE array areas would constitute a relatively low alteration to the perceived character, at variance to the relatively undeveloped, flat, open and exposed character of the LCT, but removed from and in the background to the main elements that define character. The magnitude of change to the perceived character of this area of LCT6 would be low and when combined with the medium-high sensitivity of the receptor, the effect of the VE array areas on the perceived character of this area of LCT6 is assessed as **not significant** (minor), indirect, long-term and reversible. The aesthetic and perceptual aspects that define its baseline marshland character will not be lost and will remain fundamental to defining its character and the perceived character of this area of LCT6 will not be significantly affected.



- 10.11.110 **Meare at Thorpeness** – Views are largely concealed/screened by a combination of the intervening dune/shingle landform between these areas of the LCT and the sea; the extensive areas of woodland around the Meare at Thorpeness and lining Thorpe Road; and intervening built-up areas of Thorpeness. There is very limited visibility from within this area of the LCT which drops down to lower levels inland of the low shingle ridge on its seaward side, contained in LCT5, which limits direct views of the sea and is predicted to provide screening of the VE array areas. Although visibility is indicated from parts of this area of the LCT in the ZTV (Figure 10.14) field survey verification confirms limited visibility from the Suffolk Coast Path crossing the LCT, which is on a raised embankment, with the surrounding levels being lower in elevation. The coastal side of this area of the LCT does not have a direct ‘coastal portion’ or edge to the seascape, as such, being entirely separated from the sea by an approximately 200m wide strip of intervening Coastal Dunes and Shingle Ridges LCT5. The eastern, coastward side of the LCT is the area that is most screened behind the raised shingle ridge contained in LCT5, which limits direct views of the sea and is predicted to provide screening from this area. There are also numerous more prominent existing development influences in the context of the LCT around Thorpeness and along Thorpe Road. The magnitude of change to the perceived character of this area of LCT6 would be low and when combined with the medium-high sensitivity of the receptor, the effect of the VE array areas on the perceived character of this area of LCT6 is assessed as **not significant** (minor), indirect, long-term and reversible. The aesthetic and perceptual aspects that define its baseline character as a former mere will not be lost and will remain fundamental to defining its character and the perceived character of this area of the Coastal Levels LCT will not be significantly affected.
- 10.11.111 **Marshes flanking the sides of the Rivers Alde, Ore and Butley** – the existing landscape character of the LCT estuaries around the Alde Mudflats, Butley River, areas to the south around Hollesley and Boyton, and Sudbourne Marshes, Sudbourne Beach and Kings Marshes will be subject to a low magnitude of change due to the limited intermittent visibility of the VE array areas. Direct views of the sea and the VE array area are largely concealed/screened by intervening landform/vegetation and the extensive dune/shingle landform of Orford Ness, which lies between these areas of the LCT and the sea, such that the beach and shoreline are not generally visible. There are however some long distance and panoramic views out to the seaward horizon available, which form a component of the character of this area, with the VE array areas likely to be intermittently visible and influence the character of some of the coastal portions of this area of the LCT, including the open, wide, exposed characteristics near the sea, resulting from the addition of further elements in the seaward backdrop, intermittently appearing above the intervening shingle landform.



- 10.11.112 Greater Gabbard and Galloper windfarms are more notable as features in the baseline seascape context from parts of this area of the LCT, compared to areas of the LCT further north. When viewed from these areas of the LCT's coastline, the VE array areas will be situated behind the baseline influence the Greater Gabbard and Galloper wind farms, such that the VE array areas are subsumed behind these existing wind farms, with some increase in influence, density and scale of WTGs adding to the existing development, but with limited increase in the lateral spread of development due to the position of the VE array areas further offshore and to the east of the existing wind farms.
- 10.11.113 The VE array areas will introduce elements that may partially affect the sea views from the parts of the LCT across the intervening shingle landform and marshlands, however due to the distance, separation and position to the east of the existing offshore wind farms, the perceived character of the LCT will be subject to a low magnitude change. The magnitude of change to the perceived character of this area of LCT6 resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the medium-high sensitivity of the receptor, the effect of the VE array areas on the perceived character of LCT5 is assessed as **not significant** (moderate/minor), indirect, long-term and reversible.
- 10.11.114 Very good or excellent visibility will be required for the perceived character of LCT6 to be affected by the VE array areas over 37.7km away. Met Office visibility data indicates 21% visibility frequency at this range. Moderate/minor effects that are assessed in EIA terms under 'very good' or 'excellent' visibility conditions, may be minor or negligible during the remaining period (79%) of less optimal visibility conditions.

LCT7. ESTATE SANDLANDS

SENSITIVITY TO CHANGE

Value: Medium-high

- 10.11.115 The LCT covers large areas of the Suffolk coast's hinterland, which are dissected by river valleys/ marshland that extends inland from the coast. The LCT is relatively widespread along the Suffolk coast.
- 10.11.116 The LCT encompasses the Coverhithe Cliffs, Easton Bavents and Sizewell Cliffs, along the immediate coastal edge of the SCHAONB; and extends across much of the AONB inland, away from the coastline. The LCT, along with adjacent coastal LCTs, contributes to the AONB's special qualities.
- 10.11.117 Parts of the LCT are protected for their nature conservation value as SSSI/ SAC/ SPA. The aesthetic aspect of these designated areas contributes to the distinct character type, particularly the heaths and Sandlings Forests.
- 10.11.118 Some recreational value derives from the LCT's network of public rights of way which crosses the heaths providing a focus for recreational walking and linking to the Suffolk Coastal Path, which also crosses the LCT.



10.11.119 The LCT's scenic quality and interest generally arises from large areas of heathland/ acid grassland in the backdrop behind extensive coniferous forestry (Sandlings Forests), which often marks the transition from the agricultural landscapes inland to the landscape of the SCHAONB. These scenic qualities vary between the different areas of the LCT within the SLVIA study area, being influenced by adjacent urban development, within the Southwold and Reydon area (Area B); Sizewell A and B Nuclear Power Station, high-voltage transmission lines and intensive farming, within the Leiston/ Aldringham area (Area D); and the extensive Tunstall and Rendlesham Forests, which dominate the LCT to the south.

Susceptibility: Locally medium at coast, but generally low over most of the inland areas of LCT

10.11.120 Construction and operation of the offshore infrastructure of VE will potentially influence localised areas of the LCT, where it extends to the coast and is exposed to potential visible changes within the seascape backdrop.

10.11.121 Some parts of the LCT, which have a sense of isolation and perceived remoteness/ naturalness, are susceptible to the influence of development which would contrast with the landscape. Other localised areas of this LCT, which extend near to the coast, are strongly associated with the sea and the seascape hosting the VE array areas. Extensive plantation forestry, tree belts and hedges provide visual containment within the LCT and weakens the association between this landscape and the VE array areas.

10.11.122 The larger part of the LCT has a weak and limited association with the sea as it covers extensive inland areas which are not exposed to the seascape hosting the VE array areas but are often contained by plantation forestry or agricultural landscapes.

Sensitivity to change: Locally medium-high at the coast, but generally medium over most of the inland LCT

10.11.123 The sensitivity of the Estate Sandlands LCT to the construction and operation of the offshore infrastructure of VE is assessed as locally medium-high, where it forms the coastal edge (such as at Covehithe, Dunwich Cliffs, Sizewell Cliffs, Easton Bavents and Thorpeness); and generally medium, over most of the inland areas of the LCT. This is based on the LCT's medium-high value and medium-high to low susceptibility, at the coast and inland, respectively.

10.11.124 The Estate Sandlands LCT is assessed as having a medium-high value that is recognised in some areas by AONB coverage and/ or coverage by natural heritage designations such as SSSI/ SPA. Other areas are not designated, their inherent character having been substantially changed by extensive plantation forestry, suburbanisation and/or modern energy generation and transmission infrastructure. The main scenic qualities of the LCT are influenced by areas of heathland/ acid grassland within the backdrop behind extensive coniferous forestry but these vary between the distinct areas of the LCT.



10.11.125 The majority of the LCT is assessed as having medium-high to low susceptibility to changes arising from the construction and operation of the offshore infrastructure of VE. Where it extends near to the coast, such as the Covehithe area, Dunwich Heath/ Cliffs and areas between Sizewell and Thorpeness, the LCT is more exposed to and strongly associated with the sea, and its character will be more exposed to changes within the seascape. In remaining parts, the LCT has a limited association with the sea derived from the frequent influence of plantation forestry or agricultural landscapes that prevents exposure to the seascape hosting the VE array areas; and the inclusion of extensive inland areas.

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

10.11.126 LCT7 Estate Sandlands is located approximately 39.4 km from the closest point of the VE array areas and 40.9 km from the closest indicative WTG location within the array areas, and will therefore not result in any direct changes to the pattern of elements with this LCA. The VE array areas have potential to lead to indirect changes to how the landscape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop when viewed from parts of the coast.

10.11.127 Visibility of the VE array areas is limited from inland areas of the Estate Sandlands LCT, with a negligible magnitude of change arising on the perceived character of inland areas of the LCT including around Henham Park, Aldringham to Snape, Hollesley, Rendlesham and Tunstall Forests to Sudbourne. Views of the VE array areas will be almost entirely screened by a combination of landform and the intervening plantation forests, tree belts and hedgerows.

10.11.128 Geographically, the area of the LCT that may experience change as a result of visibility of the VE array areas tends to be restricted to the areas of the LCT that are closest to the coast, in the northern part of the study area at Covehithe to Benacre/Easton Bavents, at Dunwich Heath/Cliffs and at Sizewell Cliff/Thorpe Ness. The ZTV (Figure 10.14) shows that there will be areas of theoretical visibility of the VE array area from these coastal parts of this LCT, which extend to meet the sea at low cliffs and the coastal edges of the LCT are influenced by the open sea and exposed to changes resulting from the VE array areas. The long distance and panoramic views out to sea will be altered through a slight loss of open seascape to the north of Greater Gabbard/Galloper occupied by the northern VE array area, influencing the setting and sense of isolation of the low cliffs on the coastal edges of the LCT. The introduction of wind turbines on the sea skyline located well outside and at distance from the LCT (over 39km) would constitute a low alteration to the perceived character, at variance to some characteristics of the coastal edges of the LCT, but is in keeping with other characteristics such as its large scale, exposure and existing energy generation influences in the offshore waters (Galloper/Greater Gabbard) and along the coast to the south (Sizewell Power Station).

10.11.129 When viewed from these areas of the LCTs coastline, the VE array areas will mainly be situated behind the baseline influence the Greater Gabbard and Galloper wind farms, with a partial increase in northern lateral spread, such that the VE array areas are mainly subsumed behind these existing wind farms, with some increase in influence, density and scale of WTGs adding to the existing development, but with limited increase in the lateral spread of development due to the position of the VE array areas further offshore and to the east of the existing wind farms.



- 10.11.130 The VE array areas will introduce elements that may partially affect the sea views from these coastal parts of the Estate Sandlands LCT, however due to the distance, separation and position to the east of the existing offshore wind farms, the perceived character of the LCT will be subject to a low magnitude change. The magnitude of change to the perceived character of this area of LCT7 resulting from the operation and maintenance of the VE array areas is assessed as low from the coastal edges and negligible from inland areas, and when combined with the medium-high sensitivity of the receptor, the effect of the VE array areas on the perceived character of LCT5 is assessed as **not significant** (moderate/minor), indirect, long-term and reversible.
- 10.11.131 Very good or excellent visibility will be required for the perceived character of LCT7 to be affected by the VE array areas over 39km away. Met Office visibility data indicates 21% visibility frequency at this range. Moderate/minor effects that are assessed in EIA terms under 'very good' or 'excellent' visibility conditions, may be minor or negligible during the remaining period (79%) of less optimal visibility conditions

LCT8. OPEN COASTAL FENS

SENSITIVITY TO CHANGE

Value: High

- 10.11.132 There is one area of this scarce LCT in Suffolk, between Walberswick and Dunwich. The SCHAONB encompasses the LCT which, in combination with adjacent coastal LCTs, contributes to the special qualities of the AONB.
- 10.11.133 Much of the LCT is protected for its nature conservation value as SSSI/ SAC/ SPA/ NNR and the aesthetic aspects of these designated areas contributes to its distinct character.
- 10.11.134 The LCT has some value for recreational activity as the Suffolk Coastal Path passes through the LCT, but the path is one of few routes crossing this marshy landscape.
- 10.11.135 There are some perceptual qualities of wildness, remoteness and tranquillity derived from the LCT's relative lack of access, challenging ground conditions and its exposed position by the sea.
- 10.11.136 The scenic qualities of the LCT are consistent, intact, well defined and distinctive. These scenic qualities relate to the natural qualities of the saltmarsh, dune habitats and reedbeds; and the dynamic qualities of the low-lying and exposed landscape, adjacent to the powerful forces of the sea and Dunwich River.

Susceptibility: Medium

- 10.11.137 Construction and operation of the offshore infrastructure of VE will potentially influence the LCT due to its coastal location and potential exposure to visible changes occurring in the seascape backdrop.
- 10.11.138 The LCT's perceptual qualities of wildness, remoteness and tranquillity are susceptible to the contrasting influence of development. Visual containment of the LCT by the dunes/ shingle landform along its eastern edge weakens the association between this low-lying landscape and the VE array areas.



10.11.139 While the LCT is associated with the sea, it is not directly exposed to the offshore waters hosting the VE array areas due to a notable degree of screening by dunes/ shingle ridges.

Sensitivity: Medium-high

10.11.140 The Open Coastal Fens LCT is assessed as having a medium-high sensitivity to change arising from construction and operation of the offshore infrastructure of VE, based on its high value and medium susceptibility.

10.11.141 The Open Coastal Fens LCT is a highly-valued landscape which is recognised through the AONB designation, whose special qualities focus on the natural qualities of its saltmarshes and reedbed habitats; its relative remoteness/ inaccessibility; and the dynamic qualities of the low-lying, exposed landscape near the powerful forces of the sea.

10.11.142 The Open Coastal Fens LCT's susceptibility to changes arising from the construction and operation of the offshore infrastructure of VE is assessed as medium. While the LCT is strongly associated with the sea, it is not directly exposed to the offshore waters hosting the VE array areas and has a notable degree of concealment/ screening by dunes/ shingle ridges along the coastal edge, which limits the potential influence of the offshore infrastructure of VE.

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

10.11.143 LCT8 Open Coastal Fens is located approximately 45.5 km from the closest point of the VE array areas and 46.8 km from the closest indicative WTG location within the array areas, and will therefore not result in any direct changes to the pattern of elements with this LCA. The VE array areas have potential to lead to indirect changes to how the landscape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop when viewed from parts of the coast.

10.11.144 The ZTV (Figures 10.14) shows that there will be no theoretical visibility from Westwood Marshes, with views from this area also further screened by Dunwich Forest such that the VE array areas will result in zero magnitude of change and **not significant**, indirect, long-term and reversible effects on the perceived character of the Westwood Marshes area of the LCT.

10.11.145 Geographically, the area of the LCT that may experience change as a result of visibility of the VE array areas is contained to Corporation and Dingle Marshes between Walberswick and Dunwich. The sea/coast and the VE array areas will however only be intermittently visible from the LCT, due to the long dune and shingle ridge running along at the edge of the LCT which obscures views. The marshes are set inland and at lower elevation from this more elevated dune and shingle ridge, such that the beach and shoreline are generally not visible from this LCT and there is a sense of separation/seclusion from the seascape to the east.



- 10.11.146 There are some locations where long distance and panoramic views to seaward horizon are available, which form a component of the character (particularly in the vicinity of Cooperation and Oldtown Marshes) and there is potential for changes to these aspects of character. The VE array areas may result in change through the addition of further offshore WTGs behind and northwards of the existing Greater Gabbard and Galloper grouping, with the coastal backdrop to the marshland/open fens beyond the intervening shingle ridge. The introduction of WTGs in the coastal backdrop located well outside and at distance from the LCT (over 45km), removed from the association of the sea (which is often not visible), would constitute a relatively minor alteration to the perceived character, at variance to the relatively undeveloped, flat, open and uncluttered character of the LCT, but removed from and in the background to the main elements of the LCT that define character. The construction and operation of the offshore infrastructure will have a limited change to the key characteristics of the immediate marshland/fen surroundings that define the landscape character. The technological appearance of the wind turbines is likely to contrast with the perceived natural qualities associated with the habitats of the LCT, however their appearance will relate rationally to the visual exposure, large scale and existing offshore WTGs.
- 10.11.147 When viewed from the LCT, the VE array areas will mainly be situated behind the baseline influence the Greater Gabbard and Galloper wind farms, with a partial increase in northern lateral spread, such that the VE array areas are mainly subsumed behind these existing wind farms, with some increase in influence, density and scale of WTGs adding to the existing development, but with limited increase in the lateral spread of development due to the position of the VE array areas further offshore and to the east of the existing wind farms.
- 10.11.148 The VE array areas will introduce elements that may partially affect the sea views from the Open Coastal Fens LCT, however due to the distance, separation and position to the east of the existing offshore wind farms, the perceived character of the LCT will be subject to a low magnitude of change. The magnitude of change to the perceived character of the Corporation and Dingle Marshes of LCT8 resulting from the VE array areas is assessed as low and when combined with the medium-high sensitivity of the receptor, the effect of the VE array areas on the perceived character of Corporation and Dingle Marshes of LCT8 is assessed as **not significant** (moderate/minor), indirect, long-term and reversible.
- 10.11.149 Excellent visibility will be required for the perceived character of LCT8 to be affected by the VE array areas over 45km away. Met Office visibility data indicates 4% visibility frequency at this range. Moderate/minor effects that are assessed in EIA terms under 'excellent' visibility conditions, may be minor or negligible during the remaining period (96%) of less optimal visibility conditions.

LCT28. WOODED FENS

SENSITIVITY TO CHANGE

Value: Medium-high

- 10.11.150 The LCT covers three areas that extend inland from the Suffolk coastline between Lowestoft and Southwold and is relatively rare along the Suffolk coast.



- 10.11.151 The Benacre, Coverhithe and Easton Broads, extending inland from the immediate coastal edge of the SCHAONB, comprise the LCT. Along with adjacent coastal LCTs, the LCT contributes to the AONB's special qualities.
- 10.11.152 Parts of the LCT are protected for their nature conservation value as SSSI/ SAC/ SPA. The aesthetic aspect of these designated areas contributes to the distinct character type.
- 10.11.153 Little recreational value derives from the LCT, due to the lack of a network of public rights of way and the limited number of informal recreational routes within the LCT.
- 10.11.154 The LCT's scenic quality and interest generally arises from the contrast of its open, flat landscapes and the framing woodland on the rising ground around them. Grazing animals also contribute to the scenic quality, particularly on the coast.
- 10.11.155 The scenic qualities of the LCT are largely consistent, intact, well defined and distinctive and relate to its maintenance for conservation purposes; its resultantly excellent condition; and the relatively close clustering of the three separate areas of the LCT within the SLVIA study area.

Susceptibility: Locally medium at coast, but generally low over most of the inland areas of LCT

- 10.11.156 Construction and operation of the offshore infrastructure of VE will potentially influence localised areas of the LCT, where it extends to the coast and is exposed to potential visible changes within the seascape backdrop.
- 10.11.157 In parts, the LCT has a sense of isolation and perceived remoteness/ naturalness, making it more susceptible to the influence of development which would contrast with the unsettled landscape. Localised areas of this LCT, which extend to the coast, are strongly associated with the sea and the seascape hosting the VE array areas. Vegetation within the surrounding landscapes provides visual containment and weakens the association between remaining areas of the LCT and the VE array areas.
- 10.11.158 The majority of the LCT has a weak and limited association with the sea as it covers extensive inland areas which are often influenced by plantation forestry or agricultural landscapes that are not exposed to the seascape hosting the VE array areas.

Sensitivity to change: Locally medium-high at the coast, but generally high over most of the inland LCT

- 10.11.159 The Wooded Fens LCT is assessed as having a locally medium-high sensitivity where it forms the coastal edge, with a generally high sensitivity over most of the inland areas of the LCT. This is based on the LCT's medium-high value and its medium to low susceptibility at the coast and inland, respectively.
- 10.11.160 The Wooded Fens LCT is assessed as having a medium-high value that is recognised by coverage by the AONB and by natural heritage designations (NNR/ SSSI/ SPA).



10.11.161 The Wooded Fens LCT is assessed as having a medium susceptibility to changes arising from the construction and operation of the offshore infrastructure of VE, where it extends to the coast and is more exposed to changes within the seascape; and low susceptibility inland, derived from screening and weak association with the seascape hosting the offshore infrastructure of VE.

MAGNITUDE OF CHANGE AND SIGNIFICANCE OF EFFECT

10.11.162 LCT28 Wooded Fens is located approximately 48.9 km from the closest point of the VE array areas and 49.8 km from the closest indicative WTG location within the array areas, and will therefore not result in any direct changes to the pattern of elements with this LCA. The VE array areas have potential to lead to indirect changes to how the landscape character is perceived, with the introduction of further offshore WTGs in the offshore backdrop when viewed from parts of the coast.

10.11.163 The majority of the LCT extends inland at low level, consisting of low lying valley floor of marshland and areas of open water. These areas are contained by the gradually rising landform of adjacent land. Land at Covehithe Cliffs provides screening of views out to sea from within Covehithe Broad. Further visual containment is also provided within the low-lying broads of the LCT by extensive reed beds and marsh habitat, which contain views.

10.11.164 The LCT description in the Suffolk Landscape Assessment recognises the amount of woodland screening provided around these 'wooded fens', including the 'larger amounts of plantation woodlands on the higher ground surrounding them' and that the broads are 'framed by woodland on the rising ground around them'. This is particularly applicable to Benacre Broad, and only partially applicable to the areas of Covehithe Broad further inland, where woodland lines the southern side of the broad and provides substantial screening.

10.11.165 There is also limited access to people to these wet valley floors of Covehithe and Easton broads where there is considerable amount of water either in drainage ditches or wider open broads, which afford limited opportunity to people to perceive changes occurring in the wider landscape context.

10.11.166 The general perception when alongside these areas of water is of being contained 'within' the landscape, with the exception of the short sections of the LCT at the shoreline. The eastern edges of LCT 29 extends to the shoreline to cover part of the shingle/dunes area that is typically part of the LCT 05 (Coastal Dunes and Shingle Ridges) – short sections of shoreline associated with LCT 29, of approximately 400m at Covehithe Broad; and 800m at Easton Broad. Although these locations have a distinctive character as areas where these two broads meet the coast, they are not representative of the overall character of these wooded fens.

10.11.167 There is potential for changes to the perceived character of these small areas of the coastal edges of the LCT with offshore sea views, however on balance the effects on the perceived character of the Wooded Fens LCT 29 are considered to be of low magnitude and not significant. Although there is potential for localised effects to the perceived character of small areas of the coastal edges of the LCT with offshore sea views, the aesthetic and perceptual aspects which define its baseline character as a low-lying wooded fen/broad will not be lost and will remain fundamental to defining its character.



10.11.168 The VE array areas will introduce elements that may partially affect the sea views from the edge of LCT29, however due to the distance, separation and position of VE array areas to the east of the existing offshore wind farms, the perceived character of the LCT will be subject to a low magnitude of change. The magnitude of change to the perceived character of LCT28 resulting from the VE array areas is assessed as low and when combined with the medium-high sensitivity of the receptor, the effect of the VE array areas on the perceived character of LCT28 is assessed as **not significant** (moderate/minor), indirect, long-term and reversible.

10.11.169 Excellent visibility will be required for the perceived character of LCT28 to be affected by the VE array areas over 48.9km away. Met Office visibility data indicates 4% visibility frequency at this range. Moderate/minor effects that are assessed in EIA terms under 'excellent' visibility conditions, may be minor or negligible during the remaining period (96%) of less optimal visibility conditions.

IMPACT 16.7: IMPACT (DAYTIME) OF THE OPERATION AND MAINTENANCE OF THE VE ARRAY AREAS ON SPECIAL QUALITIES OF DESIGNATED LANDSCAPES

PRELIMINARY ASSESSMENT

10.11.170 A preliminary assessment of the effects of the operation and maintenance of the VE array areas on the landscape designations within the SLVIA Study Area is presented in Table 10.25 with reference to the ZTV analysis in Volume 6, Part 7, Annex 10.3.33: Seascape, Landscape and Visual Figures 10.11 – 10.15 (Figure 10.15). A detailed assessment follows for each receptor that is identified in the preliminary assessment as requiring detailed assessment.



Table 10.25: Preliminary Assessment of Landscape Designations

Landscape Designation	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
Potential for significant effects that require detailed assessment:			
SCHAONB (including Suffolk Heritage Coast)	37.3 km to SCHAONB 35.8 km to Suffolk Heritage Coast	38.7 km to SCHAONB 37.2 km to Suffolk Heritage Coast	Coastal landscape designation, with potential for long-term, reversible impacts on perceived character and special qualities, arising as a result of views of the construction, operation and maintenance, and decommissioning of the VE array areas (during very good and excellent visibility conditions), which may therefore alter perceived character and qualities. Potential impacts require further assessment, undertaken in paragraphs 10.11.171 to 10.11.280.
Considered in preliminary assessment but found to have no potential for significant effects – scoped out of detailed assessment:			
Bawdsey Manor RPG	47.2 km	48.3 km	Although in a coastal location, substantial woodland screening along the coastal edge of the RPG and within the grounds, limit coastal views from within the RPG and restrict visibility of the VE array areas, as shown in Figure 10.10. Bawdsey Manor and gardens are aligned obliquely to the south-east and is more exposed to the coast, within an area with higher visibility due to less woodland cover along the Pulhamite Cliffs which allows views out to sea (as shown in illustrative Viewpoint C Bawdsey Manor (Figure 10.42). Although the VE array areas may contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be



Landscape Designation	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. There is distinct separation between the RPG and the VE array areas, which combined with distance and limited ZTV, contributes to avoiding significant effects on its perceived character. There is no potential for the perceived landscape characteristics of this RPG to be significantly affected by the VE array areas.
Cliff Gardens and Town Hall Garden RPG	50.2 km	51.4 km	RPG is in a coastal location forming the sea front cliff gardens at Felixstowe which are exposed the coast, within an area with high theoretical visibility with views out to sea, similar to those experience from Viewpoint 11 Old Felixstowe (Figure 10.36). Although the VE array areas may contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. There is distinct separation between the RPG and the VE array areas, which combined with distance and limited ZTV, contributes to avoiding significant effects on its perceived character. There is no potential for the perceived landscape characteristics of this RPG to be significantly affected by the VE array areas.



Landscape Designation	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
Henham RPG	51.2 km	52.3 km	<p>Henham RPG is situated approximately 5 km inland from the coast in a predominantly rural and agricultural (not coastal) setting. The main body of the park is relatively flat with a gentle fall to the east and the Hen Valley crossing the site in the south and forms a shallow, narrow valley. The house sits on a very slight eminence with views south into the parkland, however Henham is completely surrounded by parkland tree belts that limit view into and out of the RPG. The RPG is partially outside the ZTV and partially within areas of low theoretical visibility (Figure 10.10 and 11.15) with views to the coast and the VE array areas restricted by landform and adjoining parkland tree belts and vegetation in the wider landscape, which together with the inland location set back position, limit any coastal views from within the RPG and prevent views of the VE array areas. There is distinct separation between the RPG and the VE array areas, including areas of terrestrial landscape, which combined with distance and limited ZTV, contributes to avoiding significant effects on its perceived character. There is no potential for the perceived landscape characteristics of this RPG to be significantly affected by the VE array areas.</p>
Heveningham Hall RPG	55.3 km	56.8 km	<p>Heveningham Hall RPG is situated approximately 12 km inland from the coast, set in a rural landscape of farmland and woodland, in a low-lying position along the River Blyth. The RPG is situated almost entirely outside the ZTV (Figure 10.10 and 11.15) with views to the coast and the VE array areas restricted by its landform around its low lying position and adjoining scattered mature trees and woodland belts in the surrounding</p>



Landscape Designation	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			<p>landscape, which together with the inland location set back position, limit any coastal views from within the RPG and prevent views of the VE array areas. There is distinct separation between the RPG and the VE array areas, including areas of terrestrial landscape, which combined with distance and limited ZTV, contributes to avoiding significant effects on its perceived character. There is no potential for the perceived landscape characteristics of this RPG to be significantly affected by the VE array areas.</p>
Glemham Hall RPG	49.9 km		<p>Glemham Hall lies along the eastern side of the main A12, Lowestoft to Ipswich Road, approximately 11 km inland to the west of Aldeburgh, in a predominantly rural and agricultural (not coastal) setting. Farmland and woodland encircle the RPG on all sides, set in a gently rolling rural landscape with the landform falling from south to north. The RPG is partially outside the ZTV and partially within areas of low theoretical visibility (Figure 10.10 and 11.15) with views to the coast and the VE array areas restricted by landform and adjoining parkland tree belts and vegetation in the wider landscape, which together with the inland location set back position, limit any coastal views from within the RPG and prevent views of the VE array areas. There is distinct separation between the RPG and the VE array areas, including areas of terrestrial landscape, which combined with distance and limited ZTV, contributes to avoiding significant effects on its perceived character. There is no potential for the perceived landscape characteristics of this RPG to be significantly affected by the VE array areas.</p>



Landscape Designation	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
Campsey Ashe Park RPG	48.5 km	49.9 km	Campsey Ashe Park lies on the inland edge of the Suffolk Sandlings and is set in gently undulating rural, agricultural landscape. Views from the house run north along a double lime avenue and east across the park and adjoining farmland, however the parkland is well wooded with scattered mature woodland belts and trees through the ground and dense woodland plantation at Allen's Covert to the east, which together with the inland location set back beyond the Sandlings, limit any coastal views from within the RPG and prevent views of the VE array areas, as shown in Figure 10.10. There is distinct separation between the RPG and the VE array areas, including areas of terrestrial landscape, which combined with distance and limited ZTV, contributes to avoiding significant effects on its perceived character. There is no potential for the perceived landscape characteristics of this RPG to be significantly affected by the VE array areas.
Woodbridge Cemetery RPG	55.7 km	57.1 km	Woodbridge Cemetery RPG is situated approximately 12 km inland from the coast in an urban (not coastal) setting within the settlement of Woodbridge. Woodbridge Cemetery RPG is surrounded by urban development, housing and mature woodland within Woodbridge and there will be no visibility of the VE arrays from within the RPG. There is no potential for the perceived landscape characteristics of this RPG to be significantly affected by the VE array areas.



SUFFOLK COAST AND HEATHS AONB

INTRODUCTION

- 10.11.171 An assessment of the predicted effects of the VE array areas on the perceived character and special qualities of the SCHAONB and Suffolk Heritage Coast is set out in this section. These landscape designations are mapped in Figure 10.6 and at detailed scale with the ZTV in Figure 10.15.
- 10.11.172 The closest point of the SCHAONB at Orfordness is located approximately 37.3 km from the closest point of the VE array areas and in the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB (Figure 10.6). The SCHAONB extends beyond 60 km outside the SLVIA study area along the River Stour to the south-west. It covers, approximately, the Suffolk coastline stretching from Kessingland in the north to the River Stour in the south. The Suffolk Heritage Coast (Figure 10.6), which overlaps with the coastal areas and estuaries of the AONB, represents that part of the SCHAONB most likely to experience effects arising from the VE array areas. Only the LCTs that define the coastal areas of the SCHAONB, where it joins the sea and has a seascape setting, are those that are susceptible to the influence of the VE array areas. These are identified as the Coastal Dunes and Shingle Ridges (LCT5), Coastal Levels (LCT6), Estate Sandlands LCT (7), Open Coastal Fens (LCT8) and Wooded Fens (LCT28). The effect of the VE array areas on the perceived character of these LCTs that define the baseline character of the coastal areas of the SCHAONB has been assessed as being of low magnitude and not significant in the preceding section of this SLVIA chapter.
- 10.11.173 The assessment of effects of the VE array areas on the character and special qualities of the SCHAONB is informed by these assessments of the LCTs that define its coastal character; but is also based upon published citations that describe the 'special qualities' of the SCHAONB. Special qualities are set out in the AONB Natural Beauty and Special Qualities Indicators report (EDF Energy et al. 2016). The assessment utilises the natural beauty indicators from the AONB special qualities report (Section 2.0), supplemented with further reference to seascape setting and consultations with the ETG, and assesses the significance of effect on the SCHAONB special qualities – landscape quality, scenic quality, relative wildness, relative tranquillity, and natural heritage features, with reference to the LCTs that define the coastal areas of the AONB. Effects on cultural heritage are assessed separately in Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage, due to the inter-relationship with cultural heritage impacts. Cumulative impacts of the VE array areas with other Tier 1 and 2 projects are assessed in Section 10.13



SENSITIVITY TO CHANGE

- 10.11.174 Although there are pockets of the AONB landscape where the baseline conditions are such that the value of particular features or aesthetic dimensions are reduced, the SCHAONB is, as a whole, of high value, recognised through its designation as an AONB. In addition, much of the SCHAONB coast is designated as of European importance for its habitat and for the birds and other species associated with it. Some of these are also recognised internationally as 'wetlands of international importance' (Ramsar sites). The SCHAONB landscape acts as a major tourist destination contributing significantly to the local economy, especially Southwold, Aldeburgh and Thorpeness. The natural landscape with varied coastal habitats and rare birds are valued as an attraction for walkers and wildlife enthusiasts, especially birdwatchers. Amenity value for tourism and leisure activities, especially the extensive network of coastal nature reserves, coastal paths and lowland heaths with open access.
- 10.11.175 The scenic qualities of the SCHAONB have, in part, been influenced by the presence of modern energy generation and transmission infrastructure, particularly Sizewell A and B Nuclear Power Station, which forms a distinctive feature on the coast and in the backdrop to views across the nearby Sandlings Forest and Heaths. The AONB has recognised cultural heritage value through Heritage Coast designation, distinctive built heritage in the landscape such as Martello towers and Cold War buildings on Orford Ness, also add a sense of history to the landscape.
- 10.11.176 The scenic qualities and interest are in part defined by the coast and views out to sea; shingle features of the coast, some vegetated, notably Orford Ness; prominence of short sections of crumbling soft cliffs, such as at Dunwich and Covehithe; bodies of water (broads/saline lagoons) Shingle Street, Benacre and Easton Broads; and seascape setting of the coastal areas of the SCHAONB. There are pockets of relative wildness associated with coast, in this largely farmed and settled landscape. A number of coastal locations within the SCHAONB provide opportunities to experience attributes of relative wildness, including Orford Ness, Minsmere, Dunwich Heath and the marshlands/estuaries, where the character of the landscape and views afforded out to sea and along the coast are a notable part of the experience. The seascape setting of the coastal areas of the SCHAONB contributes to the perception of wildness attributes and relative tranquillity. The nearshore waters and inland waterways are valued sailing/boating areas, especially the Orwell and Deben estuaries with extensive moorings and boatyards.
- 10.11.177 Although the inherent sensitivity of the SCHAONB is high, there is some variation in the sensitivity of the different areas/LCTs within the AONB to the specific nature of the proposed development since the assessment of susceptibility to change is tailored to the proposed development. Full assessment of the sensitivity to change of LCTs within the SCHAONB is contained within the assessment of LCTs in Section 10.11 (Impact 16.6).
- 10.11.178 The effects of the construction and operation of the offshore infrastructure on SCHAONB special qualities are assessed with regards to the landscape quality, scenic quality, relative wildness, relative tranquillity and natural heritage special qualities of the SCHAONB as defined in Table 10.14 from the AONB Natural Beauty and Special Qualities Indicators report (EDF Energy et al. 2016).



LANDSCAPE QUALITY

Intactness of the landscape in visual, functional and ecological perspectives

- 10.11.179 The VE array areas will not result in any direct changes to the current pattern of elements that create the close-knit relationship of semi-natural and cultural landscapes, nor will there be any direct changes to areas of heath and acid grassland, or their national biodiversity value.
- 10.11.180 Landscape quality is 'a measure of the physical state of the landscape' and may include 'the intactness of the landscape and the condition of the individual elements' (GLVIA3, p157). The VE array areas would not affect these aspects of the intactness of the landscape of the SCHAONB, as it would not affect its physical state, only its setting through perceived (visual) change.
- 10.11.181 Changes may occur as a result of the VE array areas to the visual perspective of this landscape quality of the SCHAONB, as a result of views from the SCHAONB rather than changes within it or changes to the intactness of the landscape. Changes to perceived visual qualities may occur as a function of the juxtaposition of elements derived from the views experienced from within the SCHAONB looking out to sea or along the coast. The vast, largely open but partially developed (by offshore windfarm development) seascape forms one of the key characteristics, as part of the simple landscape composition of sea, sky and shingle, and it is this quality that is exposed to changes arising from the VE array areas. In terms of the visual perspective of this landscape quality, the VE array areas do not affect the immediate setting of the SCHAONB, but will be seen on and beyond the horizon, as a 'horizon development' to a large, open seascape, rather than being viewed 'within' its foreground seascape. The VE array areas avoid coastal focal points or complex and enclosed coastal landscapes (in the immediate setting) and tend to lower levels of change when located in the seascape backdrop away from the seascapes at the coast, in locations on or beyond the horizon, generally behind the operational offshore wind farms.
- 10.11.182 The magnitude of change to these perceived (visual) landscape qualities is assessed as low and the effect **not significant** (moderate/minor), indirect, long-term and reversible, with effects also geographically contained to a limited area of the SCHAONB. The effects on these perceived landscape qualities of the AONB are mainly restricted to the coastal edges of the Coastal Dunes and Estate Sandlands LCT5; and to the short sections of Estate Sandlands LCT7 where it forms the coast at Covehithe and Dunwich Heath. These are narrow stretches of coast, where significant effects are focused on the characteristics perceived at the immediate coastal edge of the SCHAONB.



The condition of the landscape's features and elements

10.11.183 The VE array areas will result in a low magnitude of change and **not significant** (moderate/minor), indirect, long-term and reversible effect on the strong overall character of the SCHAONB, with its varied and distinctive landscapes continuing to define its overall character. It is not the overall character or physical features of the coastal edges of the SCHAONB that will be changed, but instead it is specific aesthetic/perceptual aspects of its character at the coast that will experience change, where there are interactions between these aesthetic/perceptual aspects of the sea and the VE array areas. The effects arise as a result of change on these particular visual characteristics, not wholesale change to the SCHAONB's landscape qualities or condition, since there are other elements, features and aesthetic/perceptual aspects that continue to contribute to the character and distinctiveness of the SCHAONB that will not be changed or effected in the same way. The VE array areas would not affect physical condition of the landscape of the SCHAONB, as it would not affect its physical state, only its setting through perceived (visual) change.

The influence of incongruous features or elements

10.11.184 This particular AONB landscape quality is distinct from other qualities described because it recognises the influence of existing 'incongruous' features on the perceived beauty of the SCHAONB. In particular, it refers to the military site at Orford Ness, the Sizewell A and B Nuclear Power Stations and offshore wind turbines at Greater Gabbard and Galloper. The inclusion of these 'incongruous' features as a defined quality of the AONB demonstrates that the AONB is not an entirely 'unspoilt' landscape and that such development influences can become part of the landscape quality or distinctiveness of place, without necessarily resulting in harm to its statutory purpose.

10.11.185 In some localised areas, such as close to Sizewell or close to the Orford Ness Transmitting Station towers, these elements are present to a significant degree and considered to be visually intrusive on parts of the SCHAONB. Although the northern portion of the seascape setting of the SCHAONB is less influenced by 'fixed man-made features', the wider landscape is not entirely without development influence. Often the wider views to the north extend to take in the developed coastline between Kessingland and Lowestoft, with urban areas, tall buildings, commercial development and the Lowestoft Ness Point wind turbine influencing this part of views north; while the massing and dome of Sizewell A and B power stations are often visible as a focal feature in views south along the SCHAONB coastline.

10.11.186 In the context of the other recognised development influences and features, the construction and operation of the Project windfarm site is not considered to be 'incongruous'. Although the VE array areas will increase the influence of visible development in offshore views, it will entirely occur in the context of existing built development elements as it is mainly viewed as being subsumed behind Greater Gabbard and Galloper offshore wind farms, due to its position to the east of these existing wind farms. Although the VE array areas may extend the influence of wind energy development in offshore views, it is generally in keeping with these other aspects of the surroundings and not overtly unusual to what is already present in the setting of parts of the SCHAONB, and that is defined in this special quality.



- 10.11.187 While there are locations where the VE array will result in additional visual effects, for example where it extends the lateral spread of development northwards in views from the northern parts of the SCHAONB, this does not translate to a significant effect on this particular landscape quality, which relates particularly to development influences. The changes associated with the VE array areas are not considered to be visually 'intrusive' in their context, which would necessitate an uncomfortable disrupting influence, or inward projection of effects on the SCHAONB. The VE array areas will be seen on and beyond the horizon, as a 'horizon development' to a large open seascape, rather than being viewed 'within' its seascape/landscape and is mainly within the existing wind farm influenced section of skyline and is not in this sense considered to be 'intrusive'.
- 10.11.188 The VE array areas will form additional large-scale energy development contributing to the characteristics of the coast and its seascape setting, alongside other long-established elements such as Sizewell A Nuclear Power Station and more recent Greater Gabbard and Galloper windfarms. Greater Gabbard and Galloper windfarms are more notable as characteristics in the baseline seascape setting from the southern areas of the AONB, approximately between Aldeburgh and Felixstowe, and Orford Ness. The VE array area will contribute to the existing influence of offshore wind energy development that already form part of the perceived character of these areas of the SCHAONB and add to an already 'cluttered' horizon to the south.
- 10.11.189 On balance, the effect of the VE array areas on this particular special quality is considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. Although the VE array areas will result in additional influence of offshore wind energy development in the perceived character of the SCHAONB, it will not impair, harm or change significantly the perception of this landscape quality, in adding to what is already described as the 'cluttered horizon' from 'some stretches of the coastline'.

SCENIC QUALITY

A distinctive sense of place

- 10.11.190 The VE array areas will not result in any direct changes to the current pattern of elements that create the unique character of semi-natural and cultural landscapes of the SCHAONB. The VE array areas will introduce a further element into the seascape setting of the coastal areas of the SCHAONB, adding to the juxtaposition of different elements perceived from the coastal edges of the SCHAONB and therefore potentially influencing the sense of place. These changes are mainly restricted to the coastal edges of the Coastal Dunes and Estate Sandlands LCT5, especially between Southwold, Orford Ness and Bawdsey; and to the short sections of Estate Sandlands LCT7 where it forms the coast at Covehithe and Dunwich Heath.



- 10.11.191 The VE array areas may result in some changes to the sense of place and character perceived from the SCHAONB, as a result of its addition to the juxtaposition of elements in the seascape setting. Changes to the scenic qualities will occur as a result of views from the SCHAONB out to sea and along the coast, rather than internal views or changes to landscape or elements within the SCHAONB. The construction and operation of the offshore infrastructure will result in a partial reduction of open sea skyline in long distance and panoramic views out to sea and along the Heritage Coast, from some vantage points, due to the additional lateral spread of wind turbines on the seaward horizon to the north of Greater Gabbard and Galloper, experienced from parts of the AONB coastline. In views from the southern parts of the SCHAONB between Orford Ness and Bawdsey, the VE array areas only add to the existing juxtaposition of WTG elements in offshore views, being subsumed behind and to the east of Greater Gabbard and Galloper.
- 10.11.192 On balance, the effect of the VE array areas on the distinctive sense of place of the SCHAONB is considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. The effects on scenic qualities are focused on the characteristics perceived at and limited to the immediate coastal edge of the SCHAONB. The distinctive sense of place of the SCHAONB will continue to be defined by its unique character, semi-natural and cultural landscapes and built heritage features.

Striking landform

- 10.11.193 The VE array areas will not result in any direct or physical changes to the striking landform features of the SCHAONB (coastal cliffs, shingle spits, estuaries and beaches) that will continue to fundamentally define the landform of the coastal areas of the SCHAONB in their current and dynamic form. The VE array areas will however, introduce further wind energy development influence in the offshore backdrop of views across the coastal cliffs, shingle spits, estuaries and beaches when viewed from the coastal areas of the SCHAONB and may result in a partial loss of open sea skyline in long distance and panoramic views out to sea from coastal viewpoints in the northern part of the SCHAONB, where it slightly extends the northern lateral spread of WTGs adjacent to Greater Gabbard and Galloper windfarms. The VE array areas will not however affect the immediate setting of these striking landform features of the SCHAONB, but will be seen on and beyond the horizon, as a 'horizon development' to a large open seascape, rather than being viewed 'within' its immediate seascape/landscape. In views from the southern parts of the SCHAONB between Orford Ness and Bawdsey, the VE array areas will be located within the windfarm influenced skyline, subsumed behind and to the east of the existing Greater Gabbard and Galloper windfarms.
- 10.11.194 On balance, the physical effect of the VE array areas on the striking landforms of the SCHAONB is assessed as zero; while the perceived effect on the views across these striking landform features is considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. The striking landform features of the SCHAONB (coastal cliffs, shingle spits, estuaries and beaches) will continue to fundamentally define the landform of the coastal areas of the SCHAONB in their current form.



Visual interest in patterns of land cover

10.11.195 The VE array areas will result in zero change and a **not significant** indirect, long-term and reversible effect to the pattern of land cover of the SCHAONB, its varied habitats and land cover mosaic, or the seasonal differences that they display.

Appeal to the senses

10.11.196 The VE array areas may result in some subtle changes to the relationship of constituent features, for example from exposed areas on the coast, and the juxtaposition of colours and textures in coastal areas, with the addition of further modern white/grey wind turbines in the seascape backdrop adding to the contrast with natural colours/textures of the coast. The technological appearance of the wind turbines in views from localised areas of the coast is likely to contrast with the perceived naturalness of the vegetated shingle habitat/reedbeds/marshes/low cliffs that define the character of the coast, however they will also relate rationally to the exposure, large scale, existing WTGs and austere character of parts of the coast.

10.11.197 The VE array areas may introduce further visible elements in sea view component of the large open vistas across heaths and along the coast out to sea from localised areas of the coast. The VE array areas may contrast or compete with other landmarks along the coast and out to sea as a focal point, however the relatively low elevation of the heaths, simple form of the coastline, long distance offshore and position mainly behind other windfarms, reduces the potential to compete with landmarks within the SCHAONB. The open sea skyline of the large vistas would remain unaffected across the majority of the field of view out to sea, with limited additional increase in lateral spread of WTG development, and the large scale of the open sea vistas with 'horizon development' are more likely to be able accommodate windfarm development than smaller scale, complex seascapes.

10.11.198 Due to the relatively subtle changes to the relationship of constituent features and visible elements in sea view component of the large open vistas, the effect of the VE array areas on these qualities of the SCHAONB is considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. The fundamental sense of openness and exposure on the coastline and Sandlings Heaths would not be lost as a result of the VE array areas and would continue to be experienced in their presence.

Memorable or unusual views and eye-catching features or landmarks

10.11.199 The visual effect of the VE array areas has been assessed from a series of representative viewpoints within the SCHAONB that demonstrate memorable or unusual views, often with particular features or landmarks, and the assessment (Volume 6, Part 7, Annex:10.2: Seascape, Landscape and Visual Viewpoint Assessment) has found that changes to these will be of low magnitude.



- 10.11.200 The VE array areas may be seen with other landmarks along the coast and out to sea as an additional focal point, however due to the relatively low elevation of the heaths, simple form of the coastline and its long distance offshore, the VE array areas will be seen on and beyond the horizon, as a 'horizon development' and located with the same part of the offshore views as other wind farms, which will substantially limit its potential to compete with landmarks within the SCHAONB. The open sea skyline of the large vistas would remain largely unaffected across the majority of the field of view out to sea, due to the limited increase in lateral spread, and the large scale of the open sea vistas are more likely to be able accommodate windfarm development than smaller scale, complex seascapes.
- 10.11.201 The magnitude of change of change to the memorable and unusual views, features and landmarks of the SCHAONB is assessed as low and the effect **not significant** (moderate/minor), indirect, long-term and reversible. Memorable views and views to landmarks including historic structures, along with more modern structures, will fundamentally continue to be experienced in their current form without significant changes as a result of the VE array areas, and any changes will be geographically contained to the coastal edges of the SCHAONB.

Characteristic cognitive and sensory stimuli

- 10.11.202 'Big Suffolk Skies' are notable from open locations along the coast, however the VE WTGs may only be apparent over a small vertical angle of this wide arc of skies, a very small proportion of the big skies, and that they occur at its very edge (i.e. at the horizon). The vertical height of the WTGs relative to the 'Big Suffolk skies' will be small in scale, due to their long distance offshore and the large scale of the seascape. The sky element of offshore views still occupy the vast majority of the view with the VE array areas potential present on the horizon. Numerous other influential development elements on the land within the SCHAONB influence the 'Big Suffolk Skies' to a greater degree than the VE array areas when viewed from their local environment.
- 10.11.203 The sensory stimuli to which this special quality refers, including sounds, smells, characteristics of the weather, and quality of light/space will not be affected by the VE array areas. Fundamentally these stimuli would continue to be experienced regardless of the presence of the VE array areas. Due to the lack of effect on these qualities, combined with the small part of 'big Suffolk skies' affected by the VE array areas, the effect of the VE array areas on these cognitive and sensory qualities of the SCHAONB is considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. The location of the VE array areas on the distant skyline, largely behind other wind farms, ensures that they would not significantly alter the perception of big 'Suffolk skies'.

RELATIVE WILDNESS

A sense of remoteness

- 10.11.204 The indicator for this sense of remoteness experienced within the SCHAONB is defined in the AONB special qualities report as being '*distant from, or perceived as distant from, significant habitation*'. Clearly, the VE array areas will not increase the proximity of habitation to the SCHAONB or influence its remoteness in that sense. It may, however, increase the perceived influence of apparent human activity as result of the introduction of other modern, man-made structures in the seascape setting.



- 10.11.205 The East Suffolk coastline is an area that has been transformed by the impact of people, including coastal settlement, which has reduced the sense of remoteness to '*pockets of relative wildness*' within the SCHAONB. It has a long-established inter-relationship between people using and interacting with the sea/maritime environment.
- 10.11.206 It can be challenging to access parts of the SCHAONB coastline, particularly the estuaries, marshes and mudflats, which increases its sense of remoteness, however there is vehicular access along roads that end at the coastline, and occasionally along linear roads along the coast, but with the main linear coastal route being the Suffolk Coast Path. While there is a sense of remoteness from within some of these locations traversed by the Suffolk Coast Path, in fact they are often no more than a few kilometres from human influences, in the form a public car park, settlement, tourism facilities, farmland or forestry plantation.
- 10.11.207 Relative wildness is a product of people's perceptual response to certain physical attributes in the landscape. 'Physical attributes' and 'perceptual responses' are therefore used as the measure by which changes in experience are assessed.
- 10.11.208 Due to the location of the VE array areas outside the SCHAONB, no physical attributes contributing to wildness special qualities will be changed. For example, it will not introduce modern artefacts into the SCHAONB itself, nor directly change the land use or its landform features, nor will it make a remote area of the SCHAONB more accessible (such as through the introduction of roads or access tracks).
- 10.11.209 Since it cannot directly change the physical attributes of the AONB, the location of the VE array areas over 37.3 km outside the SCHAONB boundary makes it unlikely to result in higher levels of change to the relative wildness of the SCHAONB.
- 10.11.210 The VE array areas may only affect perceptual responses of wildness, i.e. people's perception evoked by physical attributes, such as the sense of sanctuary or solitude, sense of remoteness, sense of awe or anxiety, or inspiring qualities of the landscape.
- 10.11.211 Only in exceptional circumstances relating to scale, siting or design will development outside the SCHAONB have a significant effect on its relative wildness, for example, if the development were located particularly close to the coastline boundary of the SCHAONB within its immediate seascape setting; or being of such large scale that its apparent size resulted in immediate and fundamental change to the experience of relative wildness within the SCHAONB.
- 10.11.212 The VE WTGs will occupy a very small vertical angle and apparent size, and not one that would be considered as having a particularly intrusive effect on the sense of remoteness experienced from pockets of the SCHAONB coastline.
- 10.11.213 Although the VE array areas may be visible in the seascape setting of the SCHAONB and therefore not completely dissociated with it, at distances over 37.3 km it is considered to be relatively remote from the SCHAONB and therefore its influence on the experience of remoteness within the SCHAONB is diminished.



- 10.11.214 This particular SCHAONB special quality relates to the sense of remoteness, which is experienced from '*pockets of relative wildness associated with the coast, estuary and forests*'. The geographic locations of these 'pockets' are not defined in the SCHAONB special qualities report, however they are considered as relating particularly to the pockets of open coastal fens and estuaries/marshlands near the coast. The assessment has found that the visual containment of these low lying estuaries and fens of the AONB by the intervening raised dunes and shingle landforms along their eastern edge, reduces their association and the resulting changes arising from the VE array areas.
- 10.11.215 The introduction of the VE array area in the coastal backdrop located well outside and at distance (over 37.3km), removed from the association of the sea (which is often not visible), would constitute a new, but relatively minor alteration to perceived wildness of the coast, estuaries and forests, removed from and in the background to the main elements that define character.
- 10.11.216 By definition of 'pockets of relative wildness', the geographic extent of changes to the sense of remoteness is not widespread and will be very limited to these isolated 'pockets', with the vast majority of the SCHAONB landscape experiencing negligible changes to the sense of remoteness perceived.
- 10.11.217 Overall, the changes arising from the VE array areas will not affect the sense of remoteness perceived within the SCHAONB to the degree that the qualities are substantially eroded and are therefore considered to be not significant.
- 10.11.218 The assessment has identified effects on the coastal areas of the SCHAONB resulting from perceived changes to the long distance, open sea views occurring through partial loss of open sea skyline in the simple landscape composition. The assessment does not directly associate these effects with significant effects on the perception of relative wildness – which is a product of people's perceptual response to certain physical attributes in the landscape. While on the one hand wind energy development may contrast with the perception of wildness, such as those associated with physical elements in the SCHAONB, the VE array areas may also be perceived as relating legibly to the coastal exposure and inclement conditions experienced, particularly in areas with wildness associated with the coast.
- 10.11.219 The location of the VE array area out at sea influences its perceived effect on wildness. The perception of wildness associated with the sea is different to the landward areas of the SCHAONB as it is shaped by many other factors and associations of the sea, which has shaped the lives of local inhabitants, with its ships and fishing, storms and lifeboats, maritime trade and transport. The influence on relative wildness of the VE array area in the seascape well outside the boundaries of the SCHAONB is therefore different and less contrasting from some of the perceived coastal/seascape wildness attributes in this context. The wildness experienced along the coast is often most readily experienced where the grey seas are whipped by north-easterly winds that challenge the land, where the bleakness of the sea, its dynamism and coastal exposure are readily evident. The VE array area readily relate to and conveys in its aesthetic and kinetic form, these wildness attributes associated with the coast and the seascape setting of the SCHAONB.



10.11.220 On balance, the effect of the VE array areas on the sense of remoteness of the SCHAONB is considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. Although the VE array areas will result in additional influence of offshore wind energy development in the perceived character of the SCHAONB, it will not significantly change the sense of remoteness.

A relative lack of human influence

10.11.221 This special quality relates to the relative wildness gained through the relative lack of human influence of the SCHAONB, and the *'largely undeveloped coastline and offshore areas'* is one indicator of the quality, although there are other indicators relating to the semi-natural habitats (which will not be changed) and heritage assets.

10.11.222 Although it may be visible from the coast, the VE array areas will not physically introduce development into the 'undeveloped coastline' and changes are relevant to the *'largely undeveloped.... offshore areas'*, as perceived from the coast. The lateral spread of the VE array areas will be located entirely behind other windfarms in views from the southern SCHAONB coastline, only extending the lateral spread in views from north of Orford Ness, where it will still occupy a relatively small portion of the wider panorama of the offshore area viewed from the SCHAONB. The open sea skyline would remain unaffected across the majority of the skyline, such that offshore areas viewed from the coastline will remain largely undeveloped (in the context of the project alone).

10.11.223 The influence of a *'small number of large scale and industrial elements on the coast of the AONB'.... 'notably Sizewell A and B and the former military site at Orford Ness'....* and *'offshore wind turbines at Greater Gabbard and Galloper and the more distant London Array'* is also recognised in the AONB special qualities report, which also highlights *'these create a cluttered horizon'*.

10.11.224 The seascape setting of the SCHAONB is therefore not currently free of fixed man-made structures. The perceptual qualities are diminished to a degree by other influences, which is acknowledged in the published landscape character assessments and evident during the survey work undertaken for the SLVIA. The visual influence of Sizewell A and B Nuclear Power Station is prominent and detracts from the natural beauty of the AONB. The Touching the Tide LCA (Touching the Tide Partnership, 2012) identifies that *'the white dome of Sizewell B and the concrete hulk of Sizewell A power stations are a key landmark. In close proximity to the power station the scale of the buildings and associated power lines dominate the landscape such that other landscape features and activities feel small and insignificant'* (p23); that *'Large built structures such as Sizewell power station ... can also have a profound effect on the character of the area'* (p55) and *'Large-scale structures such as Sizewell and Port of Felixstowe will have a continuing and significant visual impact on the character of this landscape type'* (p59), together with *'a steady pressure of suburbanisation and tourism related development associated with coastal settlement is evident within this landscape, eroding the rural character'* (p62).



10.11.225 Overall, it is considered that a relative lack of human influence of the SCHAONB will continue to prevail and influence the perceived wildness of the SCHAONB, with large areas of uninterrupted land and sea, albeit in the presence of dramatic and contrasting developments such as Sizewell A and B nuclear power station, Orford Ness transmitting station, commercial dock development and offshore wind farms, with that the addition of the VE array areas in this context assessed as being of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible.

A sense of openness and exposure

10.11.226 The VE array areas may extend the influence of the visible WTG element in the sea view component of the expansive views offshore from the heaths and along the open coast out to sea. The VE array area may increase the influence, density and scale of WTGs within the wind farm influence section of the sea skyline, as an element that may appear to define the limit of the view on the horizon, however due to the relatively low elevation of the heaths, simple form of the coastline and its long distance offshore, the VE array area will be seen on and beyond the horizon, as a 'horizon development' and mainly behind existing wind farms, with reduced potential to change the openness and exposure experience within the SCHAONB.

10.11.227 Fundamentally, the openness and exposure experienced from the coastline and the Sandlings heaths would continue to be experienced in the presence of the VE array areas, even though it forms a visible element in views. The large scale of the expansive views offshore are more likely to be able accommodate windfarm development than smaller scale, complex seascapes. The vertical height of the wind turbines relative to the vast skies will be relatively moderate in scale, due to their long distance offshore and the large scale of the seascape and will relate rationally to the sense of openness and exposure along the SCHAONB coastline. Changes to this quality occur from the AONB, rather than on it, with changes to the vistas across the coast and heaths derived from the views experienced from within the SCHAONB out to sea or along the coast.

10.11.228 The changes identified affect the special quality relating to expansive views offshore from the localised coastal areas of the SCAONB. On balance, the effect of the VE array areas on the sense of openness and exposure of the coastal areas of the SCHAONB is considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. Although the VE array areas will result in additional influence of offshore wind energy development in open sea views, the fundamental sense of openness and exposure will remain and continue to be experienced.

A sense of enclosure and isolation

10.11.229 No physical attributes contributing to wildness special qualities will be changed as a result of the VE array areas. The location of the VE array areas outside the AONB may only impact on perceived experience of these wildness attributes. The VE array areas will not result in any direct changes to the forestry plantations within the AONB that create the sense of enclosure and isolation along the coast and on the Sandlings heaths.



- 10.11.230 The VE array areas will generally not be visible at all from the enclosed forested landscapes of the SCHAONB, due to the dense forest cover, and will result in negligible change to the qualities of enclosure and isolation of these Sandlings forests. Changes resulting from the VE array areas on the more open and exposed areas of the coast and heaths are assessed in the above special quality.
- 10.11.231 The VE array area is relatively 'permeable' and does not create 'enclosure' with views between turbines to the sky beyond and between (while varying with the density of the turbine array) as evident in the ES photomontage visualisations in Figures 10.26 – 11.46. The apparent height of the VE WTGs is relatively small due to their distance offshore and would not provide a sense of enclosure, due to the large portion of the big skies that will remain undeveloped.
- 10.11.232 Due to its long distance offshore and the simple form of the coastline, the VE array areas will be seen on and beyond the horizon, as a 'horizon development' to a large open seascape, rather than being viewed 'within' its seascape/landscape and it does not enclose sections of complex or indented coastline or bays.
- 10.11.233 On balance, the effect of the VE array areas on the sense of enclosure and isolation of the SCHAONB is considered to be of negligible magnitude and **not significant** (minor), indirect, long-term and reversible. Although the VE array areas will result in additional influence of offshore wind energy development in open sea views, the sense of enclosure and isolation gained from areas within Sandlings Forest will continue to be experienced and the VE array areas would not provide a significant addition to the enclosure in coastal views, due to the large portion of the big skies and open sea views that will remain undeveloped.

A sense of the passing of time and a return to nature

- 10.11.234 The introduction of the VE array areas may increase the evidence of apparent human activity as a modern intervention in the distant seascape setting to the SCHAONB, however it will not directly influence the land use within it and the opportunity to 'return to nature' will continue to be available within the semi-natural landscapes of the SCHAONB.
- 10.11.235 The effects of development on '*a sense of the passing of time*' in the landscape is a relatively abstract quality. A sense of the passing of time being evident in landscape is arguably more likely to be gained in a landscape where both historic and modern elements form aspects of character and can be perceived and understood in the same landscape where there is a visible time depth and also seasonal changes. The inherent character, together with historic changes relating to human activities and more recent modern interventions can then be experienced and appreciated together.
- 10.11.236 The indicator described for this special quality in the AONB special qualities report refers to landscape and seascape, along the coastline, where there is '*little evidence of apparent human activity*'. These may be landscapes in which a perceived naturalness and sense of earlier times may be experienced, but this does not necessarily equate to a sense of the passing of time. A sense of the passing of time could be increased by the presence of an offshore wind farm, such as where modern wind turbines are viewed in combination with an old windmill, for example at Westwood Marshes Mill, where the passing of time between old and new methods of harnessing the wind will be evident in the experience of this coastal landscape.



- 10.11.237 Many of the coastal marshes and landscapes along the coast have been subject to modification and human intervention over time, with the draining of marshes for grazing and introduction of sea walls. The limited amount of settlement also belies the previous extent of occupation of parts of the coast, the former settlements/ports of Sizewell and Dunwich having been lost to the sea. The introduction of the VE array areas may, however, increase the evidence of apparent human activity as a modern intervention in the distant seascape setting of the semi-natural landscapes of the SCHAONB. The distance of the VE array areas offshore outside the SCHAONB in locations on or beyond the seascape horizon ('horizon development'), and not within its immediate setting where it avoids coastal focal points and complex/enclosed coastal landscapes, will reduce the perception of introducing new human artefacts/structures and hereby minimise the change to the perception of this wildness quality.
- 10.11.238 The technological appearance of the wind turbines may contrast with the perceived naturalness of these landscapes, evident in the least developed pockets of the SCHAONB coastline, but also represent the visual aesthetic of green/sustainable energy which may be perceived as having positive visual associations with the conservation of the natural environment.
- 10.11.239 The changes identified do not affect the strength of the wildness perceived within the SCHAONB to the degree the qualities are substantially eroded and are considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. The geographic extent of changes in this perceived wildness quality is also very limited to isolated pockets of landscape, with the vast majority of the SCHAONB landscape experiencing negligible changes to the wildness attributes perceived.

RELATIVE TRANQUILLITY

Contributors to tranquillity

- 10.11.240 Relative tranquillity is a product of a wide range of environmental attributes (both natural and man-made) found within a specific location. It is how these elements combine and are then sensed, mostly through seeing and hearing, by an individual which generates an experience of tranquillity.
- 10.11.241 GLVIA3 defines tranquillity as '*a state of calm and quietude associated with peace*', and there are many references to noise/hearing forming a key part of tranquillity in the CPRE Tranquillity Report (Northumbria University, 2008 revised), which is also useful in defining the terms '*seeing, tranquillity*' and '*hearing, tranquillity*'. With respect to the hearing (noise) aspect of tranquillity, the VE array areas will have no effect. The VE array areas will result in no audible changes to the existing sounds of tranquil areas of the SCHAONB.
- 10.11.242 The effect of the VE array areas may only be on the visual aspects of tranquillity, relating to what is seen by people and whether its visible elements detract from the perception of such tranquillity. Many of the visual aspects of tranquillity relate to the perception of natural landscapes, trees, woodland, streams, rivers, lakes etc. The AONB Special Qualities report defines these as '*the presence and / or perceptions of natural landscape, birdsong, peace and quiet, natural looking woodland, stars at night, streams, sea, natural sounds and similar influences*'. The VE array areas will have no effect on all these indicators, except for 'the sea'.



- 10.11.243 Simply seeing wind turbines on the sea horizon would not, however, be sufficient to negate opportunities to experience tranquility. This would suggest that all other visual aspects of tranquility, such as those described above in the AONB special qualities report, would be denied in the presence of the VE array areas. Other aspects of the natural environment which contribute to the experiences of tranquility within the SCHAONB would continue to prevail and do provide some mitigation to the additional influence of the VE WTGs.
- 10.11.244 The seascape setting of the coastal areas of the SCHAONB contributes to the relative tranquility, particularly in good weather conditions and during calm seas, with the visual tranquility provided by the perceived endlessness of the sea aspect. The coastal areas of the SCHAONB contain a number of locations with the opportunity to experience a sense of relative tranquility which is above that which is available elsewhere in the SCHAONB. These locations coincide with, but are not limited to, the areas of relative wildness referred to above, however other more discrete locations along the coast can also provide this experience. The CPRE Tranquillity Report (Northumbria University, 2008 revised) splits the 'undisturbed areas' of the SCHAONB to a northern section, between Dunwich, Southwold and Coverhithe; and a southern section formed by Orford Ness, the River Ore/Butley and inland areas around the Tunstall and Rendlesham Forests. Pockets of corresponding more tranquil areas are shown in Figure 1 around Covehithe/Easton Broad area in the north of the AONB; Dunwich Forest/Heath/Westwood Marshes and Minsmere in the central part of the AONB; and Orford Ness/River Ore/Butley areas in the south of the AONB.
- 10.11.245 The introduction of the VE array areas in the offshore waters will increase the evidence of apparent development and human activity, as a modern intervention in the distant, but not immediate, seascape setting of the coastal landscapes of the SCHAONB. The VE array areas will not directly change the physical pattern of elements within areas of semi-natural habitat, but instead introduces development influence in the offshore waters that form the seascape setting to the SCAONB, as viewed from the relatively undeveloped character of parts of the Suffolk coast. The technological appearance of the wind turbines and the visual movement of the rotor blades may contrast with the perceived tranquillity of these landscapes, evident in the least developed pockets of the SCHAONB coastline.
- 10.11.246 The VE array areas may introduce visible man-made structures (wind turbines) which incorporate a kinetic element into an otherwise relatively undeveloped seascape, thereby affecting the potential for people to experience tranquillity in these locations. The relatively slow visual movement of the turbine rotors and long distance offshore reduces the potential changes in perceived tranquillity, with effects likely to be infrequent due to the long distance offshore and the prevailing weather conditions that influence visibility at such distance. In certain visibility conditions the movement of the rotor blades would be visible, however a material sense of unrest/ disturbance of calmness and quietude would not be induced by this slow and consistent visual movement, especially at such distance outside the AONB.



- 10.11.247 The VE array areas will introduce some changes to the tranquility experienced in sea views, as an element that further interrupts or defines a presence or limit on the perceived endlessness of the aspect out to sea, however it will in no changes to inland areas of the SCHAONB away from the immediate coastline where there is no appreciation of the tranquil seascape setting. The geographic extent of changes in this perceived wildness quality is also very limited to isolated pockets of landscape, with the vast majority of the AONB landscape experiencing negligible changes to the tranquility attributes perceived.
- 10.11.248 The changes identified do not affect the strength of the tranquility perceived within the SCHAONB to the degree the qualities are substantially eroded and are considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. Opportunities to experience a sense of tranquillity will remain as the windfarm element will not over-ride the naturalistic elements in the landscape that are the basis for calm and tranquillity. The opportunity to experience tranquillity in a naturalistic environment will not be changed to a significant degree by the VE array areas, located over 37.3 km away from the SCHAONB. Other natural heritage features will prevail and continue provide opportunities to experience a sense of relative tranquillity within a natural environment, i.e. a peaceful, calm state, without noise in a natural setting.

Detractors from tranquillity

- 10.11.249 Large scale urban areas located just outside and to the north of the SCHAONB at Kessingland and Lowestoft form notable areas of intrusion (CPRE Tranquillity Report (Northumbria University, 2008 revised) with least tranquillity. Urban areas at Southwold, Reydon and Aldeburgh within the SCHAONB, and Leiston on its inland edge, also form notable areas of intrusion with least tranquillity. Southwold and Aldeburgh are busy coastal towns with large numbers of seasonal tourist visitors. Areas disturbed by noise and visual disturbance in the Intrusion Map (Figure 2) include the land around these settlements; together with areas alongside main transport routes, particularly the A12, running along the inland northern edge of the SCHAONB; but also extending along certain B roads towards the coast and along overhead power lines. There is a large area in the Intrusion Map (Figure 2) shown as being disturbed by noise and visual disturbance associated with the area around Sizewell, between Aldeburgh, Thorpeness, Sizewell, Leiston and Minsmere.
- 10.11.250 The construction and operation of the VE array areas will result in negligible changes to these areas of the SCHAONB that already have detractors to tranquillity and low levels of tranquillity in the baseline, such as the areas identified with busy coastal towns with large numbers of seasonal tourist visitors and urban development/road traffic being prevalent.

NATURAL HERITAGE FEATURES

- 10.11.251 The effect of the VE array areas is assessed as being of zero magnitude and **not significant**, indirect, long-term and reversible on all SCHAONB natural heritage features special qualities. The VE array areas will result in:
- > No direct changes to the characteristic expressions of geology which mark the boundary of the AONB or the striking expressions of geology and sedimentation that defines the crumbling coastal cliffs;



- > No direct physical landscape changes to the varied, nationally and internationally protected sites such as SSSI, SPA and SAC; and
- > No changes to the dynamic coastal regimes and resulting transitions in character.

10.11.252 The appearance of a distant offshore windfarm would not change the fundamental characteristic of the dynamic coastline and geomorphological features of the coast, or the dynamic processes that will continue to fundamentally shape the coastal environment and its distinctiveness.

10.11.253 Effects on wildlife and habitats are considered in Volume 6, Part 3, Chapter 4: Onshore Biodiversity and Nature Conservation and Volume 6, Part 2, Chapter 4: Offshore Ornithology.

CULTURAL HERITAGE

10.11.254 The effect of the VE array areas on the setting of cultural heritage assets is assessed in Volume 3, Chapter 7: Archaeology and Cultural Heritage, with respect to whether heritage significance could be affected through development of the VE array areas within their settings. No significant indirect effects have been identified as a result of the VE array areas arising from the change to setting affecting the heritage interests that make up the heritage significance of assets within the SCHAONB.

10.11.255 The introduction of the VE array areas will be an addition within the wider coastal setting and views out to sea from the coast near a number of heritage assets on the SCHAONB coastline, however the VE WTGs will not affect the ways in which the interests of these assets are appreciated from their immediate setting. The immediate setting of the assets will not be changed and the historic interests of the assets will be preserved. These assessments have been made in Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage and negligible effects have been assessed.

10.11.256 Based on the findings of Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage, the effect of the VE array areas on the cultural heritage special qualities of the SCHAONB is considered to be of negligible magnitude and **not significant** (minor), indirect, long-term and reversible. The VE array areas will result in no physical effects to the built environment, archaeology, historic landscape elements or characteristic land management practices within the SCHAONB.

SUMMARY OF EFFECTS ON AONB SPECIAL QUALITIES

10.11.257 The effects of the VE array areas on SCHAONB special qualities have been assessed as being of low to negligible magnitude and not significant, as described above and summarised in Table 10.26. Very good or excellent visibility will be required for the perceived character of the SCHAONB's special qualities to be affected by the VE array areas over 37.3km away. Met Office visibility data indicates 21% visibility frequency at this range. Moderate/minor and minor effects that are assessed in EIA terms under 'very good' or 'excellent' visibility conditions, may be negligible during the remaining period (79%) of less optimal visibility conditions.



- 10.11.258 The effects of the VE array area on the SCHAONB and specifically its special qualities largely relate to views of VE WTGs out to sea and beyond the seascape horizon seen from a number of locations, but not continuously, along a stretch of the SCHAONB's coastal fringe between Kessingland, Orford Ness and Bawdsey.
- 10.11.259 The views of the VE WTGs will be seen only in good weather conditions with very good visibility and therefore on only limited occasions throughout the year. When visible, they would be seen in the context of a vast seascape where the WTGs will be located beyond the visible horizon and at distances of 37.3 km from SCHAONB to the closest point of the VE array areas.
- 10.11.260 During very good visibility they would also be viewed in the context of the Greater Gabbard and Galloper wind farms, appearing to slightly extend the lateral spread of WTGs to the north on the sea skyline in views from northern parts of the AONB (north of Aldeburgh), however in views to the south of Aldeburgh, the VE array areas will be subsumed entirely behind and to the east of the Greater Gabbard and Galloper wind farms, which minimises the magnitude of change.
- 10.11.261 The resulting effects of the VE array areas on the SCHAONB therefore, when judged alongside the more general effects, cannot and do not overwhelm the assessment of the overall impact on the SCHAONB which is minimal.
- 10.11.262 The design of the VE array areas has also sought, through good design and a design iteration process, to minimise the effects upon the special qualities of the SCHAONB and through that its Natural Beauty, insofar as this can be achieved in relation to siting and functional constraints. This accords with the requirements of NPS EN-1 policy.
- 10.11.263 The natural beauty and special qualities which relate to the identified effects are those where the indicator relates to, or is supported by, an aspect concerning the visual contribution made by seascape to the SCHAONB and the SCHAONB's relationship with this seascape.
- 10.11.264 The interrelationship between the landscape and the sea is stated in the Indicators Report to contribute to 'Landscape Quality' as it also does to 'Scenic Quality'.
- 10.11.265 In relation to the 'Scenic Quality' indicator and its sub-element 'Striking Landform', this is informed by long distance and panoramic views out to sea and along the heritage coast, and these views also form an element of the visual interest in the patterns of land cover.
- 10.11.266 Views out to sea are also an element of the sensory factors discussed in the document, where large open vistas across heaths and along the coast out to sea form part of the memorable views alongside the 'Big Suffolk Skies'.
- 10.11.267 With the distance that the VE array areas lie off the Suffolk coast, the assessment establishes that there will remain a vast and open seascape with wide panoramic views, notwithstanding the visibility of the proposed VE WTGs.
- 10.11.268 The turbines would not interrupt or block views due to their location more than 37.3km offshore from the SCHAONB coastline, and because they will only be seen on and indeed beyond the very distant skyline and not in front of or interrupting that skyline and the sweep of seascape leading up to it.



- 10.11.269 The largely undeveloped coastline and offshore areas is also cited, although again the established presence of energy development is acknowledged as forming a part of the established character, including both Sizewell A and B Power Stations, and the existing Greater Gabbard and Galloper Wind Farms.
- 10.11.270 The SCHAONB is in part characterised by its established and evolving energy development and that this is not wholly harmful but both part of the story and future of the Suffolk Coast and the SCHAONB.
- 10.11.271 In the special qualities assessment, the nature of the effects is reported alongside the magnitude of change and a determination is made as to their significance taking the contribution they make to the Natural Beauty.
- 10.11.272 Effects are assessed against each specific SCHAONB indicator, meaning that the VE array areas may have effects on certain 'indicators' of quality, while having no effects on other 'indicators' of the same overall landscape quality.
- 10.11.273 An example of this, would be in relation to 'landscape quality' it effects the 'juxtaposition of elements' (part of visual quality), while having no effects on 'important areas of heath and acid grassland' (part of the landscape quality).
- 10.11.274 Effects on one indicator of a special quality does not translate to a significant effect on the overall 'intactness of the landscape' as described in the main 'sub-factor' of landscape quality – since in the above example, the VE array areas have no effect on the landscape fabric of the SCHAONB, the critical indicator of 'intactness'.
- 10.11.275 The assessment is described with full narrative to draw out these distinctions and highlight the particular indicators of the special qualities that are affected and those that are not affected. Effects on special qualities are summarised in the Table 10.26.
- 10.11.276 Of the 35 indicators of special quality assessed, none have been found to be affected significantly, due the low magnitude of change that is assessed. Some of the indicators of special quality will be subject to zero change.
- 10.11.277 The key special qualities that may be subject to low levels of change are the qualities relating to:
- > 'Juxtaposition of elements in a relatively small area';
 - > 'Long distance and panoramic views including out to sea';
 - > 'Open vistas across heaths and along the coast, out to sea'; and
 - > 'Expansive views offshore emphasise sense of openness and exposure on open and exposed coastline'.
- 10.11.278 They are all visual qualities and are not related to 'landscape fabric' of the SCHAONB. The fabric of the physical landscape is the key matter influencing natural beauty of AONBs. The visual aspects of perceived character of areas outside the SCHAONB are of lesser weight to the special qualities.
- 10.11.279 The assessment also puts these effects into an appropriate context in terms of location and duration of effects, whether or not they are temporary or reversible and their geographical extent.



10.11.280 Their effect upon the Natural Beauty of the SCHAONB is assessed and it is concluded that although the VE array areas may result in some not significant (moderate/minor) effects of low magnitude on the identified special qualities, the purposes of the SCHAONB designation will not be compromised, nor the integrity of the SCHAONB and its fundamental character. This Suffolk coast and heaths will remain an area of outstanding natural beauty and can accommodate the change that will be brought about by the VE array areas without significant effects to its baseline character and qualities.



Table 10.26: Summary of effects on SCHAONB Special Qualities

Factor	SCHAONB Indicator	Effect
Landscape quality		
Intactness of the landscape in visual, functional and ecological perspectives	<p>Juxtaposition of elements in a relatively small area.</p> <p>Close-knit interrelationship of semi-natural and cultural and built heritage features.</p> <p>Important areas of heath and acid grassland, protected species populations.</p>	Not significant
The condition of the landscape's features and elements	Strong overall character.	Not significant
The influence of incongruous features or elements (whether man-made or natural) on the perceived natural beauty of the area	A small number of large scale and long-established elements on the coast, being regarded by some as incongruous features and by others as enigmatic.	Not significant
Scenic quality		
A distinctive sense of place	<p>Unique character defined by semi-natural and cultural landscapes and built heritage.</p> <p>Juxtaposition of elements in a relatively small area.</p>	Not significant
Striking landform	<p>Sea cliffs and shingle beaches contrasting to flat and gently rolling Sandlings heaths and farmland.</p> <p>Extensive shingle beaches and shallow bays provide opportunities for long distance and panoramic views including out to sea and along the Heritage Coast.</p> <p>Landscape displays a 'rhythm' dictated by a series of east-west rivers and estuaries, and the interfluves between them.</p> <p>Coastal cliffs, shingle spits, estuaries and beaches are striking landform features.</p>	Not significant
Visual interest in patterns of land cover	Varied habitats and land cover in intricate mosaic corresponding to geography and displaying seasonal differences.	Not significant



Factor	SCHAONB Indicator	Effect
Appeal to the senses	<p>Close-knit interrelationship of constituent features creates a juxtaposition of colours and textures.</p> <p>Strong aesthetic, spatial and emotional experiences - contrast between open and exposed areas on the coast and seaward.</p> <p>Large open vistas across heaths and along the coast, out to sea and from sea to coastline, with memorable views and eye-catching features or landmarks.</p> <p>Sensory stimuli enhanced by quality of light / space (the big 'Suffolk skies'), areas with dark skies and sound.</p> <p>Presence of individual species that contribute to perceived wildness.</p>	Not significant
Memorable or unusual views and eye-catching features or landmarks		Not significant
Characteristic cognitive and sensory stimuli (e.g. sounds, quality of light, characteristic smells, characteristics of the weather)		Not significant
Relative wildness		
A sense of remoteness	<p>Absence of major coastal road or rail route, due to estuaries, and intermittent 'soft edged', access routes, has contributed to the relatively undeveloped character of the Suffolk coast.</p> <p>Pockets of relative wildness associated with coast, estuary and forests in this largely farmed and settled landscape.</p>	Not significant
A relative lack of human influence	<p>Semi-natural habitats evident, notably on the Sandlings heaths, marshes, reedbeds, estuaries and along coastline.</p> <p>Largely undeveloped coastline and offshore areas and areas of semi-natural habitat.</p>	Not significant
A sense of openness and exposure	Big 'Suffolk skies'	Not significant



Factor	SCHAONB Indicator	Effect
	Expansive views offshore emphasise sense of openness and exposure on open and exposed coastline and on the Sandlings heaths	
A sense of enclosure and isolation	Forestry plantations create sense of enclosure and isolation.	Not significant
A sense of the passing of time and a return to nature	Significant areas of semi natural landscape and seascape along the coastline and within undeveloped estuaries with little evidence of apparent human activity.	Not significant
Relative tranquillity		
Contributors to tranquillity	<p>Areas of semi natural habitat, where there is a general absence of development and apparent human activity, contribute to a sense of relative tranquillity.</p> <p>Presence of individual species that contribute to perceived tranquillity.</p> <p>Relatively dark skies.</p>	Not significant
Detractors from tranquillity	Some local detractors from tranquillity include the seasonal influx of visitors to coastal towns, aircraft noise and urban development.	Not significant
Natural heritage features		
Geological and geomorphological features	<p>Geological border between the inland boulder clay and coastal fringe. Visible and striking expressions of geology and sedimentation.</p> <p>Low crumbling cliffs and steep banks of pebbles on shingle beaches contribute to a landscape of constant change. Striking and memorable geomorphological features (Orford Ness).</p>	Not significant
Wildlife and habitats	<p>Varied, nationally and internationally protected sites such as SSSI, SPA and SAC designated for their nature conservation interest.</p> <p>Varied protected species across major habitat types.</p>	Not significant
Cultural heritage		



Factor	SCHAONB Indicator	Effect
Built environment, archaeology and designed landscapes	<p>Presence of settlements, buildings or other structures that make a particular contribution to distinctive sense of place and other aspects of scenic quality.</p> <p>Presence of visible archaeological remains, parkland or designed landscapes.</p>	Not significant
Historic influence on the landscape	<p>Visible presence of historic landscape types or specific landscape elements or features that provide evidence of time depth or historic influence on the landscape.</p> <p>Perceptions of a harmonious balance between natural and cultural elements in the landscape that stretch back over time.</p>	Not significant
Characteristic land management practices	Existence of characteristic land management practices, industries or crafts which contribute to natural beauty.	Not significant
Associations with written descriptions	Availability of descriptions of the landscape in notable literature, topographical writings or guide books, or significant literature inspired by the landscape.	Not significant
Associations with artistic representations	Depiction of the landscape in art, other art forms such as photography or film, through language or folklore, or in inspiring related music.	Not significant
Associations of the landscape with people, places or events	Evidence that the landscape has associations with notable people or events, cultural traditions or beliefs.	Not significant



IMPACT 16.8: IMPACT (DAYTIME) OF THE OPERATION AND MAINTENANCE OF THE VE ARRAY AREAS ON VISUAL RECEPTORS / VIEWS

PRELIMINARY ASSESSMENT

VIEWPOINTS

10.11.281 A preliminary assessment of the effects of the operation and maintenance of the VE array areas on the representative viewpoints within the SLVIA Study Area is presented in Table 10.27 with reference to the ZTV analysis in Volume 6, Part 7, Annex 10.3.4: Seascape, Landscape and Visual Figures (Figure 10.16 to Figure 10.18) and the visual representations in Volume 6, Part 7, Annex 10.3.6-26: Seascape, Landscape and Visual Figures and Photomontages, Figure 10.26 to Figure 10.46. A detailed assessment for each viewpoint that is identified in the preliminary assessment as requiring detailed assessment is contained within Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and findings are summarised in Table 10.29.



Table 10.27: Preliminary Assessment of Representative Viewpoints

Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HFoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
Representative viewpoints in Suffolk						
1	Southwold (Gun Hill) (Figure 11.26)	47.1	48.2	22.8°	10°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.
2	Dunwich Beach (Figure 11.27)	45.5	46.8	24.3°	8.3°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.
3	Dunwich Heath (Figure 11.28) (Coastguard Cottages)	43.8	45.2	25.3°	8.0°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.
4	Sizewell Beach (Figure 11.29)	41.0	42.4	27.3°	7.2°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.



Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HFoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
5	Thorpeness (Figure 11.30)	39.4	40.9	28.5°	6.4°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.
6	Aldeburgh (Figure 11.31)	38.9	40.3	29.3°	5.5°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.
7	Orford Castle (Figure 11.32)	40.9	42.3	29.5°	3.1°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.
8	Burrow Hill (Suffolk Coast Path) (Figure 11.33)	43.5	44.8	28.6°	2.5°	No potential for significant effects - scoped out of further assessment. Limited visibility of VE array areas due to screening by intervening landform and vegetation in the view. VE array areas are also largely subsumed behind the existing Greater Gabbard and Galloper OWFs at very long range offshore from this viewpoint. Low to negligible levels of change are likely to occur to the existing view,



Viewpoint	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HFoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment	
					with no potential for the view to be significantly affected by the VE array areas.	
9	Orfordness (Bomb Ballistics Building) (Figure 11.34)	38.2	39.6	31.2°	3.3°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.
10	Shingle Street (Figure 11.35)	45.1	46.4	29.1°	1.5°	No potential for significant effects - scoped out of further assessment. VE array areas are almost entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore from this viewpoint. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. Low levels



Viewpoint	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HfoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
					of change are likely to occur to the existing view, with no potential for the view to be significantly affected by the VE array areas.
11	Old Felixstowe (Figure 11.36)	49.0	50.3	27.6°	0° No potential for significant effects - scoped out of further assessment. VE array areas are entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore from this viewpoint. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. Low levels of change are likely to occur to the existing view, with no potential for the view to be significantly affected by the VE array areas.
Representative viewpoints in Essex					



Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HFoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
12	The Naze, Walton (Figure 11.37)	53.0	54.3	24.1°	0°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.
13	Walton Pier (Figure 11.38)	54.1	55.3	23.4°	0°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.
14	Walton, Mill Lane (Figure 11.39)	54.3	55.5	23.4°	0°	No potential for significant effects - scoped out of further assessment. No visibility of VE array areas due to screening by intervening landform, buildings and vegetation in the view. Zero change likely to occur to the existing view, with no potential for the view to be significantly affected by the VE array areas.
Illustrative viewpoints						
A	Covehithe (Figure 11.40)	50.3	51.2	20.9°	9.8°	Potential for significant effects that require further assessment, undertaken in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment and summarised in Table 10.29.



Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HfoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
B	Southwold Pier (Figure 11.41)	47.6	48.6	22.5°	10.1°	Illustrative viewpoint to show the potential effect of the VE array areas from Southwold Pier. Visual effects from Southwold is assessed from Viewpoint 1 Southwold (Gun Hill).
C	Bawdsey Manor (Figure 11.42)	48.0	49.2	28.1°	0°	Illustrative viewpoint to show the potential effect of the VE array areas from Bawdsey Manor.
D	Landguard Fort (Figure 11.43)	51.9	53.1	25.8°	0°	Illustrative viewpoint to show the potential effect of the VE array areas from Landguard Fort. Effect of the VE array areas on the setting of Landguard Fort is assessed in Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage.
E	Harwich (Figure 11.44)	55.1	56.3	24.2°	0°	Illustrative viewpoint to show the potential effect of the VE array areas from Harwich. No potential for significant effects - scoped out of further assessment. VE array areas are entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore from this viewpoint. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of



Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HFoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
						the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. Low levels of change are likely to occur to the existing view, with no potential for the view to be significantly affected by the VE array areas.
F	Clacton-on-Sea (Figure 11.45)	59.8	61.1	20.3°	0°	Illustrative viewpoint to show the potential effect of the VE array areas from Clacton-on-Sea, which is located at very long range on the edge of the SLVIA study area. No potential for significant effects - scoped out of further assessment. VE array areas are located at very long range offshore from this viewpoint. Although the VE array areas contribute to increasing the influence and density of WTGs within the same part of the view as the existing Greater Gabbard and Galloper blade tips, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the majority of the VE WTGs will be behind the horizon and visibility may only occur during very infrequent periods of excellent visibility at such long



Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HFoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
						range (over 60 km). Low to negligible levels of change are likely to occur to the existing view, with no potential for the view to be significantly affected by the VE array areas.
G	Foreness Point (Kent) (Figure 11.46)	58.4	60.6	12.3°	2.7°	Illustrative viewpoint to show the potential effect of the VE array areas from the closest point of the Kent coast at Foreness Point, which is located at very long range on the edge of the SLVIA study area. No potential for significant effects - scoped out of further assessment. VE array areas are located at very long range offshore from this viewpoint. Although the VE array areas contribute to increasing the influence and density of WTGs within the same part of the view as the existing Greater Gabbard and Galloper blade tips, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the majority of the VE WTGs will be behind the horizon and visibility may only occur during very infrequent periods of excellent visibility at such long range (over 60 km). Low to negligible levels of change are likely to occur to the existing view, with no potential for the view to be significantly affected by the VE array areas.



Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HFoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
Night-time viewpoints						
2	Dunwich Beach (Figure 11.28)	43.8	46.8	24.3°	8.3°	Potential for significant effects that require further assessment, undertaken in Section 10.11 (Impact 16.9).
6	Aldeburgh (Figure 11.31)	38.9	40.3	29.3°	5.5°	Potential for significant effects that require further assessment, undertaken in Section 10.11 (Impact 16.9).
11	Old Felixstowe (Figure 11.36)	49.0	50.3	27.6°	0°	No potential for significant effects - scoped out of further assessment. VE WTG aviation lighting will be entirely subsumed behind the existing aviation lighting of Greater Gabbard and Galloper OWFs, at very long range offshore from this viewpoint. Although the VE array areas may contribute to increasing the influence and density of WTG aviation lights within this part of the view, the VE arrays will not contribute to increasing the lateral spread of lighting as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTG lighting, as well as lighting associated with shipping/vessels off Felixstowe, which have strong



Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HFoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
						influence in the baseline view. Further offshore WTG lighting of London Array and Gunfleet Sands is also visible in the wider panorama at night to the south and WTG aviation lighting is a characteristic element in the view at night. Low levels of change are likely to occur to the existing view, with no potential for the view to be significantly affected by the VE array areas.
12	The Naze (Figure 11.37)	53.0	54.1	24.1°	0°	No potential for significant effects - scoped out of further assessment. VE WTG aviation lighting will be entirely subsumed behind the existing aviation lighting of Greater Gabbard and Galloper OWFs, at very long range offshore from this viewpoint. Although the VE array areas may contribute to increasing the influence and density of WTG aviation lights within this part of the view, the VE arrays will not contribute to increasing the lateral spread of lighting as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTG lighting, as well as lighting associated with shipping/vessels off Felixstowe, which have strong influence in the baseline view. Further offshore WTG lighting of London Array and Gunfleet Sands is also



Viewpoint	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Visible HFoV (°) of VE*	Additional HfoV (°) of VE**	Preliminary Assessment
					visible in the wider panorama at night to the south and WTG aviation lighting is a characteristic element in the view at night. Low levels of change are likely to occur to the existing view, with no potential for the view to be significantly affected by the VE array areas.
*The total visible HFoV (°) of VE in the view					
**The HFoV (°) that VE adds to lateral spread occupied by existing WTGs					



VISUAL RECEPTORS

10.11.282 A preliminary assessment of the effects of the operation and maintenance of the VE array areas on the visual receptors within the SLVIA Study Area is presented in Table 10.28 with reference to the ZTV analysis in Volume 6, Part 7, Annex 10.3.4: Seascape, Landscape and Visual Figures (Figure 10.16 to Figure 10.18). A detailed assessment follows for each receptor that is identified in the preliminary assessment as requiring detailed assessment.



Table 10.28: Preliminary Assessment of Visual Receptors

Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
Potential for significant effects that require detailed assessment:			
<i>Settlements</i>			
Aldeburgh	38.8	40.3	Coastal settlements in Suffolk and Essex, with potential for long-term, reversible impacts on offshore views out to sea, arising as a result of views of the construction, operation and maintenance, and decommissioning of the VE array areas (during very good and excellent visibility conditions). Potential impacts require further assessment, undertaken from representative viewpoints at Aldeburgh (Viewpoint 6, Figure 10.31), Thorpeness (Viewpoint 5, Figure 10.30), Orford (Viewpoint 7, Figure 10.32), Dunwich (Viewpoint 2, Figure 10.27), Southwold (Viewpoint 1, Figure 10.26) and Walton-on-the-Naze (Viewpoint 13, Figure 10.38).
Thorpeness	39.6	41.1	
Orford	40.3	42.0	
Dunwich	45.6	46.8	
Walberswick	47.0	48.5	
Southwold	47.4	48.5	
Walton-on-the-Naze	54.8	56.0	
Frinton-on-Sea	55.8	57.0	
<i>Long Distance Recreational Routes</i>			
England Coast Path	38.7	40.0	Potential for significant effects that require further assessment, undertaken in Table 10.30.
Suffolk Coast Path	39.2	40.7	Potential for significant effects that require further assessment, undertaken in Table 10.30.



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
NCN 150	53.3	54.5	Potential for significant effects that require further assessment, undertaken in Table 10.30. The only coastal NCN route in the SLVIA study area, taking a route along the coast between Frinton-on-Sea to the Naze.
<i>National Trust Sites</i>			
Orford Ness	37.3	38.7	Coastal National Trust sites in Suffolk, with potential for long-term, reversible impacts on offshore views out to sea experienced by visitors, arising as a result of views of the construction, operation and maintenance, and decommissioning of the VE array areas (during very good and excellent visibility conditions). Potential impacts on views experienced by visitors require further assessment, undertaken from representative viewpoints at Orford Ness (Viewpoint 9 (Figure 10.34) and Viewpoint 3 Dunwich Heath (Figure 10.28).
Dunwich	43.2	44.6	
<i>English Heritage Sites</i>			
Orford Castle	40.9	42.3	English Heritage site with public access with potential for long-term, reversible impacts on offshore views out to sea experienced by visitors, arising as a result of views of the construction, operation and maintenance, and decommissioning of the VE array areas (during very good and excellent visibility conditions). Potential impacts on views experienced by visitors require further assessment, undertaken from representative Viewpoint 7 (Figure 10.32). Effects on the setting of the listed building are assessed in Chapter 7, Volume 6, Part 3: Archaeology and Cultural Heritage.



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
<p>Considered in preliminary assessment but found to have no potential for significant effects – scoped out of detailed assessment:</p>			
<p><i>Settlements</i></p>			
Leiston	43.5	44.9	<p>Leiston is located 2-5 km inland of the coast, partially within and partially outside the ZTV (Figure 10.10 and 11.16). Due to its position set back from the coast and it being low lying, Leiston does not have coastal views, with views to the VE array areas restricted by a combination of landform, roadside vegetation, woodlands and urban development. Sizewell A and B Nuclear Power Station is also located to the east of Leiston on the coast, with associated transmission infrastructure. There is distinct separation between the VE array areas and this settlement, including areas of terrestrial landscape, which combined with the very long distance, limited ZTV and influence of existing energy development, will result in VE array areas having a negligible change to the existing visual amenity and there is no potential for the VE array areas to result in significant effects on views experienced by residents of Leiston.</p>
Saxmundham	48.7	50.2	<p>Saxmundham is located 8-10 km inland of the coast, largely outside the ZTV (Figure 10.10 and 11.16). Due to its position set back from the coast and it being low lying, Saxmundham does not have coastal views, with views to the VE array areas restricted by a combination of landform, roadside vegetation, woodlands and urban development. There is distinct separation between the VE array areas and this settlement, including areas of terrestrial landscape, which combined with the very long distance,</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			limited ZTV, will result in VE array areas having zero change to the existing visual amenity and there is no potential for the VE array areas to result in significant effects on views experienced by residents of Saxmundham.
Felixstowe	50.8	52.0	Coastal settlement with offshore views from coastal edge, however VE array areas are entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. Low levels of change are likely to occur to the existing views, with no potential for the views experienced by residents to be significantly affected by the VE array areas. Potential impacts on views from Felixstowe shown in Viewpoint 11 (Figure 10.36).
Kessingland	53.7	55.3	Although the VE array areas may contribute to increasing the influence of WTGs within south-easterly offshore views from the coastal edge of Kessingland, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 53 km) in very good and excellent visibility and at low acuity/contrast due to the distance from the settlement. Low to negligible levels of change are likely to occur to the



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			existing views, with no potential for views experienced by residents of Kessingland to be significantly affected by the VE array areas.
Harwich	54.6	55.8	Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from the coastal edge of Harwich, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 54 km) in very good and excellent visibility and at low acuity/contrast due to the distance from the settlement. VE array areas are entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. Low levels of change are likely to occur to the existing views, with no potential for views experienced by residents of Harwich to be significantly affected by the VE array areas. Potential impacts on views from Harwich shown in Viewpoint E (Figure 10.44).
Wickham Market	53.8	55.2	Wickham Market, Woodbridge, Halesworth and Framlington are all settlements that are located well inland, between 53 – 60 km from the VE array areas and largely outside the ZTV (Figure 10.10 and 11.16). These
Woodbridge	55.0	56.3	
Halesworth	56.9	58.2	



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
Framlington	58.1	59.6	settlements do not have coastal views, with views to the VE array areas restricted by a combination of landform, roadside vegetation, woodlands and urban development. There is distinct separation between the VE array areas and these settlements, including areas of terrestrial landscape, which combined with the very long distance and limited ZTV, will result in VE array areas having zero change to the existing visual amenity and there is no potential for the VE array areas to result in significant effects on views experienced by residents of these settlements.
Lowestoft	59.5	60.0	Although the VE array areas may contribute to increasing the influence of WTGs within south-easterly offshore views from the coastal edge of Lowestoft, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 59 km) in very good and excellent visibility and at low acuity/contrast due to the distance from the settlement. Low to negligible levels of change are likely to occur to the existing views, with no potential for views experienced by residents of Lowestoft to be significantly affected by the VE array areas.
Clacton-on-Sea	61.7	63.0	Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from the coastal edge of Clacton-on-Sea, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 60 km) in very good and excellent visibility and at low acuity/contrast due to the distance from the settlement. VE array areas are entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore. Although the VE array areas contribute to increasing the influence and



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			<p>density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. Low levels of change are likely to occur to the existing views, with no potential for views experienced by residents of Clacton-on-Sea to be significantly affected by the VE array areas. Potential impacts on views from Clacton-on-Sea shown in Viewpoint F (Figure 10.45).</p>
<i>Long Distance Recreational Routes</i>			
NCN 1	53.4	54.9	<p>These NCN routes are all located between 44 km to 60 km from the VE array areas, and although they occasionally extend to the coast, they do not follow the coastline but instead extend inland and across the terrestrial parts of the study area, set back from the coast mainly in Suffolk. Views to the coast and the VE array areas are restricted by landform, vegetation and buildings in the intervening landscape, which together with the inland location set back position, limit coastal views and views of the VE array areas. There is distinct separation between these receptors and the VE array areas, including areas of terrestrial landscape, which combined with distance and limited ZTV, contributes to avoiding significant effects on views. There is no potential for the VE array areas to result in significant effects on views experienced by people using these NCN routes.</p>
NCN 15	58.1	60.3	
NCN 30	58.7	59.3	
NCN 31	47.3	48.4	
NCN 40	58.5	60.0	
NCN 41	48.7	49.8	
NCN 42	44.0	45.5	
NCN 51	50.8	52.0	
NCN 517	58.2	58.9	



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
<i>Country Parks</i>			
Lonely Farm	51.2	52.6	<p>These Country Parks are all utilised as camping and Caravanning sites, with their character and amenity notably changed by the presence of caravans and holiday homes. They are located in a predominantly rural but not coastal setting. Landform, vegetation and building limit views into and out of these country parks and they are all partially outside the ZTV and partially within areas of low theoretical visibility (Figure 10.10 and 11.16). Views to the coast and the VE array areas restricted by landform, vegetation and buildings in the intervening landscape, which together with the inland location set back position, limit any coastal views and prevent views of the VE array areas. There is distinct separation between these receptors and the VE array areas, including areas of terrestrial landscape, which combined with distance and limited ZTV, contributes to avoiding significant effects on views. There is no potential for the VE array areas to result in significant effects on views experienced by people using these country parks.</p>
Easton Farm	56.9	58.3	
Kessingland	54.2	55.0	
Holland Haven	56.9	58.1	<p>Holland Haven consists beach, picnic areas, nature walks and country park along the coastline between Holland-on-Sea and Frinton-on-Sea. Although it is in a coastal location and affords offshore views, the VE array areas are located at very long range offshore from this receptor. Although the VE array areas may contribute to increasing the influence and density of WTGs within the same part of the view as the existing Greater Gabbard and Galloper blade tips, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the majority of the VE WTGs will be</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			behind the horizon and visibility may only occur during very infrequent periods of excellent visibility at such long range (over 56 km). Low to negligible levels of change are likely to occur to the existing views, with no potential for the view to be significantly affected by the VE array areas.
<i>National Trust Sites</i>			
Landguard Fort	52.2	53.1	English Heritage site with public access with potential for long-term, reversible impacts on offshore views out to sea experienced by visitors, arising as a result of views of the construction, operation and maintenance, and decommissioning of the VE array areas (during very good and excellent visibility conditions). Low levels of change likely to occur due to the distance of the receptor over 52 km from the VE array areas, with no potential for views from Landguard Fort to be significantly affected at such range. See illustrative Viewpoint D (Figure 10.43). Effects on the setting of asset assessed in Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage.
Kyson Hill	55.2	56.5	Kyson Hill is located on the edge of the Deben and Martlesham Creek, approximately 11 km inland of the coast, over 55 km from the VE array areas. The site is partially outside the ZTV and partially within areas of low theoretical visibility (Figure 10.10 and 11.16). Views east along the Deben towards the coast and VE array area are restricted woodland around the site, intervening landforms, vegetation and urban development in the wider landscape to the east. There is likely to be zero change to the existing visual amenity and no potential for the VE array areas to result in



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
			significant effects on views experienced by people visiting this National Trust site.
Pin Mill	59.5	60.6	Pin Mill is located on the southern edge of the Orwell, approximately 10 km inland of the coast at Felixstowe and on the very edge of the SLVIA study area, around 59.5 km from the VE array areas. Views are north across the River Orwell and estuary, with views east restricted by cliff plantation woodland around the site and intervening landforms and urban development to the east. There is likely to be zero change to the existing visual amenity and no potential for the VE array areas to result in significant effects on views experienced by people visiting this National Trust site.
<i>English Heritage Sites</i>			
Leiston Abbey	44.2	45.7	Leiston Abbey is located approximately 3 km inland of the coast at Sizewell and over 44 km from the VE array areas. The site is within areas of the ZTV with low theoretical visibility (Figure 10.10 and 11.16). Although the Abbey affords fairly open views out to its immediate rural setting, views east/ south-east towards the coast are restricted by intervening landforms, areas of Sandlings forest and development in the wider landscape to the east, which includes Sizewell A and B Nuclear Power Station, located between Leiston Abbey and the coast. There is likely to be zero change to the existing visual amenity and no potential for the VE array areas to result in significant effects on views experienced by people visiting this National Trust site.



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
<i>Main Road Routes</i>			
A1094	38.7	40.2	The A1094 (Aldeburgh Road) is the closest main road route to the VE array areas, however its route closest to the coast runs entirely through the urban areas of Aldeburgh and Reydon, which limits potential for coastal views. The remainder of the route extending inland from the A12 is within areas of low theoretical visibility (Figure 10.10 and 11.16).
A1095	47.4	48.5	
A12	48.6	50.0	With the exception of the A1094, all main road routes within the SLVIA study area are located over 47 km from the VE array areas and are situated largely within the inland areas of the SLVIA study area, which does not have main road routes at the coastal edge due to the estuaries that extend in from the coast. All main road routes therefore have a predominantly rural or urban visual context (not coastal). All main routes identified within the SLVIA study area are either partially outside the ZTV or partially within areas of low theoretical visibility (Figure 10.10 and 11.16), intermittently, with views to the coast and the VE array areas restricted by a combination of landform, roadside vegetation, woodlands and urban development, which together with the inland location set back position, limit coastal views from these main road routes and there is limited potential for views of the VE array areas to be experienced by people travelling on these main road routes in the SLVIA study area. There is distinct separation between the VE array areas and these routes, including areas of terrestrial landscape, which combined with distance and limited ZTV, contributes to avoiding significant effects on views. Motorists
A1152	49.0	50.4	
A1120	50.8	52.0	
A1021	50.9	52.2	
A144	50.9	52.3	
A145	51.2	52.5	
A154	51.3	52.5	
A14	52.2	53.4	
A120	54.7	55.9	
A136	56.3	57.5	
A1214	57.8	58.9	
A1145	58.2	58.9	
A1117	58.2	59.1	
A1156	58.3	59.6	



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
A47	59.0	59.6	are also likely to have a lower susceptibility to change due to the nature of their activity and focus on the road or immediate context. There is no potential for the VE array areas to result in significant effects on views experienced by people travelling on the main road routes within the SLVIA study area and they are scoped out of further assessment.
A146	59.2	59.9	
A1144	59.9	60.5	
<i>Ferry Routes</i>			
Harwich - Hoek van Holland	3.7	4.7	Impact of the operation and maintenance of the VE array areas on the views experienced by offshore visual receptors is scoped out as agreed with the Inspectorate (Table 10.5).
Hoek van Holland - Harwich	3.7	4.7	
Ferry: Teesport - Zeebrugge	24.9	25.2	
Ferry: Zeebrugge - Teesport	24.9	25.2	
Zeebrugge - Teesport	24.9	25.2	
River Ore Ferry	39.9	41.2	
Havergate Island Ferry	39.9	44.5	
Butley Ferry	43.1	48.2	



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Preliminary Assessment
Southwold Crossing	47.1	49.6	
Felixstowe - Bawdsey Ferry	48.5	52.6	
Harwich Harbour Ferry	52.3	53.5	
Harwich Ferry	52.3	53.5	



DETAILED ASSESSMENT

VIEWPOINTS

10.11.283 The visual effects of the operation and maintenance of the VE array areas from the agreed representative viewpoints is summarised in Table 10.29 and assessed in full in Volume 6, Part 7, Annex 10.2: Seascape, Landscape and Visual Viewpoint Assessment. This describes the likely significant effects of the VE array areas on each representative viewpoint, assessing those that were identified in the preliminary assessment as having potential to be significantly affected.



Table 10.29: Assessment of Representative Viewpoints

Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Sensitivity to change	Magnitude of change	Significance of effect (operation and maintenance)
Representative viewpoints in Suffolk						
1	Southwold (Gun Hill) (Figure 11.26)	47.1	48.2	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has high value and the receptors experiencing the view have a high susceptibility to change.	Low. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as low.	Not significant (moderate / minor), direct, long-term and reversible. Met Office visibility data indicates 8.9% visibility frequency of the VE array areas at 47.1 km.
2	Dunwich Beach (Figure 11.27)	45.5	46.8	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has high value and the receptors experiencing the view have a high susceptibility to change.	Low. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as low.	Not significant (moderate / minor), direct, long-term and reversible. Met Office visibility data indicates 8.9% visibility frequency of the VE array areas at 45.5 km.
3	Dunwich Heath (Figure 11.28)	43.8	45.2	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has high value and the	Low. The magnitude of change to the view resulting from the operation and	Not significant (moderate / minor), direct, long-term and reversible. Met Office visibility data indicates



Viewpoint	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Sensitivity to change	Magnitude of change	Significance of effect (operation and maintenance)
(Coastguard Cottages)			receptors experiencing the view have a high susceptibility to change.	maintenance of the VE array areas is assessed as low.	14.3% visibility frequency of the VE array areas at 43.8 km.
4 Sizewell Beach (Figure 11.29)	41.0	42.4	Medium-high. The sensitivity of the viewpoint is considered to be medium-high, reflecting that the view has medium-high value and the receptors experiencing the view have a medium-high susceptibility to change.	Low. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as low.	Not significant (moderate / minor), direct, long-term and reversible. Met Office visibility data indicates 14.3% visibility frequency of the VE array areas at 41 km.
5 Thorpeness (Figure 11.30)	39.4	40.9	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has high value and the receptors experiencing the view have a high susceptibility to change.	Low. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as low.	Not significant (moderate / minor), direct, long-term and reversible. Met Office visibility data indicates 14.3% visibility frequency of the VE array areas at 39.4 km.



Viewpoint	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Sensitivity to change	Magnitude of change	Significance of effect (operation and maintenance)
6 Aldeburgh (Figure 11.31)	38.9	40.3	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has high value and the receptors experiencing the view have a high susceptibility to change.	Low. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as low.	Not significant (moderate / minor), direct, long-term and reversible. Met Office visibility data indicates 20.9% visibility frequency of the VE array areas at 38.8 km.
7 Orford Castle (Figure 11.32)	40.9	42.3	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has high value and the receptors experiencing the view have a high susceptibility to change.	Low. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as low.	Not significant (moderate / minor), direct, long-term and reversible. Met Office visibility data indicates 14.3% visibility frequency of the VE array areas at 40.9 km.
8 Burrow Hill (Suffolk Coast Path) (Figure 11.33)	43.5	44.8	Medium-high. The sensitivity of the viewpoint is considered to be medium-high, reflecting that the view has high value and the receptors experiencing the	Negligible. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as negligible.	Not significant (minor), direct, long-term and reversible. Met Office visibility data indicates 14.3% visibility frequency of the VE array areas at 43.5 km.



Viewpoint	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Sensitivity to change	Magnitude of change	Significance of effect (operation and maintenance)	
			view have a medium susceptibility to change.			
9	Orfordness (Bomb Ballistics Building) (Figure 11.34)	38.2	39.6	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has high value and the receptors experiencing the view have a medium-high susceptibility to change.	Low. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as low.	Not significant (moderate / minor), direct, long-term and reversible. Met Office visibility data indicates 20.9% visibility frequency of the VE array areas at 38.2 km.
10	Shingle Street (Figure 11.35)	45.1	46.4	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has medium-high value and the receptors experiencing the view have a high susceptibility to change.	Negligible. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as negligible.	Not significant (minor), direct, long-term and reversible. Met Office visibility data indicates 8.9% visibility frequency of the VE array areas at 45.1 km.
11	Old Felixstowe (Figure 11.36)	49.0	50.3	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has medium-high value	Negligible. The magnitude of change to the view resulting from the operation and	Not significant (minor), direct, long-term and reversible. Met Office visibility data indicates



Viewpoint	Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Sensitivity to change	Magnitude of change	Significance of effect (operation and maintenance)	
			and the receptors experiencing the view have a high susceptibility to change.	maintenance of the VE array areas is assessed as low.	8.9% visibility frequency of the VE array areas at 49 km.	
Representative viewpoints in Essex						
12	The Naze, Walton (Figure 11.37)	53.0	54.3	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has medium-high value and the receptors experiencing the view have a high susceptibility to change.	Negligible. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as low.	Not significant (minor), direct, long-term and reversible. Met Office visibility data indicates 4% visibility frequency of the VE array areas at 53.1 km.
13	Walton Pier (Figure 11.38)	54.1	55.3	High. The sensitivity of the viewpoint is considered to be high, reflecting that the view has medium-high value and the receptors experiencing the view have a high susceptibility to change.	Negligible. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as low.	Not significant (minor), direct, long-term and reversible. Met Office visibility data indicates 4% visibility frequency of the VE array areas at 53.5 km.



Viewpoint		Distance from VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Sensitivity to change	Magnitude of change	Significance of effect (operation and maintenance)
14	Walton, Mill Lane (Figure 11.39)	54.3	55.5	Medium. The sensitivity of the viewpoint is considered to be medium, reflecting that the view has medium value and the receptors experiencing the view have a medium susceptibility to change.	Zero. The magnitude of change to the view resulting from the operation and maintenance of the VE array areas is assessed as zero.	Not significant (no effect), direct, long-term and reversible. Met Office visibility data indicates 4% visibility frequency of the VE array areas at 54 km.
<p>*Moderate/minor effects that are assessed in EIA terms under 'very good' or 'excellent' visibility conditions, may be minor or negligible during the remaining period of less optimal visibility conditions.</p>						



ENGLAND COAST PATH / SUFFOLK COAST PATH

10.11.284 An assessment of the effects of the operation and maintenance of the VE array areas on the England Coast Path and Suffolk Coast Path within the SLVIA Study Area is presented in Table 10.30 with reference to the ZTV analysis in Volume 6, Part 7, Annex 10.3.4: Seascape, Landscape and Visual Figures (Figure 10.17 and Figure 10.18). The sensitivity of users of the England Coast Path and Suffolk Coast Path is assessed as high, reflecting that these coastal paths and the views/visual amenity experienced have high value and the receptors experiencing the views have a high susceptibility to change due to their focus and interest being primarily on coastal views and views out to sea.



Table 10.30: Assessment of England Coast Path and Suffolk Coast Path

Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
England Coast Path – Jaywick to Harwich (Essex)			
Section 1 – Jaywick to Holland-on-Sea	57.0	58.2	<p>Section 1 of the Jaywick to Harwich section of the ECP is partially within the SLVIA study area along the coast between Clacton-on-Sea and the edge of Holland-on-Sea, where there are offshore views similar to those shown in Viewpoint F Clacton-on-Sea (Figure 10.45). NCN 150 follows the same route as the England Coast Path over this section between Jaywick and Holland-on-Sea, affording similar views for cyclists as experienced by walkers. Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from this section of the ECP, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 57 km) in very good and excellent visibility and at low acuity/contrast due to distance. VE array areas will be entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the offshore views, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. The magnitude of change to the views experienced from</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			Section 1 Jaywick to Holland-on-Sea of the ECP and NCN 150 resulting from the operation and maintenance of the VE array areas is assessed as negligible and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.
Section 2 – Holland-on-Sea to Walton-on-the-Naze	53.1	54.3	Section 2 of the Jaywick to Harwich section of the ECP follows the coast between Holland-on-Sea to Walton-on-the-Naze, where there are offshore views similar to those shown in Viewpoint 13 Walton-on-the-Naze (Figure 10.38). NCN 150 follows the same route as the England Coast Path over this section between Holland-on-Sea and the Naze, affording similar views for cyclists as experienced by walkers. Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from this section of the ECP, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 53 km) in very good and excellent visibility and at low acuity/contrast due to distance. VE array areas will be entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the offshore views, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>OWFs, within a part of the view that is already influenced by offshore WTGs. The magnitude of change to the views experienced from Section 2 – Holland-on-Sea to Walton-on-the-Naze of the ECP and NCN 150 resulting from the operation and maintenance of the VE array areas is assessed as negligible and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.</p>
Section 3 – Walton-on-the-Naze to Walton Mere	53.0	54.2	<p>Section 3 of the Jaywick to Harwich section of the ECP follows the coast between Walton-on-the-Naze to Walton Mere. The ZTV (Figure 10.17) shows that there will be no visibility of the VE array areas along the Walton Channel and views will also be screened from its route through the urban area of Walton-on-the-Naze (Viewpoint 14 Mill Lane, Walton) (Figure 10.39), resulting in zero change and not significant effects. There are offshore views from the section of the ECP route around the Naze, similar to those shown in Viewpoint 12 (Figure 10.27). Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from this section of the ECP, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 53 km) in very good and excellent visibility and at low acuity/contrast due to distance. VE array areas will be entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the offshore views, and the larger scale of the</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. The magnitude of change to the views experienced from Section 3 around the Naze resulting from the operation and maintenance of the VE array areas is assessed as negligible and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.</p>
Section 4 – Walton Mere to Beaumont Quay	55.7	56.9	<p>Section 4 of the Jaywick to Harwich section of the ECP follows the southern edges of Walton Mere to the south of Horsey Island and Hamford Water, where the ZTV (Figure 10.17) shows very low theoretical visibility of the VE array areas due to its position set back from the coast and it being low lying, with views to the VE array areas restricted by a combination of landform and vegetation, and partially through the urban area of Walton. There is distinct separation between the VE array areas and this section of the ECP, including areas of terrestrial landscape, which combined with the very long distance and limited ZTV will result in VE array areas having a negligible magnitude of change to the existing visual amenity and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
Section 5 – Beaumont Quay to Dovercourt Sports Ground	55.4	56.7	<p>Section 5 of the Jaywick to Harwich section of the ECP extends around the inland side and north of Hamford Water and South Hall Creek, where the ZTV (Figure 10.18) shows theoretical visibility of the VE array areas. Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from this section of the ECP, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 55 km) in very good and excellent visibility and at low acuity/contrast due to distance. VE array areas will be entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. The magnitude of change to the views experienced from Section 5 Beaumont Quay to Dovercourt Sports Ground resulting from the operation and maintenance of the VE array areas is assessed as negligible and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
Section 6 – Dovercourt Sports Ground to Harwich	54.1	55.3	Section 6 of the Jaywick to Harwich section of the ECP follows the urban coastal edges of the Harwich, where the ZTV (Figure 10.17) shows theoretical visibility of the VE array areas, however due to the very long distance and negligible magnitude of change to the existing visual amenity, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible on views experienced by people using Section 6 of the Jaywick to Harwich section of the ECP.
England Coast Path – Harwich to Shotley Gate (Essex)			
Section 1 – Harwich to Ray Lane, Ramsey	54.3	55.5	Section 1 and 2 of the Harwich to Shotley Gate section of the ECP follows the southern edges of the Stour Estuary and is partially within the urban area of Harwich, where the ZTV (Figure 10.18) shows very low theoretical visibility of the VE array areas due to its position to the west of Harwich, Harwich Harbour and Landguard Point, with views to the VE array areas restricted by a combination of landform, urban development, port infrastructure and vegetation, which combined with the very long distance and limited ZTV will result in VE array areas having a negligible change to the existing visual amenity and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.
Section 2 – Ray Lane, Ramsey to Stone Point, Wrabness	58.5	59.7	
Section 6 - Lower Holbrook to Shotley Gate	56.2	57.4	Section 6 of the Harwich to Shotley Gate section of the ECP follows the northern edges of the Stour Estuary and is partially within the urban area of Shotley Gate. The ZTV (Figure 10.18)



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>shows very low theoretical visibility of the VE array areas due to its position to the west of Shotley Gate, Harwich Harbour and Felixstowe, with views to the VE array areas restricted by a combination of landform, urban development, port infrastructure and vegetation, which combined with the very long distance and limited ZTV will result in VE array areas having a negligible change to the existing visual amenity and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.</p>
<p>England Coast Path – Shotley Gate to Felixstowe Ferry (Suffolk)</p>			
<p>Section 1 - Bristol Hill to Embankment West of Orford Bridge</p>	<p>55.6</p>	<p>56.7</p>	<p>Section 1 of the Shotley Gate to Felixstowe section of the ECP follows the southern edges of the River Orwell and is partially within the urban area of Shotley Gate around the marina. The ZTV (Figure 10.18) shows that the majority of this section has no visibility of the VE array areas, with limited areas of low theoretical visibility. Due to its position to the west of Harwich Harbour and Felixstowe, views to the VE array areas will be further restricted by a combination of landform, urban development, port infrastructure and vegetation, which combined with the very long distance and limited ZTV will result in VE array areas having a negligible change to the existing visual amenity and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
Section 3 - Priory Park to Shore Lane, Nacton	59.7	60.8	Section of ECP is entirely outside ZTV and VE array areas will result in zero change to views and the visual effect of the VE array areas is assessed as not significant .
Section 4 - Shore Lane, Nacton to Sea Road, Felixstowe	51.3	52.5	Section 4 of the Shore Lane to Sea Road, Felixstowe section of the ECP runs partially adjacent to the A14 and then largely within the urban area of Felixstowe, or on its inland side, with views to the VE array areas restricted primarily by urban development within the settlement of Felixstowe, which combined with the very long distance and limited ZTV will result in VE array areas having a negligible change to the existing visual amenity and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.
Section 5 - Landguard Point to Martello Tower, F. Ferry	48.6	49.9	Section 5 of the Shotley Gate to Felixstowe Ferry section of the ECP runs along the coast between Landguard Point and Felixstowe Ferry, where there are offshore views from coastal route, similar to those shown from Viewpoint 11 (Figure 10.36) and Viewpoint D (Figure 10.43). The VE array areas will be entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. The magnitude of change to the views resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (moderate/minor), direct, long-term and reversible.
England Coast Path – Felixstowe Ferry to Bawdsey (Suffolk)			
Section 1 - Felixstowe Ferry to Sandy Lane, Waldringfield	48.6	49.8	The Felixstowe Ferry to Bawdsey section of the ECP follows a route along the edges of the River Deben, extending inland along the southern side of the estuary from Felixstowe Ferry to Woodbridge; before returning on the northern side of the estuary to Bawdsey Quay. The majority of this section of the route is located inland away from the coast, is low-lying and has no visibility of the VE array areas, with the VE array areas resulting in zero change to the existing visual amenity experience from the route. Only limited parts of the sections nearer the coast afford low amounts of theoretical visibility, however they are located over 48 km from the VE array areas, and the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. Negligible levels magnitude of change will occur to the existing views from these sections nearer to the coast, and when
Section 2 - Ramsholt to Bawdsey Quay	48.3	49.5	
Section 3 - Sandy Lane, Waldringfield to Kyson Point	53.9	55.1	
Section 4 - Kyson Point to Wilford Bridge	53.5	54.8	
Section 5 - Wilford Bridge to Ferry Cliff	53.5	54.8	



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
Section 6 - Ferry Cliff to Ramsholt	50.8	52.0	combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.
England Coast Path – Bawdsey to Aldeburgh (Suffolk)			
BSA 1 – Bawdsey Quay to Butley Ferry (including Suffolk Coastal Path which has a coincident route between Bawdsey and Butley Ferry).	42.4	43.8	Secton BSA 1 of the ECP follows the coastal edge between Bawdsey Quay, Shingle Street and the northern edge of the River Ore to Butley Ferry. From the northern section of the route the landform of Orford Ness limits direct views of the seam which open out beyond Orford Haven. In views experienced between Shingle Street and Bawdsey Quay, as illustrated in Viewpoint C Bawdsey Manor (Figure 10.42) and Viewpoint 10 Shingle Street (Figure 10.35), the VE array areas will be almost entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore from this section of the ECP. Although the VE array areas contribute to increasing the influence and density of WTGs within this part of the view, and the larger scale of the WTGs may be evident (in very good and excellent visibility), the VE arrays will not contribute to increasing the lateral spread of existing wind farm development as the VE WTGs will be located almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the view that is already influenced by offshore WTGs. A negligible magnitude of change will occur to the existing views, and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
BSA 2 – Butley Ferry to Orford Quay (including Suffolk Coastal Path which has a coincident route between Butley Ferry and Chillesford near Tunstall Forest)	40.0	41.4	Section BSA 2 of the ECP extends inland around the Butley River and Boyton Marshes, before returning south to follow a route through Gedgrave Marshes along the River Ore to the north of Havergate Islands to Orford. Views from parts of this section of ECP are illustrated in Viewpoint 8 Burrow Hill (Figure 10.33). The majority of this section of the ECP around Butley River and Boyton Marshes is however outside the ZTV (Figure 10.18), with theoretical visibility through Gedgrave Marshes likely to be restricted by the intervening landforms of Havergate Island and Orford Ness. A negligible magnitude of change will occur to the existing views, and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.
SCP between Chillesford, Tunstall Forest and Iken Cliff	40 km	41.4	This section of the SCP follows a different route to the ECP to the north of Burrow Hill near Butley, extending further inland to Chillesford through Tunstall Forest, before re-joining the route of the ECP around the River Alde near Iken Cliff, and re-joining section BSA 4 of the ECP. The majority of this section of the SCP is outside the ZTV (Figure 10.18) or passes through Tunstall Forest, with theoretical visibility restricted by the surrounding woodland. A negligible magnitude of change will occur to the existing views, and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
BSA 3 – Orford Quay to Ferry Lane	38.5	39.9	<p>Secton BSA 3 of the ECP extends from Orford along the western, inland edge of the River Ore to Ferry Lane near the River Alde. Although there is theoretical visibility of the VE arrays from this section of the ECP (Figure 10.18), visibility is likely to be restricted by the intervening landform of Orford Ness which is between the River Alde/Ore and the sea, and prevents direct views of the sea from this section of the ECP. When visible, the VE array areas will be viewed across Orford Ness in the very distant backdrop, beyond other existing tall vertical elements (Orfordness transmitting station) in the view across Lantern Marshes; and subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore from this section of the ECP. A negligible magnitude of change will occur to the existing views and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.</p>
BSA 4 – Ferry Lane to Hazelwood Marshes	39.6	41.0	<p>Secton BSA 4 of the ECP extends inland around the River Alde through the Iken marshes, before returning east towards the coast following a route through Black Heath Wood to Hazelwood Marshes. The majority of this section of the ECP is outside the ZTV (Figure 10.18) with views restricted by landform between the path and the coast, or passes through woodland, which further restricts coastal views. A negligible magnitude of change will occur to the existing views, and when combined with the high sensitivity of the</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.
BSA 5 - Hazelwood Marshes to Aldeburgh	38.5	40.0	Secton BSA 5 of the ECP extends along the A1094 Road from Hazelwood Marshes car park through Aldeburgh. The majority of this section of the ECP is outside the ZTV (Figure 10.18) or views are restricted by the built up urban areas of Aldeburgh between the path and the coast, which restricts coastal views. A negligible magnitude of change will occur to the existing views, and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.
England Coast Path / Suffolk Coast Path – Aldeburgh to Hopton-on-Sea (Suffolk)			
AHS 1 – Aldeburgh to Sizewell (including Suffolk Coastal Path which has a coincident route between Aldeburgh and Sizewell).	38.7	40.0	Section AHS 1 follows the coast between Aldeburgh and Sizewell, where there are offshore views similar to those shown in Viewpoint 6 Aldeburgh (Figure 10.31) and Viewpoint 4 Sizewell (Figure 10.29). Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from this section of the ECP, views of the VE WTGs may only occur during infrequent periods of very good and excellent visibility at such long range (over 38 km). VE array areas will mainly be subsumed behind the existing Greater Gabbard and Galloper OWFs, contributing to increasing the influence and density of WTGs within this part of the offshore views from the route, and the larger scale of the VE WTGs may be evident (in very good and excellent visibility). The VE array areas will, however, contribute a limited



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>increase in the lateral spread of wind farm development, with parts of the northern array area extending WTGs northwards on the skyline from the existing Greater Gabbard and Galloper OWFs, adding a further 5-7° of WTG developed skyline to the HFoV, within a part of the view that is already influenced by the clutter of distant offshore WTGs on the sea skyline. The magnitude of change to the views experienced from section AHS 1 – Aldeburgh to Sizewell of the ECP resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (moderate/minor), direct, long-term and reversible.</p>
<p>AHS 2 – Sizewell to Dunwich (including Suffolk Coastal Path which has a coincident route between Sizewell and Dunwich)</p>	41.1	42.5	<p>Section AHS 1 follows the coast between Sizewell and Dunwich, where there are offshore views similar to those shown in Viewpoint 3 Dunwich Heath (Figure 10.28) and Viewpoint 4 Sizewell (Figure 10.29). Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from this section of the ECP, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 41 km). VE array areas will mainly be subsumed behind the existing Greater Gabbard and Galloper OWFs, contributing to increasing the influence and density of WTGs within this part of the offshore views from the route, and the larger scale of the VE WTGs may be evident (in excellent visibility). The VE array areas will, however, contribute a limited increase in the lateral spread of wind farm development, with parts of the northern array area extending</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>WTGs northwards on the skyline from the existing Greater Gabbard and Galloper OWFs, adding a further 7-8° of WTG developed skyline to the HFoV, within a part of the view that is already influenced by the clutter of distant offshore WTGs on the sea skyline. The magnitude of change to the views experienced from section AHS 2 – Sizewell to Dunwich of the ECP resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (moderate/minor), direct, long-term and reversible.</p>
<p>AHS 3 – Dunwich to Southwold (including Suffolk Coastal Path which has a coincident route between Dunwich and Southwold)</p>	<p>45.9</p>	<p>47.2</p>	<p>Section AHS 3 follows the coast between Dunwich and Southwold, where there are offshore views similar to those shown in Viewpoint 1 Southwold (Figure 10.26) and Viewpoint 2 Dunwich (Figure 10.27). Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from this section of the ECP, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over c.46 km). VE array areas will mainly be subsumed behind the existing Greater Gabbard and Galloper OWFs, contributing to increasing the influence and density of WTGs within this part of the offshore views from the route, and the larger scale of the VE WTGs may be evident (in excellent visibility). The VE array areas will, however, contribute a limited increase in the lateral spread of wind farm development, with parts of the northern array area extending WTGs northwards on the skyline from the existing Greater Gabbard and Galloper OWFs, adding a further 8-9° of WTG</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>developed skyline to the HFoV, within a part of the view that is already influenced by the clutter of distant offshore WTGs on the sea skyline. The magnitude of change to the views experienced from section AHS 3 – Dunwich to Southwold of the ECP resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (moderate/minor), direct, long-term and reversible.</p>
<p>AHS 4 – Southwold to Pakefield (including Suffolk Coastal Path which has a largely coincident route between Southwold and Pakefield)</p>	<p>47.6</p>	<p>48.7</p>	<p>Section AHS 4 follows the coast between Southwold and Pakefield, where there are offshore views similar to those shown in Viewpoint 1 Southwold (Figure 10.26) and Viewpoint A (Figure 10.40). Although the VE array areas may contribute to increasing the influence of WTGs within easterly offshore views from this section of the ECP, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 47 km). VE array areas will mainly be subsumed behind the existing Greater Gabbard and Galloper OWFs, contributing to increasing the influence and density of WTGs within this part of the offshore views from the route, and the larger scale of the VE WTGs may be evident (in excellent visibility). The VE array areas will, however, contribute a limited increase in the lateral spread of wind farm development, with parts of the northern array area extending WTGs northwards on the skyline from the existing Greater Gabbard and Galloper OWFs, adding a further 9° of WTG developed skyline to the HFoV, within a part of the view that is already influenced by the clutter of distant offshore WTGs on the</p>



Visual Receptor	Minimum distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			sea skyline. The magnitude of change to the views experienced from section AHS 4 – Southwold to Pakefield of the ECP resulting from the operation and maintenance of the VE array areas is assessed as low and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (moderate/minor), direct, long-term and reversible.
AHS 5 – Pakefield to Lowestoft (including Suffolk Coastal Path which has a largely coincident route between Pakefield and Lowestoft)	56.1	56.8	Section AHS 5 follows the coastline of Lowestoft where the existing visual amenity experienced by walkers on the ECP is influenced by urban and industrial development, which moderates sensitivity to change. Although the VE array areas may contribute to increasing the influence of WTGs within south-easterly offshore views from the coastal edge of Lowestoft, views of the VE WTGs may only occur during infrequent periods of excellent visibility at such long range (over 56 km) in very good and excellent visibility and at low acuity/contrast due to the distance from the route. A negligible magnitude of change will occur to the existing views, and when combined with the high sensitivity of the receptor, the visual effect of the VE array areas is assessed as not significant (minor), direct, long-term and reversible.
* Moderate/minor effects that are assessed in EIA terms under ‘very good’ or ‘excellent’ visibility conditions, may be minor or negligible during the remaining period of less optimal visibility conditions.			



IMPACT 16.9: IMPACT (NIGHT-TIME) OF THE OPERATION AND MAINTENANCE OF VE ARRAY AREAS LIGHTING ON VISUAL RECEPTORS / VIEWS

INTRODUCTION

- 10.11.285 This section provides an assessment of the visual effects arising from the visible lighting requirements (aviation and marine navigational) of the VE array areas. The VE array areas may have impacts on visual receptors/views at night during the operation and maintenance phase. Construction and decommissioning effects of aviation and marine navigation lighting have been scoped out of the SLVIA as agreed with the Planning Inspectorate (Table 10.2).
- 10.11.286 The Air Navigation Order 2016 (S.I 2016/765) (Article 223 (paragraph 1)) requires WTGs to be lit to assist their detection by aircraft where the height of which is 60 metres or more above HAT, with a medium intensity (2000 candela (cd)) steady red light mounted on the top of the fixed structure (WTG nacelle). If four or more WTGs are located together in the same group, with the permission of the CAA, only those on the periphery of the group need be fitted with a light in accordance with Article 223 (paragraph 12c).
- 10.11.287 Marine navigational lights (aid to navigation lights) will also be fitted at the platform level on significant peripheral structures (SPS).
- 10.11.288 As such, there is potential that parts of the VE array areas may be visible at night and result in potential impacts on views, which are assessed in this section of the SLVIA.
- 10.11.289 This visual assessment of WTG lighting is supported by a baseline lighting map (Figure 10.20), a ZTV of the aviation lighting (Figure 10.21) and night-time photomontage visualisations from four viewpoints - Viewpoint 2 Dunwich Beach (Figure 10.28h-k); Viewpoint 6 Aldeburgh (Figure 10.31i-m); Viewpoint 11 Old Felixstowe (Figure 10.36i-m); and Viewpoint 12 The Naze (Figure 10.37h-k).

REGULATIONS AND GUIDANCE

THE AIR NAVIGATION ORDER 2016 (AMENDED 2022)

- 10.11.290 Within the UK, the International Civil Aviation Organisation (ICAO) / European Aviation Safety Agency (EASA) requirements for lighting WTGs are implemented through The Air Navigation Order 2016.
- 10.11.291 The VE WTGs, at a maximum of 424m to blade tip (above LAT) and located in UK territorial waters, will require lighting under Article 223 of the Air Navigation Order 2016. Article 223 modifies the Article 222 requirement with respect to offshore WTGs and applies to any WTG *'the height of which is 60 metres or more above the level of the sea at the highest astronomical tide'* and that *'is situated in waters within or adjacent to the United Kingdom up to the seaward limits of the territorial sea'* to be *'fitted with at least one medium intensity steady red light positioned as close as reasonably practicable to the top of the fixed structure'*.



- 10.11.292 When displayed, the angle of the plane of the beam of peak intensity emitted by the light must be - *(a) elevated to between 3° and 4° above the horizontal plane; (b) not more than 45% or less than 20% of the minimum peak intensity is to be visible at the horizontal plane; and (c) not more than 10% of the minimum peak intensity is to be visible at a depression of 1.5° or more below the horizontal plane.* This provides embedmitigation as the beam of peak intensity is angled above the horizontal plane, with no more than 10% of the peak intensity (200 cd) visible below 1.5° of the horizontal plane, therefore low lying coasts and seas (below the horizontal plane of the nacelle) would experience lighting at reduced intensity.
- 10.11.293 Air Navigation Order 2016 Article 223 (8) also states that *“If visibility in all directions from every WTG generator in a group is more than 5km the light intensity for any light required by this article to be fitted to any generator in the group and displayed may be reduced to not less than 10% of the minimum peak intensity specified for a light of this type.”* This allows the minimum intensities identified above to be dimmed to 10% of their values if meteorological conditions permit (i.e. the 2,000cd minimum intensity may be dimmed to 10%, or 200cd, if visibility is greater than 5km, i.e. in moderate to excellent or ‘clear’ visibility).
- 10.11.294 Article 223 also allows for the CAA to permit that only those WTGs on the periphery of the array need be fitted with a light and it is assumed that the CAA will require that all WTGs on the periphery of the VE array areas will be equipped with aviation warning lighting, as shown in Figure 10.1.
- 10.11.295 It is also assumed that marine navigational lights (aid to navigation lights) will also be fitted at the platform level on these significant peripheral structures (SPS) (Figure 10.1). These lights will be synchronized to display simultaneously an IALA “special mark” characteristic, flashing yellow, with a range of not less than five (5) nautical miles.

GUIDANCE

- 10.11.296 GLVIA3 (Landscape Institute, 2013) recommends that ‘the visual effects assessment will need to include qualitative assessments of the effects of the predicted light levels on night-time visibility’ and that ‘reference should be made to appropriate guidance, such as that provided by the Institution of Lighting Professionals (ILP, 2011)’.
- 10.11.297 Guidance produced by the Institute of Lighting Professionals (ILP, 2011) is useful in setting out some key terminology that is used in this visual assessment of wind turbine lighting:
- > *‘Obtrusive Light - whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution, which may also be a nuisance in law and which can be substantially reduced without detriment to the lighting task;*
 - > *Skyglow – the brightening of the night sky;*
 - > *Glare – the uncomfortable brightness of a light source when viewed against a darker background; and*
 - > *Light Intrusion – the spilling of light beyond the boundary of the property or area being lit, are all forms of obtrusive light which may cause nuisance to others’.*



ASSESSMENT METHODOLOGY

- 10.11.298 The assessment of night-time visual effects is based on the description of proposed WTG lighting set out above in respect of that required by Air Navigation Order 2016 and the assumed MDS in
- 10.11.299 Table 10.17, utilising the methodology set out in Volume 6, Part 7, Annex 10.1: Seascape, Landscape and Visual Methodology.
- 10.11.300 The effect of the visible lights will be dependent on a range of factors, including the intensity of lights used, the clarity of atmospheric visibility and the degree of negative/ positive vertical angle of view from the light to the receptor. In compliance with EIA Regulations, the likely significant effects of a 'worst-case' scenario for WTG lighting are assessed and illustrated in this visual assessment.
- 10.11.301 A worst-case approach is applied to the assessment that considers the potential effects of medium-intensity 2000 cd lights in clear visibility. It should be noted however, that medium intensity lights are only likely to be operated at their maximum 2000 cd during periods of poor visibility and that *low lying coasts and seas (below the horizontal plane of the nacelle) would experience lighting at reduced intensity (200 cd)*. A further assessment of the likely residual effects is therefore made factoring in mitigation, i.e., that the 2000 cd aviation lights will be dimmed to 10% of their value (200 cd) if meteorological conditions permit (when visibility is greater than 5 km).
- 10.11.302 The East Anglia TWO offshore wind farm provides a recent precedent for the consideration of effects of night-time lighting of offshore WTGs in the SLVIA study area. The Recommendation Report (PINS, October 2021) (9.3.45) identifies that *'Night-time lighting of the nacelles of the proposed turbines was amended in response to concerns raised. The dDCO was amended (Schedule 1, Part 3, Requirement 31) to include a new sub-section stating that required aviation lighting would be operated at the lowest permissible lighting intensity. This would mean that nacelle lighting intensity would be reduced from 2000cd to 200cd where the horizontal meteorological visibility in all directions from every turbine in the group is more than 5km'*.
- 10.11.303 This was welcomed by Natural England during the Examination and *'it was confirmed that Natural England had no objections to the night-time effects of the Proposed Development and that this would have no effect on the statutory purposes of the SCHAONB'* (PINS, October 2021) (9.4.4).
- 10.11.304 As set out in
- Table 10.17, the VE WTG aviation lighting will also accord with Air Navigation Order 2016 Article 223 (8), so that if visibility in all directions from every WTG is more than 5km, the light intensity may be reduced to not less than 10% (200cd) when meteorological conditions permit. The VE WTG aviation lighting will therefore be viewed at reduced intensity (when visibility is >5km) at long distance from the coast (over 38km from the closest section of coast) and in the context of existing windfarm lighting.
- 10.11.305 It should be noted that the WTGs would also include infra-red lighting on the hubs, which would not be visible to the human eye. Details of the lighting would be agreed with the MoD. The focus of the night-time visual assessment in this assessment is on the visible lighting requirements of the VE array areas.



10.11.306 The study area for the visual assessment of WTG lighting is shown in Figure 10.20 and Figure 10.21 and is coincident with the 60 km SLVIA Study Area, however it is notable that the ZTV is reduced for WTG lighting at nacelle height (compared to the blade tip ZTV) and the assessment is particularly focused on the Suffolk and Essex coastlines with offshore views.

VISUAL REPRESENTATIONS

10.11.307 A ZTV has been produced to show the areas from which the medium-intensity aviation lights may theoretically be seen (Figure 10.21). This ZTV can be used to identify where the aviation lights may theoretically be visible and how many lights may be theoretically visible from different locations. The ZTV illustrates the 'bare ground' situation and does not take into account the screening effects of vegetation, buildings, or other local features that may prevent or reduce visibility. It also does not indicate the decrease in intensity of the lights that occurs with increased distance. The nature of what is visible from 5 km away would differ markedly from what is visible from 15 km or 30 km away, although both are indicated on the ZTV as having the same level of visibility in terms of number of aviation lights visible.

10.11.308 Night-time baseline view panoramas and photomontage visualisations showing medium-intensity nacelle mounted aviation lighting are also presented from four viewpoints based on the nacelle mounted position of the aviation lights on each of the peripheral WTGs in the MDS layout (Figure 10.21):

- > Viewpoint 2 Dunwich Beach (Figure 10.28h-k);
- > Viewpoint 6 Aldeburgh (Figure 10.31i-m);
- > Viewpoint 11 Old Felixstowe (Figure 10.36i-m); and
- > Viewpoint 12 The Naze (Figure 10.37h-k).

10.11.309 These viewpoints have been selected to be representative of the closest sections of the SLVIA study area coastline to the VE array areas, from locations within both Suffolk and Essex, from which the visual effect of aviation lighting at night is likely to be at its maximum.

10.11.310 The night-time photography has been captured in low light conditions, after the end of civil twilight, when 'night' has been reached and when other artificial lighting, such as streetlights, car headlamps, lights on buildings and other offshore WTG lighting is turned on, to show how the aviation lighting would look compared to the existing baseline at such times, being optimum and worst case for the purposes of the assessment.

10.11.311 Although aviation lighting manufacturers must meet the minimum requirements, their products and intensity at any particular time may vary in relation to required range set out in Air Navigation Order 2016, which makes it difficult to produce accurate visualisations as the lighting intensity of different light fittings, and during different visibility conditions, may vary within the requirements stipulated. The night-time photomontages shown in these figures have been produced to show 2000 cd lighting and to replicate the lighting intensity of other offshore WTGs in the night-time baseline views, to inform the assessment of worst-case effects assessed and are likely to over-represent the visibility of aviation warning lighting experienced in reality, as they are likely to operate at reduced intensity (200 cd) in clear visibility conditions.



NIGHT-TIME EFFECTS ON VIEWS AND VISUAL AMENITY

AVIATION LIGHTING ZTV

- 10.11.312 Visual effects of the aviation lighting will only occur where their introduction influences the visual amenity and views experienced by people in the area. The geographic areas where these visual effects may occur is defined by the ZTV shown in Figure 10.21. The nacelle aviation light ZTV can be used to identify where the aviation lights may theoretically be visible and how many lights may be visible from different locations. The ZTV is based on the nacelle mounted position of the aviation lights on each of the peripheral WTGs in the MDS layout (Figure 10.21).
- 10.11.313 The ZTV has been calculated using digital terrain data, which does not account for the screening effects of vegetation or built form. It also does not indicate the decrease in visibility of WTG aviation lights that occurs with increased distance from the array area or atmospheric visibility due to the weather conditions. The aviation lighting ZTV therefore shows a worst-case and is likely to overstate the actual visibility of the VE array areas, which would be further screened by vegetation or built form and visibility of the lights reduced by prevailing atmospheric conditions.
- 10.11.314 The ZTV (Figure 10.21) shows that the WTG aviation lights will not be visible from geographic areas shown in 'dark grey' in the mapping with no ZTV colouring, where the terrain prevents views of the WTG aviation lights. Notably, these areas where the WTG aviation lights will not be visible include the hinterland and inland areas of the SLVIA study area, and the main estuaries, where views of the sea become increasingly screened within the main river valleys, either by adjacent rising land or coastal landforms (such as Orford Ness). Actual visibility of WTG lighting from these hinterland and inland areas also becomes increasingly screened by vegetation, such as woodland and hedgerows, and/or built development and settlement.
- 10.11.315 The ZTV (Figure 10.21) shows that the main areas of higher theoretical visibility of the WTG aviation lights will be from the open seas within the SLVIA Study Area, within approximately 30km of the windfarm site, the coastline of Suffolk between Dunwich and Felixstowe at distances over 37.3 km from the coast; and from the Essex coastline between Harwich, The Naze and Holland-on-Sea at distances over 53 km from the coast. The effect of the VE array areas at night on coastal views from these locations are assessed with reference to representative viewpoints at Viewpoint 2 Dunwich Beach (Figure 10.28h-k); Viewpoint 6 Aldeburgh (Figure 10.31i-m); Viewpoint 11 Old Felixstowe (Figure 10.36i-m); and Viewpoint 12 The Naze (Figure 10.37h-k).

VIEWPOINT 2 DUNWICH BEACH

Sensitivity to Change

- 10.11.316 In views from Dunwich Beach (Figure 10.28h-k) the WTG aviation lights will be seen in the context of a relatively dark baseline context, with no lighting at Dunwich Beach itself, and existing coastal lighting being distant to the north at Southwold, where the lights of the settlement are evident on the coastal edge. The open seascape includes some visible night-time lighting sources, including cardinal buoys, boats in nearshore waters, commercial vessels en route to Lowestoft Port, and the WTG aviation lighting of Greater Gabbard and Galloper offshore windfarms at long distance (over 39km from the viewpoint).



10.11.317 The sensitivity of receptors at Viewpoint 2 Dunwich Beach at night is considered to be medium-high, reflecting a medium value at night-time and the receptors experiencing the view having a medium-high susceptibility to change. There is no formal recognition of the view as having value at night-time (for example, as a dark sky discovery site), and it is not specifically promoted to encourage visitors with the express intention of viewing the night sky, however the viewpoint is representative of the 'relatively dark skies' of areas of the SCHAONB with dark skies. Although it is a location from which to look out to sea at night that is a relatively darker rural location than the settled areas of the SCHAONB, the susceptibility of people experiencing night-time views is influenced by some distant existing offshore WTG lighting, vessel lighting and lighting at Southwold to the north.

Magnitude of Change and Significance of Effect

10.11.318 The predicted view of the aviation lights at 2000 cd is shown in the photomontage view from Viewpoint 2 Dunwich Beach in Figure 10.28k. The marine navigation lights at platform level will not be visible from Dunwich Beach due to their low-lying position at platform level on the WTGs, which means they will be effectively 'screened' behind the intervening horizon due to earth curvature.

10.11.319 Aviation lighting at the nacelle height of the VE WTGs is predicted to be visible in the views at night only in excellent visibility conditions, with the closest potential wind turbine aviation light located approximately 46.8 km from the viewpoint.

10.11.320 The principal effect of the lighting of the VE WTGs will be to increase the number and influence of red WTG aviation lights on the skyline within the section of view occupied by Greater Gabbard and Galloper WTG aviation lights, and to extend the lighting over a slightly wider portion of the view to the north.

10.11.321 The extension of the lighting effect occurs to the north of Greater Gabbard and Galloper, viewed next to the existing offshore WTG lighting, and is therefore seen as a continuation of an existing lighting effect in the seascape, rather than an entirely new or unfamiliar feature. The northwards extension of the lights does, however, increase the lateral extent of skyline effected by WTG aviation lights and in so doing, the VE WTG aviation lights may slightly increase the interruption between the dark sea below and the dark skies above, however, the VE WTG aviation lights will not affect the 'continuity' of darkness, which will continue to occur across the wide expanse of seascape in the offshore panorama.

10.11.322 The aviation lights are low to the horizon and do not extend high into the sky, thus limiting the amount of the night-sky that is impeded and having limited influence on the view of stars in the night-sky. The stars and moon were observed in the dark skies above and will continue to be visible and unimpeded in the skies above the viewer. The aviation lights are not expected to result in obtrusive light that impedes the wider expanse of night sky, which can be experienced readily above the aviation lights, nor result in brightening of the night sky (skyglow) or glare on to the sea surface and will therefore not be of detriment to the overall experience of the night skies in this view.



- 10.11.323 A result of these factors, the magnitude of change on the night-time view as a result of the aviation lights operating at 2000cd is assessed as low and when combined with the medium-high sensitivity of the viewpoint, this results in a **not significant** (moderate/minor), direct, long-term and reversible effect, occurring primarily due to the extended spread of existing visible lights on the seascape horizon and a slight additional interruption of part of the continuity between dark seascape and dark skies. The effect of the WTG aviation lights is considered not significant on balance, because the lights integrate with the baseline WTG lighting in the view forming an extension of a familiar feature and are located at very long distance and at low intensity, such that they do not compromise or diminish the view of the night sky or the dark landscape of the visible parts of the SCHAONB coastline. The operation of aviation lights at the lower intensity of 200cd when visibility from every WTG is >5 km will provide further mitigation and reduction in the perceived intensity of the visible lighting.
- 10.11.324 Excellent visibility will be required for the view at night from Dunwich Beach to be affected by the lighting within the VE array areas over 45.5km away. Met Office visibility data indicates 9% visibility frequency at this range. Moderate/minor effects that are assessed in EIA terms under 'excellent' visibility conditions, may be minor or negligible during the remaining period (91%) of less optimal visibility conditions.

VIEWPOINT 6 ALDEBURGH

Sensitivity to Change

- 10.11.325 In views from Aldeburgh (Figure 10.31i-m) the WTG aviation lights will be seen in the context of a baseline influence of lighting at night along the settled seafront of Aldeburgh. The open seascape also includes some visible night-time lighting sources, including cardinal buoys, boats in nearshore waters, commercial vessels to the south, and the WTG aviation lighting of Greater Gabbard and Galloper offshore windfarms at long distance (over 29km from the viewpoint).
- 10.11.326 The sensitivity of receptors at Viewpoint 6 Aldeburgh at night is considered to be medium, reflecting a medium value at night-time and the receptors experiencing the view having a medium susceptibility to change. There is no formal recognition of the view as having value at night-time (for example, as a dark sky discovery site), and it is not specifically promoted to encourage visitors with the express intention of viewing the night sky, and due to its urban location, the viewpoint is not representative of the 'relatively dark skies' experienced within rural areas of the SCHAONB. It is however, a readily accessible location from which to look out to sea at night from the beach and sea-front, in which the seascape is relatively dark other than the distant influence of WTG aviation lighting and occasional large vessels.

Magnitude of Change and Significance of Effect

- 10.11.327 The predicted view of the aviation lights at 2000 cd is shown in the photomontage view from Viewpoint 6 Aldeburgh in Figure 10.31m. The marine navigation lights at platform level will not be visible from Aldeburgh due to their low-lying position at platform level on the WTGs, which means they will be effectively 'screened' behind the intervening horizon due to earth curvature.



- 10.11.328 Aviation lighting at the nacelle height of the VE WTGs is predicted to be visible in the views at night only in excellent visibility conditions, with the closest potential wind turbine aviation light located approximately 40.3 km from the viewpoint.
- 10.11.329 The principal effect of the lighting of the VE WTGs will be to increase the number and influence of red WTG aviation lights on the skyline within the section of view occupied by Greater Gabbard and Galloper WTG aviation lights, and to extend the lighting over a slightly wider portion of the view to the north.
- 10.11.330 The extension of the lighting effect occurs to the north of Greater Gabbard and Galloper, viewed next to the existing offshore WTG lighting, and is therefore seen as a continuation of an existing lighting effect in the seascape, rather than an entirely new or unfamiliar feature. The northwards extension of the lights does, however, increase the lateral extent of skyline effected by WTG aviation lights and in so doing, the VE WTG aviation lights may slightly increase the interruption between the dark sea below and the dark skies above, however, the VE WTG aviation lights will not affect the 'continuity' of darkness, which will continue to occur across the wide expanse of seascape in the offshore panorama.
- 10.11.331 The aviation lights are low to the horizon and do not extend high into the sky, thus limiting the amount of the night-sky that is impeded and having limited influence on the view of stars in the night-sky. The stars and moon were observed in the dark skies above and will continue to be visible and unimpeded in the skies above the viewer. The aviation lights are not expected to result in obtrusive light that impedes the wider expanse of night sky, which can be experienced readily above the aviation lights, nor result in brightening of the night sky (skyglow) or glare on to the sea surface and will therefore not be of detriment to the overall experience of the night skies in this view.
- 10.11.332 A result of these factors, the magnitude of change on the night-time view as a result of the aviation lights operating at 2000cd is assessed as low and when combined with the medium sensitivity of the viewpoint, this results in a **not significant** (moderate/minor), direct, long-term and reversible effect, occurring primarily due to the extended spread of existing visible lights on the seascape horizon and a slight additional interruption of part of the continuity between dark seascape and dark skies. The effect of the WTG aviation lights is considered not significant on balance, because the lights integrate with the baseline WTG lighting in the view forming an extension of a familiar feature and are located at very long distance and at low intensity, such that they do not compromise or diminish the view of the night sky or the dark landscape of the visible parts of the SCHAONB coastline. The operation of aviation lights at the lower intensity of 200cd when visibility from every WTG is >5 km will provide further mitigation and reduction in the perceived intensity of the visible lighting.
- 10.11.333 Very good or excellent visibility will be required for the view from Aldeburgh at night to be affected by the lighting within the VE array areas over 38.9km away. Met Office visibility data indicates 21% visibility frequency at this range. Moderate/minor effects that are assessed in EIA terms under 'very good' or 'excellent' visibility conditions, may be minor or negligible during the remaining period (79%) of less optimal visibility conditions.



Sensitivity to Change

- 10.11.334 In views from Old Felixstowe (Figure 10.36i-m) the WTG aviation lights will be seen in the context of substantial baseline influence of lighting at night, including the WTG aviation lighting of Greater Gabbard and Galloper offshore windfarms; the WTG aviation lighting and marine navigation lighting of London Array and Gunfleet Sands offshore windfarms; lighting of anchored vessels in the Thames Estuary; and lighting of the urban seafront along the coast. The sensitivity of receptors at Viewpoint 11 Old Felixstowe at night is considered to be medium-low, reflecting a low value at night-time and the receptors experiencing the view having a medium susceptibility to change.
- 10.11.335 There is no formal recognition of the view as having value at night-time (for example, as a dark sky discovery site) and it is not specifically promoted to encourage visitors with the express intention of viewing the night sky. Although it is a location from which to look out to sea at night, the susceptibility of people experiencing night-time views is influenced by existing lighting within the settlements, including sea-front residential lighting, street lighting and vehicles, as well as existing offshore WTG lighting and vessel lighting out to sea, such that the susceptibility of receptors is lower than areas where the baseline contains limited existing lighting. The influence and intensity of existing lighting of these sea fronts notably reduces the sensitivity to change to the appearance of distant WTG lighting out to sea.

Magnitude of Change and Significance of Effect

- 10.11.336 The predicted view of the aviation lights at 2,000 cd is shown in the photomontage view from Viewpoint 11 Old Felixstowe in Figure 10.36m. The marine navigation lights at platform level will not be visible from Felixstowe due to their low-lying position at platform level on the WTGs, which means they will be effectively 'screened' behind the intervening horizon due to earth curvature.
- 10.11.337 Aviation lighting at the nacelle height of the VE WTGs is predicted to be visible in the views at night only in excellent visibility conditions, with the closest potential wind turbine aviation light located approximately 50.3 km from the viewpoint.
- 10.11.338 The aviation lighting of the VE WTGs may introduce further point sources of red light into the distance, that will be seen low to the horizon and subsumed behind the existing WTG lighting of the operational Greater Gabbard and Galloper wind farms; thereby limiting the intrusion into the wider horizon and views of stars in the night-sky that may be seen above. The visible aviation lights would be small scale and very distant and would not be unusual in the context of other distant WTG aviation lighting seen offshore in views from these viewpoints. The views from this Felixstowe coastline are not within a dark location and as such the introduction of further WTG aviation lighting would be appreciated in the context of other light sources, at a range of distances.



10.11.339 The VE WTG aviation lights are assessed as being likely to result in a negligible magnitude of change to the existing view at night at such long range and at relatively low perceived intensity, located behind the operational offshore WTG lighting at Greater Gabbard and Galloper (which are located at closer range) and the brighter lighting of large tanker vessels on the skyline in the intervening seascape. The effect of the lighting of the VE array areas at night on coastal views from Old Felixstowe is assessed as being of negligible magnitude and **not significant** (negligible), direct, long-term and reversible. The operation of aviation lights at the lower intensity of 200cd when visibility from every WTG is >5 km will provide further mitigation and reduction in the perceived intensity of the visible lighting.

VIEWPOINT 12 THE NAZE

Sensitivity to Change

10.11.340 In views from The Naze (Figure 10.37h-k) the WTG aviation lights will be seen in the context of less urban lighting at the coast, being at the southern end of the relatively darker location of the Naze, away from the urban areas of Walton-on-the-Naze to the south. There is, however, substantial baseline influence of existing offshore WTG lighting in the seascape at night, including Greater Gabbard and Galloper aviation lights; as well as the WTG aviation lighting and marine navigation lighting of London Array and Gunfleet Sands offshore windfarms; and lighting of anchored vessels in the Thames Estuary. The sensitivity of receptors at Viewpoint 12 The Naze at night is considered to be medium, reflecting a medium value at night-time and the receptors experiencing the view having a medium susceptibility to change.

10.11.341 There is no formal recognition of the view as having value at night-time (for example, as a dark sky discovery site) and it is not specifically promoted to encourage visitors with the express intention of viewing the night sky. Although it is a location from which to look out to sea at night that is relatively darker than the urban developed areas to the south, the susceptibility of people experiencing night-time views is influenced by existing offshore WTG lighting and vessel lighting out to sea, such that the susceptibility of receptors is lower than areas where there is no baseline lighting out to sea.

Magnitude of Change and Significance of Effect

10.11.342 The predicted view of the aviation lights at 2000 cd is shown in the photomontage view from The Naze (Figure 10.37h-k). The marine navigation lights at platform level will not be visible from The Naze due to their low-lying position at platform level on the WTGs, which means they will be effectively 'screened' behind the intervening horizon due to earth curvature.

10.11.343 Aviation lighting at the nacelle height of the VE WTGs is predicted to be visible in the views at night only in excellent visibility conditions, with the closest potential wind turbine aviation light located approximately 54.3 km from the viewpoint.



- 10.11.344 The aviation lighting of the VE WTGs may introduce further point sources of red light into the distance, that will be seen low to the horizon and subsumed behind the existing WTG lighting of the operational Greater Gabbard and Galloper wind farms; thereby limiting the intrusion into the wider horizon and views of stars in the night-sky that may be seen above. The visible aviation lights would be small scale and very distant and would not be unusual in the context of other distant WTG aviation lighting seen offshore in views from these viewpoints. The introduction of further WTG aviation lighting would be appreciated in the context of other offshore light sources, with those marking the Greater Gabbard, Galloper, London Array and Gunfleet Sands offshore windfarms all being at closer range and likely to be viewed at brighter intensity.
- 10.11.345 The VE WTG aviation lights are assessed as being likely to result in a low magnitude of change to the existing view at night at such long range and at relatively low perceived intensity, located behind the operational offshore WTG lighting at Greater Gabbard and Galloper (which are located at closer range) and the brighter lighting of large tanker vessels on the skyline in the intervening seascape. The effect of the lighting of the VE array areas at night on coastal views from The Naze is assessed as being of negligible magnitude and **not significant** (minor), direct, long-term and reversible. The operation of aviation lights at the lower intensity of 200cd when visibility from every WTG is >5 km will provide further mitigation and reduction in the perceived intensity of the visible lighting.
- 10.11.346 Excellent visibility will be required for the view at night from the Naze to be affected by the lighting within the VE array areas over 54.3 km away. Met Office visibility data indicates 4% visibility frequency at this range. Minor effects that are assessed in EIA terms under 'excellent' visibility conditions, may be negligible during the remaining period (96%) of less optimal visibility conditions.

IMPACT 16.19: IMPACT (NIGHT-TIME) OF THE OPERATION AND MAINTENANCE OF VE ARRAY AREAS LIGHTING ON SEASCAPE AND LANDSCAPE CHARACTER

INTRODUCTION

- 10.11.347 ICAO indicates a requirement for no lighting to be switched on until 'Night' has been reached, as measured at 50 cd/m² or darker. It does not require 2000 cd medium intensity to be on during 'twilight', when seascape and landscape character may be discerned. The aviation and marine navigational lights may be seen for a short time after civil twilight, during the early nautical twilight period, when some recognition of landscape features/ profiles/ shapes and patterns may be possible (yet technically 'night'). It is considered however, that level of recognition does not amount to an ability to appreciate in any detail landscape character differences and subtleties, nor does it provide sufficient natural light conditions to undertake a landscape character assessment.
- 10.11.348 The assessment of the lighting of the VE array areas is primarily intended to determine the likely significant effects on the visual resource, undertaken in respect of Impact 16.9 above i.e., it is an assessment of the visual effects of aviation lighting on views experienced by people at night. The matter of visible aviation and marine navigation lighting assessment is primarily a visual matter and the assessment presented in this SLVIA focusses on that premise.



- 10.11.349 To date the only formal recognition of this approach to assessment is the Scottish Ministers' Decision for the Crystal Rig IV PLI. The Reporters concluded in their report at paragraph 4.141: *"It can be seen from the summaries of evidence that the parties differ as to whether the proposed aviation lighting would be a visual impact alone. We consider that without being able to see and fully appreciate the features of the landscape and the composition of views it is not possible to carry out a meaningful landscape character assessment. On this matter, we find that the proposed lighting is indeed a visual concern, as the applicant asserts."*
- 10.11.350 In the absence of guidance being available, it is considered reasonable to adopt the findings of Scottish Ministers, following a detailed Public Inquiry as this provides support for focusing on the assessment of effects of wind turbine lighting as a visual matter.
- 10.11.351 The Scottish Government's Aviation Lighting Working Group is working on guidance to streamline the process for night-time lighting assessments. While this guidance has yet to be published, there is some consensus that the perception of landform/skylines at night is a relevant consideration (with perception being a component of visual effects). There is, however, also widespread agreement that it is not possible to undertake landscape character assessment after the end of civil twilight, when it is technically 'dark' and wind turbine aviation lighting is switched on.
- 10.11.352 The assessment of proposed WTG lighting at night in this SLVIA is therefore focused on visual effects experience by people, however some consideration is also given to whether there are effects resulting on the perception of coastal landform/skylines at night, for example where the perception of the landform of the foreshore, coast, bays and/or inshore islands may be affected at night by the WTG aviation lights in their skyline (i.e. where a perceived character effect may occur as a component of visual effects); and also for particular designations where dark skies are identified as a specific 'special quality' defined in their citation.

SUFFOLK

- 10.11.353 In respect of the SCHAONB, the special qualities of the SCHAONB principally focus on qualities that are perceived during the daytime. 'Areas with dark skies' are identified as one indicator of the cognitive and sensory scenic qualities of the SCHAONB and 'relatively dark skies' are identified as one of the contributors to the relative tranquillity of the SCHAONB. Dark night skies do not feature extensively in the description of the special qualities, which simply note that there are 'areas with dark skies' and that these are 'relatively dark', nevertheless, dark skies are a component of the natural beauty of the designation, which provides opportunity to experience a dark night sky with less urban light pollution, and this resource may contribute to the perceived scenic quality and tranquillity of the SCHAONB.
- 10.11.354 While there are areas of the SCHAONB with dark skies, there are several coastal areas of the SCHAONB that have higher levels of night-time lighting in the baseline, particularly around the main towns at Kessingland, Southwold, Sizewell, Leiston, Thorpeness and Aldeburgh, as well as several airfields, main transport routes further inland and lighting of existing developments such as Sizewell A and B Nuclear Power Station, which have an influence on the dark skies of the SCHAONB at night, including views from the coastline.



- 10.11.355 The influence of lighting of marine traffic on the seascape setting of the SCHAONB is less pronounced in the northern portion, but is still apparent, particularly further south, with many large vessels being visible on the sea skyline at night, including vessels using the nearby ports of Lowestoft and Felixstowe. Brightly lit anchored vessels can be seen in the night-time photomontages from Viewpoint 6 Aldeburgh (Figure 10.31i-m), for example, and from Viewpoint 11 Old Felixstowe (Figure 10.36j-m). The seascape also includes visible WTG aviation lighting of Greater Gabbard and Galloper offshore windfarms, which is visible in views from Viewpoint 2 Dunwich Beach (Figure 10.27h-k), Viewpoint 6 Aldeburgh (Figure 10.31i-m) and particularly from Viewpoint 11 Old Felixstowe, in which the WTG lighting of London Array and Gunfleet Sands is also visible at night (Figure 10.36j-k).
- 10.11.356 In views from the Suffolk coast at night, the VE WTG aviation lighting will not occur in the immediate setting of the coast or the SCHAONB, but will be on the horizon of a large, open seascape, rather than being viewed 'within' its seascape/landscape. The VE WTG aviation lighting are located offshore from the relatively simple, linear coastal landform of Suffolk, with a general lack of reference points, which does not afford opportunities to view the VE WTG aviation lights in the context of coastal landforms, bays, headlands or inshore islands, with limited potential for the VE WTG aviation lights to result in perceived character changes.
- 10.11.357 The simplicity of the main elements, consisting of shingle beach, sea and sky is the main characteristic at night that could be affected by the VE WTG lighting, and there may be a partial loss of night-time sea skyline where the VE WTG aviation lights extend the presence of red lights northwards slightly. While there is some potential for further interruption of the sea skyline at night, the magnitude of change to this perceived characteristic of LCTs along the Suffolk coast and SCHAONB is assessed as low and the effect **not significant** (moderate/minor), direct, long-term and reversible. The VE WTG aviation lights will not affect the overall 'continuity' of darkness and simplicity of the main elements, which will continue to occur across the wide expanse of seascape in the offshore panorama, and the main elements, consisting shingle beach, sea and sky will continue to be readily experienced and define the character at night.
- 10.11.358 Due to the relatively subtle changes to the relationship of constituent features and visible elements in the night-time sea view component of the large open vistas from the SCHAONB, the effect of the VE array areas lighting at night on the sensory appeal of the SCHAONBs relatively dark skies is considered to be of low magnitude and **not significant** (moderate/minor), indirect, long-term and reversible. Relatively dark night skies will continue to prevail in the existing areas with dark skies, and the fundamental sensory stimuli of these dark skies will not be lost as a result of the VE array areas lighting at night.



- 10.11.359 The changes identified will also not significantly affect the level of perceived tranquillity experienced at night within these areas of the SCHAONB with dark skies. Night-time lighting of the VE WTGs will introduce further lighting in the relatively dark night skies, however, will be viewed at long distance offshore, in the context of existing WTG lighting from parts of the SCHAONB and other lighting of vessels in the waters and result in low magnitude change and not significant (moderate/minor), indirect, long-term and reversible effect to the tranquillity experienced within the SCHAONB coastline at night. Opportunities to experience a sense of tranquillity at night will remain as the VE WTG lighting will not over-ride the dark skies that are the basis for the sense of tranquillity.
- 10.11.360 The VE WTG aviation lights are not expected to result in obtrusive light that impedes the wider expanse of night sky, which will continue to be experienced readily, nor result in brightening of the night sky (skyglow) or glare on to the sea surface and would therefore not be of detriment to the overall experience of the night skies of the SCHAONB. It is assessed that the VE VTG aviation lighting will not have significant effects on the perceived scenic quality or tranquillity of the SCHAONB at night, and that the VE WTG aviation lighting would not harm the statutory purposes of the SCHAONB.
- 10.11.361 Although the VE WTG aviation lighting may introduce further lighting into offshore views with relatively dark night skies, lighting will be viewed at reduced intensity (when visibility is >5km) at long distance (over approximately 38 km from the closest part of the SCHAONB) and in the context of existing windfarm lighting, minimising intrusion into the wider horizon and limiting the potential effects of the VE WTG array areas on perceived character of the Suffolk coast at night.

ESSEX

- 10.11.362 The Essex coastline within the SLVIA study area is primarily urban in character, including the settlements of Harwich, Walton-on-the-Naze, Frinton-on-Sea and Holland-on-Sea, which are extensively lit at night (Figure 10.20). These are urban coastlines whose fundamental urban character will not be changed by the addition of the VE WTG aviation lights in night-time views out to sea. The effect of the VE WTG lighting on the perceived character of these urban areas of the Essex coastline is assessed as being of negligible magnitude and not significant (minor), indirect, long-term and reversible.
- 10.11.363 Areas of Essex that experience darker skies at night occur at the Naze and around Hamford Water, however these areas are low-lying with lower levels of theoretical visibility (Figure 10.21) and are located at very long distance (over 53 km) from the lighting within the VE array areas. Although the VE WTG aviation lighting may therefore introduce further lighting into views out to sea at night, it will be viewed at reduced intensity (when visibility is >5km) at long distance (over 53 km) and in the context of existing windfarm lighting, subsumed entirely behind the existing WTG lighting of the operational Greater Gabbard and Galloper wind farms, minimising intrusion into the wider horizon and is assessed as resulting in a negligible magnitude of change and **not significant** (minor), indirect, long-term and reversible effect on the perceived character of rural areas of the Essex coast at night.



10.12 ENVIRONMENTAL ASSESSMENT: DECOMMISSIONING PHASE

IMPACT 16.10: IMPACT (DAYTIME) OF THE DECOMMISSIONING OF THE VE ARRAY AREAS ON SEASCAPE CHARACTER

- 10.12.1 The decommissioning of the VE array areas has the potential to result in significant effects on the perceived seascape character of SCT03, SCT05, SCT06 and MCA19, scoped into the detailed assessment in Table 10.19.
- 10.12.2 Decommissioning phase effects on seascape character will occur as a result of the construction activities, including the presence of jack-up vessels and/or heavy lift vessels during the decommissioning phase for the installation of foundations substructures and WTGs; windfarm service vessels and accommodation vessels; and partially constructed offshore elements; all of which may combine to alter the seascape character of the area within the VE array areas and the perceived character of the wider seascape through visibility of the decommissioning activities.
- 10.12.3 The effects arising as a result of the decommissioning of the VE array areas are assessed as being of the same magnitude and significance on all seascape character receptors as those arising due to their operation and maintenance, as assessed in Section 10.11, differing primarily as the effects will be short-term and temporary, during the length of the decommissioning phase. There may also be some variation in appearance of the decommissioning activities, compared to the operational and maintenance phase, mainly due the influence of the offshore jack-up vessels and partial WTG decommissioning that will not be present during the operational phase. For all seascape receptors these impacts during decommissioning are assessed to be of no greater magnitude and effects of no greater significance than the effects assessed during operation and maintenance.

IMPACT 16.11: IMPACT (DAYTIME) OF THE DECOMMISSIONING OF THE VE ARRAY AREAS ON PERCEIVED LANDSCAPE CHARACTER AND SPECIAL QUALITIES OF DESIGNATED LANDSCAPES

- 10.12.4 The decommissioning of the VE array areas has the potential to result in significant effects on the perceived character of the landscape character areas, designations and their special qualities scoped into the detailed assessment in Table 10.25.
- 10.12.5 Decommissioning phase effects on landscape character will occur as a result of the decommissioning activities, including the presence of jack-up vessels and/or heavy lift vessels during the decommissioning phase for the decommissioning of foundations substructures and WTGs; windfarm service vessels and accommodation vessels; and partially decommissioned offshore elements; all of which may combine to alter the perceived character of the wider landscape through visibility of the decommissioning activities.



10.12.6 The effects arising as a result of the decommissioning of the VE array areas are assessed as being of the same magnitude and significance on all landscape character receptors as those arising due to their operation and maintenance, as assessed in Section 10.11, differing primarily as the effects will be short-term and temporary during the length of the decommissioning phase. There may also be some variation in appearance of the decommissioning activities, compared to the operational and maintenance phase mainly due to the offshore jack-up vessels and partial WTG decommissioning that will not be present during the operational phase. For all landscape receptors these impacts during decommissioning are assessed to be of no greater magnitude and effects of no greater significance than the effects assessed during operation and maintenance.

IMPACT 16.12: IMPACT (DAYTIME) OF THE DECOMMISSIONING OF THE VE ARRAY AREAS ON VISUAL RECEPTORS / VIEWS

10.12.7 The decommissioning of the VE array areas has the potential to result in significant effects on the views and visual amenity of the visual receptors scoped into the detailed assessment in Table 10.28.

10.12.8 Decommissioning phase effects on views and visual amenity will occur as a result of the decommissioning activities, including the presence of jack-up vessels and/or heavy lift vessels during the decommissioning phase for the installation of foundations substructures and WTGs; windfarm service vessels and accommodation vessels; and partially decommissioned offshore elements; all which may combine to alter the views and visual amenity through visibility of these changes.

10.12.9 The effects arising as a result of the decommissioning of the VE array areas are assessed as being of the same magnitude and significance on all viewpoints and visual receptors as those arising due to their operation and maintenance, as assessed in Section 10.11, differing primarily as the effects will be short-term and temporary during the length of the decommissioning phase. There may also be some variation in appearance of the decommissioning activities, compared to the operational and maintenance phase mainly due to the offshore jack-up vessels and partial WTG decommissioning that will not be present during the operational phase. For all visual receptors these impacts during decommissioning are assessed to be of no greater magnitude and effects of no greater significance than the effects assessed during operation and maintenance.

10.13 ENVIRONMENTAL ASSESSMENT: CUMULATIVE EFFECTS

IMPACT 16.24: CUMULATIVE EFFECT (DAYTIME) OF THE CONSTRUCTION, OPERATION AND MAINTENANCE, AND DECOMMISSIONING OF VE ARRAY AREAS ON SEASCAPE CHARACTER, LANDSCAPE CHARACTER AND VIEWS / VISUAL RECEPTORS

METHODOLOGY

10.13.1 This cumulative impact assessment for seascape, landscape and visual has been undertaken in accordance with the methodology provided in Volume 6, Part 1, Annex 3.1: Cumulative Effects Assessment Methodology.



- 10.13.2 The Cumulative Effect Assessment (CEA) takes into account the impact associated with the VE array areas together with other relevant plans, projects and activities. Cumulative effects are therefore the additional or combined effect of the VE array areas in combination with the effects from a number of different projects, on the same receptor or resource. Please see Volume 6, Part 1, Annex 3.1: Cumulative Effects Assessment Methodology for the over-arching approach to the CEA.
- 10.13.3 GLVIA3 (Landscape Institute and IEMA 2013, p120) defines cumulative landscape and visual effects as those that *'result from additional changes to the landscape and visual amenity caused by the proposal in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future.'*
- 10.13.4 NatureScot's guidance, Assessing the Cumulative Impact of Onshore Wind Energy Developments (NatureScot 2012) is widely used across the UK to inform the specific assessment of the cumulative effects of windfarms. Both GLVIA3 and NatureScot's guidance provide the basis for the methodology for the cumulative SLVIA undertaken in the SLVIA. The NatureScot (2012) guidance defines:
- "Cumulative effects as the additional changes caused by a Proposed Development in conjunction with other similar developments or as the combined effect of a set of developments taken together* (NatureScot, 2012: p4);
- Cumulative landscape effects are those effects that 'can impact on either the physical fabric or character of the landscape, or any special values attached to it'* (NatureScot, 2012, p10); and
- Cumulative visual effects are those effects that can be caused by combined visibility, which occurs where the observer is able to see two or more developments from one viewpoint and / or sequential effects which occur when the observer has to move to another viewpoint to see different developments"* (NatureScot, 2012, p11).
- 10.13.5 In line with NatureScot guidance and GLVIA3, cumulative effects are assessed in this SLVIA as the additional changes caused by the VE array areas in conjunction with other similar developments (not the totality of the cumulative effect). The CEA assesses the cumulative effect of the proposed development with other projects (Table 10.31) against the baseline (Section 10.7), with the assessment of significance apportioning the amount of the effect that is attributable to the VE array areas. The contribution of the VE array areas to the cumulative effect upon the baseline character/view is assessed and information provided on *'how the effects of the applicant's proposal would combine and interact with the effects of other development'* (PINS, 2019).
- 10.13.6 Adjacent developments may complement one another, or may be discordant with one another, and it is the increased or reduced level of significance of effects which arises because of this change that is assessed in the CEA, such as through design discordance or proliferation of multiple developments affecting characteristics or new geographic areas, and ultimately if character changes occur because of multiple developments becoming a prevailing characteristic of the seascape or view.



TIERED APPROACH TO CEA

- 10.13.7 In accordance with NatureScot guidance and GLVIA3 (para 7.13), existing projects and those which are under construction (Table 10.31) are included in the SLVIA baseline and described as part of the baseline conditions, including the extent to which these have altered character and views, and affected sensitivity to windfarm development. An assessment of the additional effect of the VE array areas is undertaken in conjunction with a baseline that includes operational and under-construction projects as part of the main assessment in Section 10.11. This includes assessment of the VE array areas against magnitude factors such as its size, scale, spread and landscape context, as well as cumulative effect factors relating to the operational and under-construction wind farms, such as its increase in spread, aesthetic relationship, and contrasts of size and spacing of wind turbines of the projects.
- 10.13.8 A further assessment of the additional cumulative seascape, landscape and visual effects of the VE array areas with other potential future projects is undertaken in the Cumulative Effects Assessment (CEA) in this Section 10.13.
- 10.13.9 In undertaking this CEA for the VE array areas, it is important to bear in mind that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside the VE array areas. Therefore, a tiered approach has been adopted. This provides a framework for placing relative weight upon the potential for each project/plan to be included in the CEA to ultimately be realised, based upon the project/plan's current stage of maturity and certainty in the projects' parameters. The tiered approach which will be utilised within the CEA employs the following tiers:
- > Tier 1 assessment – all permitted and submitted applications, whether under the Planning Act 2008 or other regimes, but not yet implemented;
 - > Tier 2 assessment – projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted; and
 - > Tier 3 assessment – projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted; identified in the relevant Development Plan (and emerging Development Plans) recognising that there will be limited information available on the relevant proposals; and identified in other plans and programmes that set the framework for future development consents/approach, where such development is reasonably likely to come forward.



OTHER PLANS, PROJECTS AND ACTIVITIES

10.13.10 The projects and plans selected as relevant to the assessment of impacts to seascape, landscape and visual are based upon an initial screening exercise undertaken on a long list. Each project, plan or activity has been considered and scoped in or out on the basis of effect–receptor pathway, data confidence and the temporal and spatial scales involved. For the purposes of assessing the impact of the VE array areas on seascape, landscape and visual receptors in the SLVIA study area, the cumulative effect assessment technical note submitted through the EIA Evidence Plan and forming Technical Annex 1.3.1 of this ES screened in a number of projects and plans. Those included in the overall short list for the CEA have then been subject to a screening exercise specific to potential cumulative impacts on seascape, landscape and visual receptors (Table 10.31).

10.13.11 Each project or plan has been considered on a case by case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved. Projects screened into the CEA with potential for cumulative impact interactions for seascape, landscape and visual receptors, are mapped in the cumulative search area base plan compiled within the 60 km SLVIA study area (Figure 10.22). The specific projects scoped into the CEA for seascape, landscape and visual receptors, are set out in Table 10.31.

Table 10.31: Projects considered within the seascape, landscape and visual cumulative effect assessment

Project	Status	Project MDS	Data confidence	Included in the CEA?
Baseline - Operational and under-construction projects that are part of the baseline and considered as part of assessment in Section 10.11.				
East Anglia ONE	Operational	102 WTGs x 167m blade tip height	High	Considered as part of the baseline conditions in assessment of potential impacts (section 10.11) and baseline for CEA in Section 10.13.
Galloper	Operational	56 WTGs x 180.5m blade tip height	High	
Greater Gabbard	Operational	140 WTGs x 170m blade tip height	High	
Gunfleet Sands 1	Operational	30 WTGs x 129m blade tip height	High	
Gunfleet Sands 2	Operational	18 WTGs x 129m blade tip height	High	
Gunfleet Sands Demonstration	Operational	2 WTGs x 144m blade tip height	High	
London Array	Operational	175 WTGs x 147m blade tip height	High	
Lowestoft Ness Point	Operational	1 WTG x 126m blade tip height	High	



Project	Status	Project MDS	Data confidence	Included in the CEA?
Thanet	Operational	100 WTGs x 115m blade tip height	High	
Tier 1 - All permitted and submitted applications, but not yet implemented				
East Anglia ONE North	Permitted (consented)	53 WTGs x 300m blade tip height	Moderate	Considered as part of the Tier 1 CEA in Section 10.13.
East Anglia TWO	Permitted (consented)	60 WTGs x 300m blade tip height	Moderate	
Sizewell C Nuclear Power Station	Permitted (consented)	Plans provided in support of the Application including land plans, work plans, Main Development Site General Arrangement, Parameter Plans, Landscape Plans, Main Development Site Design and Access Statement (Doc Ref. 8.1) and Associated Development Design Principles (Doc Ref. 8.3).	Moderate	
Tier 2 - Scoping Report submitted and on Planning Inspectorate programme of projects				
North Falls	Scoping Report submitted	North Falls Offshore Wind Farm PEIR (May 2023), Chapter 5 Project Description, Figure 29.22 and Autumn 2023 newsletter (North Falls Offshore Wind Farm, September 2023). 34 WTGs x 377m blade tip height (above MHWS) within North Falls	Low	Considered as part of the Tier 2 CEA in Section 10.13.



Project	Status	Project MDS	Data confidence	Included in the CEA?
		Array Areas (Figure 10.22)		

TIER 1 CEA

- 10.13.12 The Tier 1 assessment considers all permitted and submitted applications that are not yet implemented within the SLVIA study area, as listed in Table 10.31 and shown in Figure 10.22.
- 10.13.13 There are two Tier 1 offshore wind farm projects within the SLVIA study area with potential for cumulative impacts with the VE array areas on seascape, landscape and visual receptors – East Anglia ONE North and East Anglia TWO. Separate applications for development consent for these projects were granted in March 2022.
- 10.13.14 The maximum design scenario for East Anglia ONE North ES assessment (Scottish Power Renewables, 2019) consists of 53 WTGs x 300m blade tip height, located 38.2km from the VE array areas and 36km from the closest point of the Suffolk coast (Figure 10.22). The maximum design scenario for East Anglia TWO ES assessment (Scottish Power Renewables, 2019) consists of 60 WTGs x 300m blade tip height, located 6.0km from the VE array areas and 32.6km from the closest point of the Suffolk coast (Figure 10.22).
- 10.13.15 Both projects also include offshore electrical platforms, an offshore construction, operation and maintenance platform, a meteorological mast, inter-array cables and export cables to take the electricity generated to landfall. The onshore works would comprise of the construction and operation of landfall connection works north of Thorpeness in Suffolk, underground cables running from landfall to a new onshore substation located at Grove Wood, Friston, together with a new National Grid substation.
- 10.13.16 Cumulative impacts on seascape, landscape and visual receptors may arise during the overlapping operational phases of East Anglia ONE North and East Anglia TWO with that of the VE array areas; and potential for overlapping construction phases.
- 10.13.17 The effects identified are considered as being likely to arise since East Anglia ONE North and East Anglia TWO have received planning consent, however it is the case that these projects may not ultimately be built in the form of the ES maximum design scenario, introducing some uncertainty that effects assessed in the Tier 1 assessment may not arise in full.



10.13.18 An application by NNB Generation Company (SZC) for a Development Consent Order (DCO) for the Sizewell C Nuclear Power Station (the 'Sizewell C') was granted by the Secretary of State in July 2022. In addition to the key operational elements of the UK EPR units, the Sizewell C Project comprises other permanent and temporary development to support the construction, operation and maintenance of Sizewell C. The key elements are the main site, comprising the Sizewell C nuclear power station itself, offshore works, land used temporarily to support construction including an accommodation campus, the enhancement of sports facilities in Leiston, fen meadow and marsh harrier compensation land, and a series of off-site associated development sites in the local area. These are:

- > two temporary park and ride sites;
- > a permanent road to bypass the A12 through Stratford St Andrew and Farnham;
- > a permanent road linking the A12 to the Sizewell C main development site (the Sizewell Link Road);
- > permanent highway improvements at Yoxford and other road junctions;
- > a temporary freight management facility on land to the south-east of the A12/A14 junction; and
- > a temporary extension of the existing Saxmundham to Leiston branch line into the main development site - the 'Green Rail Route' ("GRR") and other permanent rail improvements on the Saxmundham to Leiston branch line.

10.13.19 The Tier 1 CEA considers the additional cumulative effect of the VE array areas with East Anglia ONE North, East Anglia TWO and Sizewell C, with the assessment of significance apportioning the amount of the effect that is attributable to the VE array areas.

10.13.20 The potential for cumulative effects arising in the Tier 1 assessment on views and visual amenity, and perceived effects on seascape and landscape character, is informed by the assessments undertaken in the assessment of potential impacts in Section 10.11. The range of potential cumulative effects that are identified and included in this CEA are a subset of those considered for the VE array areas alone, in the context of an assumed baseline with operational and under-construction projects.

10.13.21 Some of these potential impacts on views and visual receptors identified and assessed for the VE array alone (in Section 10.11) are of negligible or low magnitude or of localised geographic extent, which reduces the likelihood of significant cumulative effects occurring (as the project alone has been assessed as having low or negligible change). It is considered likely that these potential impacts have limited potential to interact with similar changes associated with other plans or projects, and therefore only the views and visual receptors assessed in detail Section 10.11 are assessed further for potential cumulative effects in this Tier 1 assessment.

10.13.22 The contribution of the VE array areas to the Tier 1 cumulative effect on views/visual amenity, seascape and landscape character is described for each geographic region within the SLVIA study area with reference to representative viewpoints on these coastlines and the cumulative wireline visualisations presented in Figure 10.26 to 10.46. This cumulative assessment is undertaken as follows for all representative viewpoints, the ECP/SCP, SCTs, LCTs and the SCHAONB special qualities.



SUFFOLK

10.13.23 The potential impacts identified and assessed for the VE array areas alone on receptors in Suffolk are of low magnitude and not significant (as assessed in Section 10.11). It is considered that these potential impacts have some potential to interact further with changes associated with East Anglia ONE North, East Anglia TWO and Sizewell C, due to the combined visibility of these projects on the seascape, landscape and visual receptors of the Suffolk coast.

CUMULATIVE EFFECTS ON REPRESENTATIVE VIEWPOINTS

10.13.24 Theoretical visibility of Tier 1 offshore wind farms is indicated in the cumulative ZTV (Figure 10.24) from parts of the Sussex coastline between Felixstowe and Lowestoft and it is apparent in the cumulative wireline visualisations (Figures 10.26 – 10.36) that the VE array areas may result in a cumulative effect with East Anglia ONE North and East Anglia TWO in views from the Suffolk coast.

10.13.25 The cumulative visual effects of the VE array areas with Tier 1 projects during operation and maintenance on representative viewpoints in Suffolk is assessed in Table 10.32.



Table 10.32: Tier 1 Cumulative Effects on Representative Viewpoints in Suffolk

Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
Representative viewpoints in Suffolk			
1	Southwold (Gun Hill) (Figure 10.26)	47.1	<p>48.2</p> <p>The upper towers, rotors and blades of the East Anglia ONE North WTGs are theoretically visible at distances over 43km; however, they are likely to be visually recessive, due to the apparent height of the WTGs low to the horizon, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances.</p> <p>Sizewell C power station structures will be seen at long-range (approximately 11km) to the south along the coastline, with the most notable features being the main reactor buildings and turbine halls to the fore of the existing Sizewell A and Sizewell B power stations and the beach landing facility extending into the nearshore seascape; however, these are likely to result in small-scale and not significant long-term changes to the view during its construction and operational period.</p> <p>East Anglia TWO is likely to contribute more to the cumulative effect than the VE array areas, as it is likely to result in significant project alone visual effects on receptors at the viewpoint. East Anglia TWO will be visible approximately 33.7km to the closest WTG, with effects arising from its addition as a new element in the simply composed sea view and the lateral spread of its WTGs into the open sea skyline to the north of the operational Greater Gabbard and Galloper array. A clear gap will, however, be maintained between East Anglia TWO, East Anglia ONE North and the Galloper / Greater Gabbard array (which is less discernible at longer distance to the south), such that they are legible as distinct wind farms (rather than visually merging to form one larger array), such that a</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>'curtaining' effect would not be apparent (where views of the horizon could be entirely obscured by WTGs).</p> <p>The VE array areas will partially be subsumed behind the existing Greater Gabbard and Galloper WTGs in the view but will result in an additional increase in lateral spread of WTGs, occupying a further 8.3° of the HFoV to the north of Galloper. Unlike viewpoints further to the south, in this view from Southwold, there will be no perceptible gap or open sea skyline retained between East Anglia TWO and Galloper, as the WTGs within part of the northern VE array area are likely to be viewed as extending the lateral spread of WTGs northwards across the majority of the 'space' on the sea skyline between Galloper and East Anglia TWO, furthering the visual association between these arrays and contributing to a merging effect in the view across the three wind farm arrays, albeit at increasing long distance, decreasing scale and diminishing effect with distance away from the coast. The open sea skyline to the north of East Anglia TWO and south of Greater Gabbard/Galloper would remain unaffected across the field of view out to sea.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as medium-low and for the identified high sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate). Moderate effects are assessed as not significant on receptors experiencing this view primarily due to the magnitude of change factors evaluated, which is assessed as medium-low (and is therefore not considered to be of high or even medium magnitude). On balance the cumulative effect is considered not significant given the relatively narrow additional increase in lateral spread of the VE WTGs; their introduction as elements that are similar</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			to those that have already been consented; and their long distance over 47.1 km from the viewpoint beyond the sea skyline, coupled with the long distance of other Tier 1 projects, which diminishes the potential 'curtaining' effect, and limits the cumulative effect to occurring in only the most optimum, infrequent, visibility conditions.
2	Dunwich Beach (Figure 10.27)	45.5	<p>46.8</p> <p>The upper towers, rotors and blades of the East Anglia ONE North WTGs are theoretically visible at distances over 47km; however, they are likely to be visually recessive, due to the apparent height of the WTGs low to the horizon, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances.</p> <p>Sizewell C power station structures will be seen at mid-range (approximately 6km) to the south along the coastline, with the most prominent features being the main reactor buildings and turbine halls to the fore of the existing Sizewell A and Sizewell B power stations and the beach landing facility extending into the nearshore seascape; however, these are likely to result in small to medium-scale and not significant long-term changes to the view during its construction and operational period.</p> <p>East Anglia TWO is likely to contribute more to the cumulative effect than the VE array areas, as it is likely to result in significant project alone visual effects on receptors at the viewpoint. East Anglia TWO will be visible approximately 35.6km to the closest WTG, with effects arising from its addition as a new element in the simply composed sea view and the lateral spread of its WTGs into the open sea skyline to the north of the operational Greater Gabbard and Galloper array. A clear gap will, however, be maintained between East Anglia TWO, East Anglia ONE North and the Galloper/Greater Gabbard array (which is less discernible at longer distance to the south), such that they are legible as distinct wind farms (rather than visually merging to form one larger array), such that a 'curtaining'</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>effect would not be apparent (where views of the horizon could be entirely obscured by WTGs).</p> <p>The VE array areas will reinforce this arrangement, as it will mainly be subsumed behind the existing Greater Gabbard and Galloper WTGs in the view and will result in only a relatively small additional increase in lateral spread of WTGs, occupying a further 7.5° of the HFoV to the north of Galloper. WTGs within parts of the northern VE array area are, however, likely to be viewed as extending the lateral spread of WTGs northwards across the majority of the 'space' on the sea skyline between Galloper and East Anglia TWO, furthering the visual association between these arrays and reducing the apparent 'gap' between East Anglia TWO and the VE array areas/Galloper. A complete 'curtaining' effect in the view is however avoided, as views of the horizon between East Anglia TWO and Galloper are not entirely obscured by WTGs, there is an apparent, albeit narrow gap, and the open sea skyline to the north of East Anglia TWO and south of Greater Gabbard/Galloper would remain unaffected across the field of view out to sea.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as medium-low and for the identified high sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate). Moderate effects are assessed as not significant on receptors experiencing this view primarily due to the magnitude of change factors evaluated, which is assessed as medium-low (and is therefore not considered to be of high or even medium magnitude). On balance the cumulative effect is considered not significant given the relatively narrow additional increase in lateral spread of the VE WTGs; their introduction as elements that are similar</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			to those that have already been consented; and their long distance over 45.5 km from the viewpoint beyond the sea skyline, coupled with the long distance of other Tier 1 projects, which diminishes the potential 'curtaining' effect, and limits the cumulative effect to occurring in only the most optimum, infrequent, visibility conditions.
3	Dunwich Heath (Figure 10.28) (Coastguard Cottages)	43.8	<p>45.2</p> <p>The upper towers, rotors and blades of the East Anglia ONE North WTGs are theoretically visible at distances over 48km; however, they are likely to be visually recessive, due to the apparent height of the WTGs low to the horizon, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances.</p> <p>Sizewell C will be visible at short range (approximately 2km) to the south with its main reactor buildings and turbine halls forming the most prominent features in the view, to the fore of the existing Sizewell A and Sizewell B Nuclear power stations, and the beach landing facility would be visible extending into the nearshore seascape, resulting in medium-scale and significant long-term changes to the view during its construction and operational period.</p> <p>Sizewell C and East Anglia TWO are likely to contribute more to the cumulative effect than the VE array areas, as they both result in significant project alone visual effects on receptors at the viewpoint. East Anglia TWO will be visible approximately 35.7km to the closest WTG, with effects arising from its addition as a new element in the simply composed sea view and the lateral spread of its WTGs into the open sea skyline to the north of the operational Greater Gabbard and Galloper array. A clear gap will, however, be maintained between East Anglia TWO, East Anglia ONE North and the Galloper/Greater Gabbard array, such that they are legible as distinct wind farms (rather</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>than visually merging to form one larger array), such that a 'curtaining' effect would not be apparent (where views of the horizon could be entirely obscured by WTGs).</p> <p>The VE array areas will reinforce this arrangement, as it will mainly be subsumed behind the existing Greater Gabbard and Galloper WTGs in the view and will result in only a small additional increase in lateral spread of WTGs, occupying a further 7.2° of the HFoV to the north of Galloper. WTGs within parts of the northern VE array area are, however, likely to be viewed as extending the lateral spread of WTGs northwards into more than half of the 'space' on the sea skyline between Galloper and East Anglia TWO, furthering the visual association between these arrays and reducing the apparent 'gap' between East Anglia TWO and the VE array areas/Galloper. A complete 'curtaining' effect in the view is however avoided, as views of the horizon between East Anglia TWO and Galloper are not entirely obscured by WTGs, there is an apparent, albeit narrow gap, and the open sea skyline to the north of East Anglia TWO and south of Greater Gabbard/Galloper would remain unaffected across the field of view out to sea.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as medium-low and for the identified high sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate). Moderate effects are assessed as not significant on receptors experiencing this view primarily due to the magnitude of change factors evaluated, which is assessed as medium-low (and is therefore not considered to be of high or even medium magnitude). On balance the cumulative effect is considered not significant given the relatively narrow additional increase in lateral spread of the VE WTGs; their introduction as elements that are similar</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			to those that have already been consented; and their long distance over 43.8 km from the viewpoint beyond the sea skyline, coupled with the long distance of other Tier 1 projects, which diminishes the potential 'curtaining' effect, and limits the cumulative effect to occurring in only the most optimum, infrequent, visibility conditions.
4	Sizewell Beach (Figure 10.29)	41.0	<p>42.4</p> <p>East Anglia ONE North blade tips and nacelles are theoretically visible at distances over 51km; however, they are likely to be barely visible and visually recessive, due to the small size of the blade tips low to the horizon, low contrast with the sky, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances.</p> <p>Sizewell C will be visible at close range behind the existing Sizewell A and Sizewell B Nuclear power stations, with the majority of lower structures and infrastructure screened by the reinstated sea defences and existing power station structures, however views to the turbine halls, cooling water pump houses, outage store and the beach landing facility will be prominent in the view north and result in large-scale and significant long-term changes to the view during its construction and operational period.</p> <p>Sizewell C and East Anglia TWO are likely to contribute more to the cumulative effect than the VE array areas, as they both result in significant project alone visual effects on receptors at the viewpoint. East Anglia TWO will be visible approximately 35.5km to the closest WTG, with effects arising from its addition as a new element in the simply composed sea view and the lateral spread of its WTGs into the open sea skyline to the north of the operational Greater Gabbard and Galloper array. A clear gap will however be maintained between East Anglia TWO, East Anglia ONE North and the Galloper/Greater Gabbard array, such that they are legible as distinct wind farms (rather than visually</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>merging to form one larger array), such that a ‘curtaining’ effect would not be apparent (where views of the horizon could be entirely obscured by WTGs).</p> <p>The VE array areas will reinforce this arrangement, as it will mainly be subsumed behind the existing Greater Gabbard and Galloper WTGs in the view and will result in only a small additional increase in lateral spread of WTGs, occupying a further 6.6° of the HFoV to the north of Galloper. WTGs within parts of the northern VE array area are, however, likely to be viewed as extending the lateral spread of WTGs northwards into more than half of the ‘space’ on the sea skyline between Galloper and East Anglia TWO, furthering the visual association between these arrays and reducing the apparent ‘gap’ between East Anglia TWO and the VE array areas/Galloper. A complete ‘curtaining’ effect in the view is however avoided, as views of the horizon between East Anglia TWO and Galloper are not entirely obscured by WTGs, there is an apparent, albeit narrow gap, and the open sea skyline to the north of East Anglia TWO and south of Greater Gabbard/Galloper would remain unaffected across the field of view out to sea.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as medium-low and for the identified medium-high sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate). Moderate effects are assessed as not significant on receptors experiencing this view primarily due to the magnitude of change factors evaluated, which is assessed as medium-low (and is therefore not considered to be of high or even medium magnitude). On balance the cumulative effect is considered not significant given the relatively narrow additional increase in lateral spread of the VE WTGs; their introduction as elements that are similar</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			to those that have already been consented; and their long distance over 41.0 km from the viewpoint beyond the sea skyline, coupled with the long distance of other Tier 1 projects, which diminishes the potential 'curtaining' effect, and limits the cumulative effect to occurring in only the most optimum, infrequent, visibility conditions.
5	Thorpeness (Figure 10.30)	39.4	<p>40.9</p> <p>East Anglia ONE North blade tips and nacelles are theoretically visible at distances over 52km; however, they are likely to be barely visible and visually recessive, due to the small size of the blade tips low to the horizon, low contrast with the sky, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances. Sizewell C will not be visible due to the intervening landform and buildings in Thorpeness that block the view north. East Anglia TWO will be visible at a distance of approximately 35.5km to the closest WTG, on the sea skyline to the north of the operational Greater Gabbard and Galloper array.</p> <p>East Anglia TWO is likely to contribute more to the cumulative effect than the VE array areas, as it results in significant project alone visual effects on receptors at the viewpoint, arising from its addition as a new element in the simply composed sea view and the lateral spread of its WTGs into the open sea skyline to the north of Galloper. A clear gap will however be maintained between East Anglia TWO, East Anglia ONE North and the Galloper/Greater Gabbard array, such that they are legible as distinct wind farms (rather than visually merging to form one larger array), such that a 'curtaining' effect would not be apparent (where views of the horizon could be entirely obscured by WTGs).</p> <p>The VE array areas will reinforce this arrangement, as it will mainly be subsumed behind the existing Greater Gabbard and Galloper WTGs in the view and will result in only a small additional increase in lateral spread of WTGs, occupying a further 6° of the HFoV to</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>the north of Galloper. WTGs within parts of the northern VE array area are likely to be viewed as extending the lateral spread of WTGs northwards into the 'space' on the sea skyline between Galloper and East Anglia TWO, furthering the visual association between these arrays, however a clear 'gap' will be retained between East Anglia TWO and the VE array areas, avoiding a 'curtaining' effect in the view. The open sea skyline to the north of East Anglia TWO and south of Greater Gabbard/Galloper would remain unaffected across the field of view out to sea.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as low and for the identified high sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate/minor).</p>
6	Aldeburgh (Figure 10.31)	38.9	<p>40.3</p> <p>East Anglia ONE North blade tips are theoretically visible at distances over 54km; however, they are likely to be barely visible and visually recessive, due to the small size of the blade tips low to the horizon, low contrast with the sky, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances. Sizewell C will not be visible due to the intervening landform and buildings in Aldeburgh that block the view north. East Anglia TWO will be visible at a distance of approximately 36km to the closest WTG, on the sea skyline to the north of the operational Greater Gabbard and Galloper array.</p> <p>East Anglia TWO is likely to contribute more to the cumulative effect than the VE array areas, as it results in significant project alone visual effects on receptors at the viewpoint, arising from its addition as a new element in the simply composed sea view and the lateral spread of its WTGs into the open sea skyline to the north of Galloper. A clear gap</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>will however be maintained between East Anglia TWO, East Anglia ONE North and the Galloper/Greater Gabbard array, such that they are legible as distinct wind farms (rather than visually merging to form one larger array), such that a 'curtaining' effect would not be apparent (where views of the horizon could be entirely obscured by WTGs).</p> <p>The VE array areas will reinforce this arrangement, as it will mainly be subsumed behind the existing Greater Gabbard and Galloper WTGs in the view and will result in only a small additional increase in lateral spread of WTGs, occupying a further 5.3° of the HFoV to the north of Galloper. WTGs within parts of the northern VE array area are likely to be viewed as extending the lateral spread of WTGs northwards into the 'space' on the sea skyline between Galloper and East Anglia TWO, furthering the visual association between these arrays, however a clear 'gap' will be retained between East Anglia TWO and the VE array areas, avoiding a 'curtaining' effect in the view. The open sea skyline to the north of East Anglia TWO and south of Greater Gabbard/Galloper would remain unaffected across the field of view out to sea.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as low and for the identified high sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as not significant (moderate/minor).</p>
7	Orford Castle (Figure 10.32)	40.9	42.3 <p>East Anglia ONE North blade tips are theoretically visible at distances over 61km; however, they are likely to be barely visible and visually recessive, due to the small size of the blade tips low to the horizon, low contrast with the sky, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances. Sizewell C will not be visible due to the intervening castle ramparts that block the view north/north-</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>east from the parapet. East Anglia TWO will be visible at a distance of approximately 41km to the closest WTG, on the sea skyline to the north of the operational Greater Gabbard and Galloper array.</p> <p>East Anglia TWO is likely to contribute more to the cumulative effect than the VE array areas, as it results in significant project alone visual effects on receptors at the viewpoint, arising from its addition as a new element in the simply composed sea view and the lateral spread of its WTGs into the open sea skyline to the north of Galloper. A clear gap will however be maintained between East Anglia TWO, East Anglia ONE North and the Galloper/Greater Gabbard array, such that they are legible as distinct wind farms (rather than visually merging to form one larger array), such that a 'curtaining' effect would not be apparent (where views of the horizon could be entirely obscured by WTGs).</p> <p>The VE array areas will reinforce this arrangement, as it will mainly be subsumed behind the existing Greater Gabbard and Galloper WTGs in the view and will result in only a very small additional increase in lateral spread of WTGs, occupying a further 3.3° of the HFoV to the north of Galloper. WTGs within parts of the northern VE array area are likely to be viewed as extending the lateral spread of WTGs northwards into the 'space' on the sea skyline between Galloper and East Anglia TWO, furthering the visual association between these arrays, however a clear 'gap' will be retained between East Anglia TWO and the VE array areas, avoiding a 'curtaining' effect in the view. The open sea skyline to the north of East Anglia TWO and south of Greater Gabbard/Galloper would remain unaffected across the field of view out to sea.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as low and for the identified high</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as not significant (moderate/minor) .
8	Burrow Hill (Suffolk Coast Path) (Figure 10.33)	43.5	44.8 East Anglia ONE North and Sizewell C will not be visible in the view. The majority of the East Anglia TWO WTGs will not be visible due to the intervening landform. A limited number of the East Anglia TWO WTG blade tips are theoretically visible at distances over 44km; however, these will be screened by intervening woodland in the view. The VE array areas will not interact further with East Anglia ONE North, East Anglia TWO and Sizewell C. The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as zero (as the Tier 1 projects are not visible) and for the identified medium-high sensitivity receptors at this location the contribution of the VE array areas to cumulative effect with Tier 1 projects is assessed as not significant .
9	Orfordness (Bomb Ballistics Building) (Figure 10.34)	38.2	39.6 East Anglia ONE North blade tips are theoretically visible at distances over 59km; however, they are likely to be barely visible and visually recessive, due to the small size of the blade tips low to the horizon, low contrast with the sky, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances. Parts of Sizewell C are likely to be visible in the view through Orford Ness transmitting station, located behind the existing Sizewell A and B Nuclear Power Station. East Anglia TWO will be visible at a distance of approximately 38km to the closest WTG, on the sea skyline to the north of the operational Greater Gabbard and Galloper array. East Anglia TWO is likely to contribute more to the cumulative effect than the VE array areas, as it results in significant project alone visual effects on receptors at the viewpoint, arising from its addition as a new element in the simply composed sea view and the



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>lateral spread of its WTGs into the open sea skyline to the north of Galloper. A clear gap will however be maintained between East Anglia TWO, East Anglia ONE North and the Galloper/Greater Gabbard array, such that they are legible as distinct wind farms (rather than visually merging to form one larger array), such that a 'curtaining' effect would not be apparent (where views of the horizon could be entirely obscured by WTGs).</p> <p>The VE array areas will reinforce this arrangement, as it will mainly be subsumed behind the existing Greater Gabbard and Galloper WTGs in the view and will result in only a very small additional increase in lateral spread of WTGs, occupying a further 3.5° of the HFoV to the north of Galloper. WTGs within parts of the northern VE array area are likely to be viewed as extending the lateral spread of WTGs northwards into the 'space' on the sea skyline between Galloper and East Anglia TWO, furthering the visual association between these arrays, however a clear 'gap' will be retained between East Anglia TWO and the VE array areas, avoiding a 'curtaining' effect in the view. The open sea skyline to the north of East Anglia TWO and south of Greater Gabbard/Galloper would remain unaffected across the field of view out to sea.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as low and for the identified high sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as not significant (moderate/minor).</p>
10	Shingle Street (Figure 10.35)	45.1	46.4 East Anglia ONE North and Sizewell C will not be visible in the view. East Anglia TWO rotors/nacelles and blade tips are theoretically visible at distances over 48km; however, likely to have limited visibility and be visually recessive, due to the small size of the rotor



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>blades low to the horizon, low contrast with the sky, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances.</p> <p>The VE array areas will be almost entirely subsumed behind the existing Greater Gabbard and Galloper WTGs in the view, with a very small increase in lateral spread of WTGs (1.3°) to the north of Galloper. The VE array areas have limited potential to interact further with East Anglia TWO and no potential to interact with East Anglia ONE North and Sizewell C.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as negligible and for the identified high sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as not significant (minor).</p>
11	Old Felixstowe (Figure 10.36)	49.0	<p>50.3</p> <p>East Anglia ONE North and Sizewell C will not be visible in the view. East Anglia TWO blade tips are theoretically visible at distances over 54km; however, likely to be barely visible and visually recessive, due to the small size of the blade tips low to the horizon, low contrast with the sky, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances.</p> <p>The VE array areas will be entirely subsumed behind the existing Greater Gabbard and Galloper WTGs in the view and does not contribute to any increase in lateral spread of WTGs. The VE array areas have limited potential to interact further with East Anglia TWO and no potential to interact with East Anglia ONE North and Sizewell C.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as negligible and for the</p>



Viewpoint	Distance (VE array area km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			identified high sensitivity receptors at this location the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as not significant (minor) .



10.13.26 It is evident that the VE array areas will result in a diminishing cumulative effect moving southwards along the Suffolk coast, as the WTGs of the VE array areas increasingly appear subsumed behind the operational Greater Gabbard / Galloper WTGs and have less influence on the undeveloped section of skyline. In views from the Suffolk coastline moving north between Sizewell and Southwold/Covehithe, the northern VE array area is likely to be viewed as extending the lateral spread of WTGs northwards in the 'space' on the sea skyline between Galloper and East Anglia TWO, in which the northern VE array area contributes to increasing the cumulative effect of distant offshore WTG development on the sea skyline. This effect will however be viewed at increasing range/distance moving northwards, which moderates the effect. With the addition of the VE array areas, a clear 'gap' between Galloper and East Anglia TWO will be retained in views from the Suffolk coast further south between Felixstowe and Thorpeness, which will contribute to defining these wind farms as separate features.

CUMULATIVE EFFECTS ON THE ENGLAND COAST PATH / SUFFOLK COAST PATH

10.13.27 The cumulative visual effects of the VE array areas with Tier 1 projects on other visual receptors on the England Coast Path / Suffolk Coast Path in Suffolk is assessed in Table 10.33.



Table 10.33: Tier 1 Cumulative Effects on the ECP / SCP

Visual Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
ECP/SCP – Felixstowe Ferry to Bawdsey (Suffolk)	48.3 to 59.6 km	49.3 – 60.8 km	<p>The potential impacts identified and assessed for the VE array areas alone are of negligible to low magnitude and not significant (as assessed in Table 10.30).</p> <p>The majority of this section of the route is located inland following a route along the edges of the River Deben away from the coast, is low-lying and has no visibility of the VE array areas, or East Anglia ONE North, East Anglia TWO and Sizewell C, resulting in zero cumulative change to the existing visual amenity experienced from the majority of this section of route.</p> <p>Only limited parts sections near to the coast at the mouth of the Deben near Felixstowe and Bawdsey afford theoretical visibility of the VE array areas, however East Anglia ONE North and Sizewell C will not be visible from these areas and East Anglia TWO will have minimal influence with only its blade tips theoretically visible at distances over 52km (from Bawdsey). The VE array areas are also located over 48 km almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the offshore view that is already influenced by offshore WTGs.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as negligible and for the identified high sensitivity receptors the contribution of the VE array areas to the cumulative effect with Tier 1 projects on the ECP / SCP between Felixstowe Ferry to Bawdsey is assessed as not significant (minor).</p>



Visual Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
ECP/SCP – Bawdsey to Aldeburgh (BSA1 to BSA5)	38.5 to 46.1 km	39.8 – 47.3 km	<p>The potential impacts identified and assessed for the VE array areas alone are of negligible to low magnitude and not significant (as assessed in Table 10.30).</p> <p>In views from this section of the route, the VE array areas will be almost entirely subsumed behind the existing Greater Gabbard and Galloper OWFs, at very long range offshore and will not contribute to increasing the lateral spread of existing wind farm development. There are also some sections where the route is outside the ZTV (Figure 10.18), such as around Butley River and Boyton Marshes; sections extending further inland to Snape through Tunstall Forest and Black Heath/Hazlewood Marshes with restricted views; and sections along the River Ore/Alde where direct views to sea area restricted by the intervening landform of Orford Ness.</p> <p>East Anglia ONE North and Sizewell C will not be visible at all in views from the southern part of this section of the route, between Bawdsey and Orford, and East Anglia TWO is likely to have minimal influence on this southern portion of the route. Sizewell C and East Anglia TWO are likely to become visible in views from parts of the route between Orford and Aldeburgh, however, East Anglia TWO is likely to be visually recessive at such long range, low to the horizon, with low contrast with the sky in the prevailing atmospheric conditions out to sea; and Sizewell C will be located over 6km from the closest sections of this part of the route, behind the existing Sizewell A and B Nuclear Power Station.</p> <p>Only limited parts sections near to the coast at between Bawdsey and the River Ore, and the River Alde near Aldeburgh are likely to afford visibility of the VE array areas, however</p>



Visual Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>the VE array areas will be located over 38 km and almost entirely behind the operational Greater Gabbard and Galloper OWFs, within a part of the offshore view that is already influenced by offshore WTGs, and will have limited contribution to increasing the lateral spread of existing wind farm development, with a clear 'gap' retained between East Anglia TWO and the VE array areas, avoiding a 'curtaining' effect in the views from this section of the ECP / SCP.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as low and for the identified high sensitivity receptors the contribution of the VE array areas to the cumulative effect with Tier 1 projects on the ECP / SCP between Bawdsey and Aldeburgh is assessed as not significant (moderate/minor).</p>
ECP/SCP – Aldeburgh to Hopton-on-Sea (ASH1 to ASH5)	38.7 to 60.0 km	39.9 – 61.3 km	<p>The potential impacts identified and assessed for the VE array areas alone are of low magnitude and not significant for the majority of this section of the route, dropping to negligible magnitude from the most distant parts of the route near Lowestoft (as assessed in Table 10.30).</p> <p>In views from this section of the route, the VE array areas will mainly be subsumed behind the existing Greater Gabbard and Galloper OWFs, contributing to increasing the influence and density of WTGs within this part of the offshore views from the route, and it is likely they will contribute to a limited increase in the lateral spread of wind farm development, with parts of the northern array area extending WTGs northwards on the skyline from the existing Greater Gabbard / Galloper array.</p>



Visual Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>These effects resulting from the VE array areas will mainly be experienced from the sections of the ECP / SCP between Aldeburgh, Sizewell and Dunwich, where there is potential for cumulative interaction with effects arising from East Anglia TWO and Sizewell C, and to a lesser degree, East Anglia ONE North.</p> <p>Sizewell C will be visible at close range for parts of the route, adjacent to the existing Sizewell A and Sizewell B Nuclear power stations, with the reinstated sea defences, turbine halls, cooling water pump houses, outage store and beach landing facility prominent in the views between Thorpeness Cliffs, Sizewell Gap and Minsmere in particular, resulting in large-scale and significant long-term changes to the views from this section of the ECP / SCP during its construction and operational period. The influence of Sizewell C in views from the route is likely to diminish with distance to the south beyond Thorpe Ness and to the north beyond Dunwich.</p> <p>Sizewell C and East Anglia TWO are likely to contribute more to the cumulative effect than the VE array areas, as they both result in significant project alone visual effects on receptors on parts of this section of the ECP / SCP. East Anglia TWO will be visible at long range (over approximately 35km) with effects arising from its addition as a new element in the simply composed sea views and the lateral spread of its WTGs into the open sea skyline to the north of the operational Greater Gabbard and Galloper array. A clear gap will however be maintained between East Anglia TWO, East Anglia ONE North and the Galloper/Greater Gabbard array, such that they are legible as distinct wind farms (rather than visually merging to form one larger array), such that a 'curtaining' effect would not be apparent (where views of the horizon could be entirely obscured by WTGs).</p>



Visual Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			<p>The VE array areas will, in the main, reinforce the pattern of separate wind farm groups on the distant sea skyline, as it will mainly be subsumed behind the existing Greater Gabbard and Galloper WTGs in the view and will result in only a small additional increase in lateral spread of WTGs to the north of Galloper, particularly when viewed from the southern parts of this route between Aldeburgh and Dunwich, where the undeveloped 'space' on the skyline between East Anglia TWO is reduced slightly but a 'curtaining' effect is avoided as an apparent, albeit narrow, gap is retained between them on the skyline. The cumulative magnitude of change arising from the contribution of the VE array areas is assessed as increasing to medium-low over parts of this section of the SCP / ECP, to the north of Sizewell, with a diminishing gap between East Anglia TWO and the VE array areas likely to be apparent moving northwards along the route. In views from Dunwich northwards to Southwold, there will be almost no perceptible gap or open sea skyline retained between East Anglia TWO and Galloper, as the WTGs within part of the northern VE array area are likely to be viewed as extending the lateral spread of WTGs northwards across the majority of the 'space' on the sea skyline between them, contributing to a cumulative effect in the view across the three wind farm arrays, albeit from a limited section of the route near Southwold, and at increasingly long distance, decreasing scale and diminishing effect moving north with distance away from the VE array areas towards Lowestoft.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as medium-low and for the identified high sensitivity receptors the contribution of the VE array areas to the</p>



Visual Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Significance of cumulative effect
			cumulative effect with Tier 1 projects on the ECP / SCP between Aldeburgh and Hopton-on-Sea is assessed as not significant (moderate) .



CUMULATIVE EFFECTS ON SEASCAPE CHARACTER

- 10.13.28 The potential for cumulative effects on seascape character arising with Tier 1 projects is informed by the assessments undertaken in the cumulative visual assessment above and the seascape effects assessment in Section 10.11. It is considered that these impacts have limited potential to interact further with changes associated with Tier 1 projects (East Anglia ONE North, East Anglia TWO and Sizewell C) outside the seascape defined by the Suffolk SCA (Suffolk County Council, 2018) shown in Figure 10.4. This includes all areas defined by the MMO outside the Suffolk SCA, including MCA 4, 10, 11, 15, 16, 17, 19 and 20, which are located at long distance to the south of the Tier 1 projects, beyond several large-scale operational offshore wind farms (Greater Gabbard, Galloper and London Array). The cumulative magnitude of change on the perceived seascape character of MCA 4, 10, 11, 15, 16, 17, 19 and 20 (outside the Suffolk SCA) resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as **negligible to zero** and the effect **not significant**, essentially due to the lack of visibility and avoidance of further impacts associated with East Anglia ONE North, East Anglia TWO and Sizewell C.
- 10.13.29 It is considered that the impacts arising from the VE array areas will have potential to interact further with changes associated with Tier 1 projects (East Anglia ONE North, East Anglia TWO and Sizewell C) from the Offshore Waters (SCT06) within which they are all located, and the Nearshore Waters (SCT03) and Coastal Waters (SCT05) of the Suffolk SCA, which may be subject to indirect effects to their perceived character primarily experienced in offshore views from the Suffolk coastline between Orfordness (in the south) and Covehithe (in the north). The contribution of the VE array areas to the cumulative effects on these SCTs is assessed in Table 10.34. The cumulative effect of the VE array areas on all other SCTs is assessed as not significant.



Table 10.34: Tier 1 Cumulative Effects on Seascape Character

Seascape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
<p>SCT03 Nearshore Waters</p> <p>SCT05 Coastal Waters</p>	<p>32.0 km</p> <p>19.3 km</p>	<p>33.3 km</p> <p>20.6 km</p>	<p>The VE array areas are located outside both SCT03 Nearshore Waters and SCT05 Coastal Waters and will therefore not result in any direct changes to the pattern of elements within these SCTs. SCT03 and SCT05 are considered together since they form the nearshore and coastal waters off the Suffolk coastline, on which the VE array areas have potential to lead to indirect changes to how their seascape character is perceived, through the introduction of further WTGs in the offshore backdrop when viewed from parts of the coast, primarily within the SCHOANB.</p> <p>As identified in the project alone assessment in Section 10.11, parts of the coastline with views across these SCTs are visually more contained and less exposed, with limited visibility of the VE array areas from low lying marshland, fens and estuaries where the intervening landform and the low-lying nature of the coast restricts views. There is more exposure to perceived cumulative changes in the seascape setting from the shingle beaches, dunes, and stretches of low cliffs and heaths that have open sea views.</p> <p>When viewed from these areas of the SCTs coastline within the SCHAONB and from the nearshore waters of the SCT, the VE array areas will be situated at long distance and mainly behind the baseline influence of operational offshore wind farms within the Greater Gabbard and Galloper grouping, particularly in coastal views between Orfordness and Felixstowe. The VE array areas will have limited additional cumulative influence here, as they will be mainly subsumed behind these existing wind farms, resulting in only a small increase in the lateral spread of development</p>



Seascape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>into the space between Galloper and East Anglia TWO in the seascape backdrop to the SCA.</p> <p>A clear and distinct gap is maintained with East Anglia TWO to the north, in the majority of coastal views across these SCTs, with a greater degree of visual association between the VE array areas and East Anglia TWO likely to be apparent in views further north, near Southwold and Covehithe, where WTGs in the northern VE array area occupy the full extent of the skyline and contribute more to the spread and connection of WTGs across the skyline. These effects are however contained geographically and are likely to be diminished at such long distance from this coast.</p> <p>East Anglia ONE North and East Anglia TWO are likely to contribute more to the cumulative effect than the VE array areas, as it they will extend development further north into undeveloped areas in the backdrop of these SCTs, compared to the VE array areas that form an extension of Greater Gabbard/Galloper.</p> <p>The VE array areas will introduce elements that may partially affect the perceived seascape character of the nearshore and coastal waters of these SCTs, due to the increased influence of distant offshore WTGs in their seascape backdrop in addition to the Tier 1 projects, in which the VE array areas are likely to result in some perceived narrowing of the gap between Galloper and East Anglia TWO on the sea skyline, contributing to a greater visual association between these windfarms in the backdrop, while avoiding a 'curtaining' effect in the backdrop to the SCTs from the majority of the Suffolk coastline, due the position of the WTGs of the VE array areas mainly behind Greater Gabbard and Galloper.</p>



Seascape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects is assessed as medium-low and for the identified high (SCT03) and medium-high (SCT05) sensitivity receptors, the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate).</p>
SCT06 Offshore Waters	0 km (VE array areas are within this SCT)	0 km (VE array areas are within this SCT)	<p>East Anglia ONE North and East Anglia TWO will both be located within the Offshore Waters SCT06, to the north and west of the operational East Anglia ONE windfarm respectively. With the addition of these Tier 1 projects, five large-scale offshore wind farms will be located within this SCT, with a potential total of up to 433 WTGs across the five projects (East Anglia ONE 102 WTGs; Greater Gabbard 140 WTGs; Galloper 56 WTGs; East Anglia ONE North up to 60 WTGs; and East Anglia TWO up to 75 WTGs).</p> <p>WTG arrays will extend across the seascape from the Greater Gabbard and Galloper grouping in the southern part of the SCT; to the East Anglia ONE, East Anglia ONE North and East Anglia TWO grouping in the northern part of the study area. In addition to the operational windfarms, East Anglia ONE North and East Anglia TWO will contribute to large scale offshore windfarms forming one of the prevailing characteristics of the seascape that are likely to have a defining influence on its perceived character.</p> <p>These windfarms will to some degree, form distinct clusters separated by constrained corridors with major shipping channels and/or under-sea cables, which results in a clear gap being maintained between East Anglia ONE North, East Anglia TWO and</p>



Seascape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>the combined Galloper/Greater Gabbard array, such that they are generally legible as distinct wind farms (rather than merging to form one continuous larger array across the full seascape).</p> <p>East Anglia ONE North and East Anglia TWO are likely to contribute more to the cumulative effect than the VE array areas, as it they extend development further north into undeveloped areas of this seascape, compared to the VE array areas that form an easterly extension of Greater Gabbard.</p> <p>The VE array areas will reinforce this arrangement in the seascape, as it will form an extension to the existing Greater Gabbard windfarm, extending the exiting WTG array eastwards further offshore, with a clear and distinct gap maintained with East Anglia TWO to the north by the shipping channel through this area of seascape.</p> <p>In general, this pattern is apparent in coastal views, where the VE array areas will mainly be subsumed to the east behind the existing Greater Gabbard and Galloper WTGs in the same section of view, resulting in either no increase to the existing lateral spread of WTGs, or a very small additional increase in spread to the north of Galloper, from the majority of the Suffolk coast. A greater degree of visual association between the VE array areas and East Anglia TWO is apparent in views from further north, near Southwold and Covehithe, where there is no apparent gap due to the viewing angle, but these effects are contained geographically and likely to diminish with long distance from this coast.</p> <p>The VE array areas will directly affect the SCT and introduce elements that could partially affect the perceived seascape character, increasing the influence of offshore</p>



Seascape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>WTGs to the east of the existing Gabbard and Galloper OWFs, however the VE array areas occur in an area that is further offshore at greater distance from the coast, and existing offshore wind farms already form a key characteristic of the SCT, such that its perceived character would be subject to less change as a result of the addition of elements that are substantially characteristic within the existing seascape of these offshore waters. The WTGs of the VE array areas will accord with the offshore energy influences that form a key characteristic of the SCT and be located in part of the SCT that is further offshore than existing windfarm development and the Tier 1 projects.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects on the seascape character of SCT06 is assessed as medium and for this medium sensitivity receptor the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate).</p>



CUMULATIVE EFFECTS ON LANDSCAPE CHARACTER

10.13.30 The potential for cumulative effects with Tier 1 projects on the perceived character and qualities of LCTs forming the Suffolk coastline is presented in Table 10.35 and is informed by the assessments of cumulative effects on representative viewpoints in Table 10.32 and cumulative effects on seascape character in Table 10.34.



Table 10.35: Tier 1 Cumulative Effects on Landscape Character

Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
LCT5. Coastal Dunes and Shingle Ridges	37.4 km	38.8 km	<p>From the southern parts of the AONB coastline, to the south of Orford Ness, there is little or no visibility of the EA1N windfarm site, which is over 60km from the coast, therefore the potential for additional cumulative effects with EA1N on the southern parts of the LCT can largely be discounted.</p> <p>Further north along the coast, towards Aldeburgh, Sizewell, Dunwich and Southwold, the EA2 windfarm site contributes more to the cumulative effect, due to it being closer and having a wider lateral spread on the horizon. The East Anglia TWO and East Anglia ONE North windfarm sites will form an increase in wind energy influence in the distant offshore backdrop to the relatively undeveloped coastline, with their combined influence resulting in offshore windfarms becoming a key characteristic of the offshore backdrop to this LCT. In addition to the existing Greater Gabbard and Galloper windfarms, there will be a relatively consistent, but distant wind energy development influence in the offshore backdrop that forms the seascape setting of the LCT. The East Anglia TWO and East Anglia ONE North windfarm sites will appear as separate offshore windfarms, to the north of the Greater Gabbard/Galloper grouping.</p> <p>In addition to the Tier 1 projects, the VE array areas may result in indirect effects on the perceived (visual) character, with no cumulative change/effect arising on the majority of the LCTs key characteristics, which will fundamentally remain a flat landform of shingle ridges and coastal dunes, backed by soft cliffs or saltmarsh (that define its character).</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>The key characteristic that could be affected cumulatively by the addition of the VE array areas is the vast, open and uncluttered landscape, with a general lack of familiar points of reference at recognised scale. There is potential for the VE array areas to introduce further clutter (of WTGs) to the visual (seascape) horizon, influencing the vast and open seascape character; and potential to expand the influence of familiar points of reference (offshore WTGs), which would be at a recognised scale (similar to the apparent scale of the East Anglia TWO WTGs).</p> <p>Greater Gabbard and Galloper windfarms are more notable as characteristics in the seascape baseline from the southern parts of the LCT, between Orford Ness and Bawdsey, from where they are viewed at closest proximity and form development features on part of the horizon in clear visibility. As an extension to Greater Gabbard, there is potential for the VE array areas to increase the influence of WTGs, to form more notable characteristics in the seascape from the southern parts of the LCT, between Orford Ness and Bawdsey, where the additional scale and density of WTGs will be notable yet subsumed behind Greater Gabbard and Galloper at greater distance offshore. The effect of the VE array areas on the vast and open seascape character will be minimised as they will not extend the lateral spread of WTGs on the skyline in views from the southern parts of the LCT.</p> <p>The VE array areas have potential to extend the influence of WTG development northwards on the horizon and increase the influence of WTGs from the northern parts of the LCT, north of Orfordness/Aldeburgh. The lateral spread of East Anglia TWO, and to a lesser degree East Anglia OEN North, will influence the vast, open horizon, introducing WTG development influence as horizon development to the seascape</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>setting of the LCT. The addition of the VE array areas may result in windfarm development occupying a wider field of view, to the south of East Anglia TWO (and north of Galloper). East Anglia ONE North, East Anglia TWO and the VE array areas will however, be separated by a section of open sea skyline in views from the majority of the LCTs coastline, such that they will appear as separate offshore windfarms, rather than a combined grouping on the horizon. There is likely to be increasing visual coalescence of the arrays moving northwards towards Dunwich, Southwold and Covehithe, where the viewing angle is such that the northern VE array area occupies most of the space on the horizon between East Anglia TWO and Galloper. A 'curtaining' effect (where views of the horizon could be obscured) would not however be apparent in views from the majority of the LCT's coastline, as it is evident that the VE array areas are mainly perceived as being subsumed behind Greater Gabbard/Galloper and have minimal extension to the lateral spread of WTGs in views from the LCT's coastline between Bawdsey, Orfordness and Aldeburgh. The contribution of the VE array areas to the cumulative effect with Tier 1 projects is moderated through this retention of clear gap in the seascape between EA2 and Galloper, as experienced from the majority of the coastline.</p> <p>The VE array areas will partially alter the visual relationship of the seascape setting of this LCT, resulting in partial loss of open sea skyline in the backdrop between Galloper and East Anglia TWO; extending the influence of offshore wind farms as horizon development to the vast, open seascape, however the effect is mitigated by the majority of the VE array areas being located behind Galloper, the retention of a distinct gap between Galloper and EA2 in views from the majority of the LCT, and the</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>avoidance of effects on the wider seascape skyline to the south of Galloper and north of East Anglia ONE North.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects on the perceived landscape character of LCT5 is assessed as low and for this high sensitivity receptor the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate/minor). Fundamentally the vast and open seascape setting experienced from parts of the LCT will be remain and continue to form a key characteristic of its perceived character.</p>
LCT6. Coastal Levels	37.7 km	39.1 km	<p>In addition to the Tier 1 projects, the VE array areas may result in indirect effects on the perceived (visual) character, with no cumulative change/effect arising on the majority of the LCTs key characteristics, which will fundamentally remain a low-lying, flat marshland beside estuaries and the coast (which define its character).</p> <p>The key characteristic that could be affected cumulatively by the addition of the VE array areas is the generally open and wide views from the LCT, and the sense of exposure, enhanced when the sea is near.</p> <p>The VE array areas are assessed as resulting in a negligible cumulative magnitude of change to the perceived character of the marshes flanking the Hundred River and the marshes flanking the Deben estuary, due to the low level of theoretical visibility, or the lack of any theoretical visibility of the VE array areas from parts of these valleys extending inland.</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>There is potential for the VE arrays to contribute to the cumulative effect with Tier 1 projects on the open/wide views and sense of exposure of the LCT, only from intermittent areas with visibility of the VE array areas near to the coast.</p> <p>Marshes flanking the River Blyth - Only a very small part of this LCT extends down to the coast, with the majority set back 'behind' Southwold (to its north and west), where there is limited visibility shown on the ZTV and further screening by intervening urban development. The potential for cumulative effect interaction between this area of the LCT, Tier 1 projects and the VE array areas is very limited.</p> <p>Marshes of the Minsmere Level - the sea/coastline and VE array areas will be intermittently visible from this area of the LCT, due to the long shingle ridge running along at the edge of the LCT which obscures views. There will be negligible/no visibility of the VE array areas from low-lying area around 'the Scrape' and higher theoretical visibility further west into Minsmere levels, although they are still very low lying, with a horizon formed by dunes/shingle ridges in the coastal backdrop to the marshland/coastal levels.</p> <p>Meare at Thorpeness - Views are largely concealed/screened by a combination of the intervening dune/shingle landform between these areas of the LCT and the sea; woodland around the Meare at Thorpeness; intervening built-up areas and from the lower levels inland of the low shingle ridge, which limits direct views of the sea.</p> <p>Marshes flanking the sides of the Rivers Alde, Ore and Butley – limited intermittent visibility with direct views of the sea largely concealed/screened by intervening landform/vegetation and the extensive dune/shingle landform of Orford Ness, which</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>lies between these areas of the LCT and the sea, with some open and wide views out to the seaward horizon.</p> <p>From intermittent areas and pockets of the LCT where there are open and wide views out to the seaward horizon, the VE array areas will partially alter the visual relationship of the seascape setting of this LCT, resulting in partial loss of open sea skyline in the backdrop between Galloper and East Anglia TWO; extending the influence of offshore wind farms as horizon development to the vast, open seascape, however the effect on the open/wide views and sense of exposure is mitigated by the majority of the VE array areas being located behind Greater Gabbard / Galloper, the retention of a distinct gap between Galloper and EA2 in views from the majority of the LCT, and the avoidance of effects on the wider seascape skyline to the south of Galloper and north of East Anglia ONE North.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects on the perceived landscape character of LCT6 is assessed as low and for this medium-high sensitivity receptor the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate/minor). Fundamentally the open, wide views and sense of exposure near the sea experienced from parts of the LCT will be remain and continue to form a key characteristic of its perceived character.</p>
LCT7. Estate Sandlands	39.4km	40.9 km	<p>In addition to the Tier 1 projects, the VE array areas may result in indirect effects on the perceived (visual) character, with no cumulative change/effect arising on the majority of the LCTs key characteristics, which will fundamentally remain 'the Sandlings', formed by the gently rolling plateaux of freely-draining sandy soils, areas of</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>heathland, sheep grazed 'walks', arable land and forestry plantations (which define its character).</p> <p>Visibility of the VE array areas is limited from inland areas of the Estate Sandlands LCT, with a negligible magnitude of change arising on the perceived character of inland areas of the LCT.</p> <p>The key characteristic that could be affected cumulatively by the addition of the VE array areas is the coastal edges of the LCT defined by low cliffs, such as Covehithe, Dunwich Heath and Sizewell Cliffs, which provide opportunities for long distance and panoramic views out to sea and along the coast.</p> <p>The long distance and panoramic views out to sea may be partially altered through a slight loss of open seascape horizon between Galloper and East Anglia TWO, occupied by the northern VE array area, influencing the setting and sense of isolation of the low cliffs on the coastal edges of the LCT. The VE array areas have potential to extend the influence of WTG development northwards on the horizon and increase the influence of WTGs from the northern parts of the LCT. The lateral spread of East Anglia TWO, and to a lesser degree East Anglia ONE North, will influence the panoramic views out to sea, introducing WTG development influence as horizon development to the seascape setting of the LCT.</p> <p>The addition of the VE array areas may result in windfarm development occupying a wider field of view, to the south of East Anglia TWO (and north of Galloper). East Anglia ONE North, East Anglia TWO and the VE array areas will however, be separated by a section of open sea skyline in views from the southern parts of the</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>LCTs coastline (Sizewell Cliffs and Dunwich Heath), such that they will appear as separate offshore windfarms, rather than a combined grouping on the horizon. There is likely to be increasing visual coalescence of the arrays moving northwards from Dunwich, such as around Covehithe, where the viewing angle is such that the northern VE array area occupies most of the space on the horizon between East Anglia TWO and Galloper. These areas of the LCT are however located at particularly long distance (between 48 – 53km) such that the apparency of the effect will be diminished. A ‘curtaining’ effect (where views of the horizon could be obscured) would not however be apparent in views from the majority of the LCT’s coastline, as it is evident that the VE array areas are mainly perceived as being subsumed behind Greater Gabbard/Galloper and will result in a limited extension to the lateral spread of WTGs in views from the southern parts of LCT’s coastline (Sizewell Cliffs and Dunwich Heath). The contribution of the VE array areas to the cumulative effect with Tier 1 projects is moderated through this retention of clear gap in the seascape between EA2 and Galloper, as experienced from the majority of the coastline.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects on the perceived landscape character of LCT7 is assessed as low and for this medium-high sensitivity receptor the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate/minor). Fundamentally the opportunities for long distance and panoramic views out to sea and along the coast experienced from coastal parts of the LCT will be remain and continue to form a key characteristic of its perceived character.</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
LCT8. Open Coastal Fens	45.5km	46.8 km	<p>In addition to the Tier 1 projects, the VE array areas may result in indirect effects on the perceived (visual) character, with no cumulative change/effect arising on the majority of the LCTs key characteristics, which will fundamentally remain a low-lying coastal marshland with wet grassland and reedbeds, drains and dykes (that define its character).</p> <p>There will be no theoretical visibility of the VE array areas from Westwood Marshes, with views from this area also further screened by Dunwich Forest such that the VE array areas will result in zero cumulative magnitude of change and not significant effects on the perceived character of the Westwood Marshes area of the LCT.</p> <p>Geographically, the area of the LCT that may experience change as a result of visibility of the VE array areas is contained to Corporation and Dingle Marshes between Walberswick and Dunwich. Although a flat open and simple landscape, it is contained by woodland and rising ground that surrounds it and by the dunes/shingle landform on its eastern, coastal side. Views are therefore generally limited to within the LCT.</p> <p>The key characteristic that could be affected cumulatively by the addition of VE array areas is the impression of depth and distance gained by the occasional thin horizontal strip of sea visible, which has a limited role as an element in the landscape, despite its perceptual association. There are some locations where such ‘thin’ views to the seaward horizon are available, which form a component of the character and there is some limited potential for cumulative changes to these aspects of character.</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>The VE array areas may result in some, limited change through the addition of further offshore WTGs behind and northwards of the existing Greater Gabbard and Galloper grouping, increasing the visual association with East Anglia TWO within the coastal backdrop to the marshland/open fens beyond the intervening shingle ridge. The introduction of the VE array areas in the thin horizontal strip of sea visible, located well outside and at distance from the LCT (over 45km) removed from the association of the sea (which is often not visible), would constitute a relatively minor alteration to the perceived character, at variance to the relatively undeveloped, flat, open and uncluttered character of the LCT, but removed from and in the background to the main elements of the LCT that define character.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects on the perceived landscape character of LCT8 is assessed as low and for this medium-high sensitivity receptor the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate/minor). Fundamentally the low-lying, simple coastal marshland character, sense of naturalness, containment and impression of depth and distance gained by the occasional thin horizontal strip of sea visible will be remain and continue to form key characteristics of its perceived character.</p>
LCT28. Wooded Fens	48.9km	49.8 km	<p>In addition to the Tier 1 projects, the VE array areas may result in indirect effects on the perceived (visual) character, with no cumulative change/effect arising on the majority of the LCTs key characteristics, which will fundamentally remain low-lying coastal valleys of marsh with open water broads at Benacre and Covehithe surrounded by woodlands on higher ground.</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>There will be no visibility of the VE array areas from the low lying valley floor of marshland and areas of open water, which are contained by the rising landform of adjacent land, cliffs at the coast and plantation woodlands on the higher ground surrounding them, particularly to Benacre Broad and areas of Covehithe Broad further inland.</p> <p>The key characteristic that could be affected cumulatively by the addition of the VE array areas is the visual experience of the open flat landscape, particularly from short sections of the LCT at the shoreline. The eastern edges of the LCT extends to the shoreline to cover part of the shingle/dunes area that is typically part of the LCT 05 (Coastal Dunes and Shingle Ridges) - short sections of shoreline associated with LCT 29, of approximately 400m at Covehithe Broad; and 800m at Easton Broad. Although these locations have a distinctive character as areas where these two broads meet the coast, they are not representative of the overall character of these wooded fens.</p> <p>There is potential for cumulative changes to the perceived character of these small areas of the coastal edges of the LCT with offshore sea views, through the addition of the VE array areas in the context of East Anglia ONE North and East Anglia TWO. There is likely to be increasing visual coalescence of the arrays as experienced in views from this LCT to the north of Southwold, where the viewing angle is such that the northern VE array area occupies most of the space on the horizon between East Anglia TWO and Galloper. These areas of the LCT are however located at particularly long distance (over approximately 49km) such that the apparency of the effect will be diminished at such range. The VE array areas will partially alter the visual relationship of the seascape setting of this LCT, resulting in partial loss of open sea skyline in the</p>



Landscape Receptor	Distance to VE array area (km)	Indicative distance from closest VE WTG (km) (MDS layout)	Assessment
			<p>backdrop between Galloper and East Anglia TWO; extending the influence of offshore wind farms as horizon development to the vast, open seascape, however the effect is mitigated by the distance to the VE array areas; the avoidance of effects on the wider seascape skyline to the south of Galloper and north of East Anglia ONE North; the limited extent of the LCT that is affected and the avoidance of any effect on the main characteristics of the LCT as coastal valleys of marsh with open water broads surrounded by woodlands.</p> <p>The cumulative magnitude of change resulting from the contribution of the VE array areas to the cumulative effect with Tier 1 projects on the perceived landscape character of LCT29 is assessed as low and for this medium-high sensitivity receptor the contribution of the VE array areas to the cumulative effect is assessed as not significant (moderate/minor). Fundamentally the coastal valleys of marsh with open water broads surrounded by woodlands that define the LCT will be remain and continue to form the key characteristic of its perceived character.</p>



CUMULATIVE EFFECTS ON SCHAONB SPECIAL QUALITIES

10.13.31 The potential for cumulative effects on the defined special qualities of the SCHAONB is presented in Table 10.36 and is informed by the assessments of cumulative effects on representative viewpoints in Table 10.32, cumulative effects on seascape character in Table 10.34 and cumulative effects on landscape character in Table 10.35. The five special qualities that were assessed in detail in the project alone assessment for the VE array areas in Table 10.26 are assessed further in the cumulative assessment in Table 10.36.



Table 10.36: Tier 1 Cumulative Effects on SCHAONB Special Qualities

SCHAONB Special Quality	Assessment
Landscape Quality	<p>The contribution of the VE array areas to the cumulative effect on the landscape quality of the southern part of the SCHAONB to south of Orford Ness is of negligible magnitude and not significant (minor), due to the very limited impacts of the Tier 1 projects on these parts of the SCHAONB (and therefore the limited potential for the VE arrays to interact cumulatively). East Anglia ONE North will not be visible (over 60km away); East Anglia TWO will have limited influence due to distance, with blade tips potential visible close to the horizon at long range (in excellent visibility); and Sizewell C will scarcely be visible, due to the orientation of the coast and its location 'behind' Sizewell A and B. This southern part of the SCHAONB also coincides with the area of coastline from which the VE array areas will be perceived as being subsumed behind Greater Gabbard/Galloper, with minimal or no extension to the lateral spread of WTGs in views from the LCT's coastline between Bawdsey and Orfordness. The fundamental landscape qualities of the southern part of the SCHAONB to south of Orford Ness will remain similar to that experience in the baseline and will not be significantly affected, including its visual, functional and ecological intactness; condition of the landscape's features and elements; and limited levels of further influence of 'incongruous features or elements'.</p> <p>The contribution of the VE array areas to the cumulative effect on the landscape quality of the northern part of the SCHAONB (to the north of Orford Ness) is assessed as rising to low magnitude but remaining not significant (moderate/minor).</p> <p>The key landscape quality that could be affected cumulatively by the addition of the VE array areas is the intactness of the visual landscape/seascape (particularly the vast, open and simple seascape setting), the juxtaposition of elements and localised influence of incongruous elements.</p> <p>The East Anglia TWO and East Anglia ONE North windfarm sites will form an increase in wind energy influence in the seascape setting, within the distant offshore backdrop to the relatively undeveloped coastline, with their combined influence resulting in offshore windfarms becoming a key characteristic of the offshore backdrop to the seascape setting of the northern part of the SCHAONB.</p> <p>Sizewell C is located within the SCHAONB. Although mitigation measures would be in place to minimise effects, relatively wide significant adverse effects are likely to occur as a result of the construction and</p>



SCHAONB Special Quality

Assessment

operation of Sizewell C in respect of landscape qualities of the SCHAONB, particularly from the closest areas, including the narrow section at Sizewell, and extending south to Thorpe Ness and north across Minsmere to Dunwich Heath. The construction phase in particular would alter how this part of the AONB is viewed and used for a period of up to 12 years, and then operational Sizewell C being visible at close range adjacent to the existing Sizewell A and Sizewell B Nuclear power stations, with reinstated sea defences, turbine halls, cooling water pump houses, outage store and beach landing facility prominent in the views between Thorpeness Cliffs, Sizewell Gap and Minsmere in particular, resulting in large-scale and significant long-term changes to the perceived landscape qualities of the SCHAONB during its construction and operational period.

In this context of the Tier 1 projects within the SCHAONB, and outside the SCHAONB in its seascape setting, the contribution of the VE array areas to the cumulative effect is considered to be relatively low.

There is potential for the VE array areas to introduce further clutter (of WTGs) to the distant visual (seascape) horizon outside the SCHAONB, influencing the vast and open seascape character; and potential to expand the influence of familiar points of reference (offshore WTGs), which would be at a recognised scale (similar to the apparent scale of the East Anglia TWO WTGs). The VE array areas may partially alter the visual relationship of the seascape setting of the northern part of the SCHAONB, resulting in partial loss of open sea skyline in the backdrop between Galloper and East Anglia TWO; extending the influence of offshore wind farms as horizon development to the vast, open seascape. The effect is however mitigated by the majority of the VE array areas being located behind Galloper; the retention of a distinct gap between Galloper and EA2 in views from the most of the northern SCHAONB coastline (between Orfordness and Dunwich Heath); the avoidance of effects on the wider seascape skyline to the south of Galloper and north of East Anglia ONE North; and the distance of the VE array areas from the northern coastline near Southwold/Covehithe, where a potential 'curtaining' effect (where views of the horizon could be obscured) would have diminished apparency given the distances involved to the VE array areas.

The contribution of the VE arrays to the cumulative effect on the landscape qualities of the northern part of the SCHAONB is assessed as **not significant** (moderate/minor), including its visual, functional and ecological intactness, and condition of the landscape's features and elements.



SCHAONB Special Quality	Assessment
Scenic Quality	<p>The contribution of the VE array areas to the cumulative effect on the scenic quality of the southern part of the SCHAONB to south of Orford Ness is of negligible magnitude and not significant (minor), due to the very limited impacts of the Tier 1 projects on these parts of the SCHAONB (and therefore the limited potential for the VE arrays to interact cumulatively). East Anglia ONE North will not be visible (over 60km away); East Anglia TWO will have limited influence due to distance, with blade tips potential visible close to the horizon at long range (in excellent visibility); and Sizewell C will scarcely be visible, due to the orientation of the coast and its location 'behind' Sizewell A and B. This southern part of the SCHAONB also coincides with the area of coastline from which the VE array areas will be perceived as being subsumed behind Greater Gabbard/Galloper, with minimal or no extension to the lateral spread of WTGs in views from the LCT's coastline between Bawdsey and Orfordness. The fundamental scenic qualities of the southern part of the SCHAONB to south of Orford Ness will remain similar to that experience in the baseline and will not be significantly affected, including its distinctive sense of place, striking landforms, patterns of land cover, appeal to the senses and unusual views with eye-catching features and landmarks.</p> <p>The contribution of the VE array areas to the cumulative effect on the scenic quality of the northern part of the SCHAONB (to the north of Orford Ness) is assessed as rising to low magnitude but remaining not significant (moderate/minor).</p> <p>The key scenic qualities that could be affected cumulatively by the addition of the VE array areas is the offshore backdrop to views across striking landforms, features and landmarks, and sensory stimuli such as the 'big Suffolk skies', that contribute to its distinctive sense of place.</p> <p>The East Anglia TWO and East Anglia ONE North windfarm sites will form an increase in wind energy influence in the seascape setting in views across coastal landforms, within the distant offshore backdrop experienced as part of the big Suffolk skies, with their combined influence resulting in offshore windfarms becoming a key characteristic of the seascape setting of the northern part of the SCHAONB.</p> <p>Sizewell C is located within the SCHAONB. Although mitigation measures would be in place to minimise effects, relatively wide significant adverse effects are likely to occur as a result of the construction and operation of Sizewell C in respect of scenic qualities of the SCHAONB, particularly from the closest areas, including the narrow section at Sizewell, and extending south to Thorpe Ness and north across Minsmere to</p>



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Dunwich Heath. The construction phase in particular would alter how this part of the AONB is viewed and used for a period of up to 12 years, and then operational Sizewell C being visible at close range adjacent to the existing Sizewell A and Sizewell B Nuclear power stations, with reinstated sea defences, turbine halls, cooling water pump houses, outage store and beach landing facility prominent in the views between Thorpeness Cliffs, Sizewell Gap and Minsmere in particular, resulting in large-scale and significant long-term changes to the perceived scenic qualities of the SCHAONB during its construction and operational period.

In this context of the Tier 1 projects within the SCHAONB, and outside the SCHAONB in its seascape setting, the contribution of the VE array areas to the cumulative effect is considered to be relatively low.

The VE array areas may result in some changes to the juxtaposition of elements in the seascape setting, increasing the wind energy influence and focus in the offshore backdrop of views across the striking coastal landforms, in the context of other landmarks, however the VE array areas will be seen as a 'horizon development' within the same part of the offshore views as other wind farms, which moderates its contribution to the cumulative effects on the perceived sense of place. The vertical height of the WTGs relative to the 'big Suffolk skies' will be small in scale, and similar to other WTGs, due to their long distance offshore and the large scale of the seascape, such that the sky element of offshore views still occupy the vast majority of the view with the VE array areas potential present on the horizon.

The VE array areas may result in partial loss of open sea skyline in the backdrop between Galloper and East Anglia TWO; extending the influence of offshore wind farms as horizon development, however the effect is mitigated by the majority of the VE array areas being located behind Galloper; the retention of a distinct gap between Galloper and EA2 in views from the most of the northern SCHAONB coastline (between Orfordness and Dunwich Heath); the avoidance of effects on the wider seascape skyline to the south of Galloper and north of East Anglia ONE North; and the distance of the VE array areas from the northern coastline near Southwold/Covehithe, where a potential 'curtaining' effect (where views of the horizon could be obscured) would have diminished apparency given the distances involved to the VE array areas.

The contribution of the VE arrays to the cumulative effect on the scenic qualities of the northern part of the SCHAONB is assessed as not significant, including its offshore backdrop to views across striking landforms,



SCHAONB Special Quality	Assessment
	<p>features and landmarks, and sensory stimuli such as the ‘big Suffolk skies’, that contribute to its distinctive sense of place.</p>
Relative Wildness	<p>The contribution of the VE array areas to the cumulative effect on the relative wildness of the southern part of the SCHAONB to south of Orford Ness is of negligible magnitude and not significant (minor), due to the very limited impacts of the Tier 1 projects on these parts of the SCHAONB (and therefore the limited potential for the VE arrays to interact cumulatively). East Anglia ONE North will not be visible (over 60km away); East Anglia TWO will have limited influence due to distance, with blade tips potential visible close to the horizon at long range (in excellent visibility); and Sizewell C will scarcely be visible, due to the orientation of the coast and its location ‘behind’ Sizewell A and B. This southern part of the SCHAONB also coincides with the area of coastline from which the VE array areas will be perceived as being subsumed behind Greater Gabbard/Galloper, with minimal or no extension to the lateral spread of WTGs in views from the LCT’s coastline between Bawdsey and Orfordness. The relative wildness of the southern part of the SCHAONB to south of Orford Ness will remain similar to that experienced in the baseline and will not be significantly affected, including its sense of remoteness, relative lack of human influence, sense of openness and exposure, sense of enclosure and isolation.</p> <p>The contribution of the VE array areas to the cumulative effect on the relative wildness of the northern part of the SCHAONB (to the north of Orford Ness) is assessed as rising to low magnitude but remaining not significant (moderate/minor).</p> <p>The assessment has identified cumulative effects on the coastal areas of the SCHAONB with Tier 1 project resulting from perceived changes to the long distance, open sea views occurring through partial loss of open sea skyline in the simple landscape composition. The assessment does not directly associate these effects with significant effects on the perception of relative wildness. The openness and exposure experienced from the coastline would continue to be experienced in the presence of the VE array areas, even though it may form an additional visible element in views. The VE array areas will generally not be visible at all from the enclosed/isolated landscapes of the SCHAONB, often due to the dense forest cover and/or contained views within the estuaries and marshlands and will result in negligible change to the qualities of enclosure and isolation.</p>



SCHAONB Special Quality	Assessment
	<p>The geographic extent of changes to the perceived wildness quality of the SCHAONB is also very limited to isolated pockets of landscape, with the much of the SCHAONB landscape unlikely to experienced perceived wildness due to the presence or evidence of human activity and modern interventions, including offshore WTGs in the seascape setting and large-scale Nuclear power station development within the SCHAONB.</p> <p>The contribution of the VE array areas to the cumulative effect will not affect the sense of remoteness perceived within the SCHAONB to the degree that the qualities are substantially eroded and are therefore considered to be not significant.</p>
Relative Tranquillity	<p>The contribution of the VE array areas to the cumulative effect on the relative tranquillity of the southern part of the SCHAONB to south of Orford Ness is of negligible magnitude and not significant (minor), due to the very limited impacts of the Tier 1 projects on these parts of the SCHAONB (and therefore the limited potential for the VE arrays to interact cumulatively). East Anglia ONE North will not be visible (over 60km away); East Anglia TWO will have limited influence due to distance, with blade tips potential visible close to the horizon at long range (in excellent visibility); and Sizewell C will scarcely be visible, due to the orientation of the coast and its location 'behind' Sizewell A and B. This southern part of the SCHAONB also coincides with the area of coastline from which the VE array areas will be perceived as being subsumed behind Greater Gabbard/Galloper, with minimal or no extension to the lateral spread of WTGs in views from the LCT's coastline between Bawdsey and Orfordness. The relative tranquillity of the southern part of the SCHAONB to south of Orford Ness will remain similar to that experienced in the baseline and will not be significantly affected, including the contributors to visual tranquillity and strength of tranquillity perceived.</p> <p>The contribution of the VE array areas to the cumulative effect on the relative tranquillity of the northern part of the SCHAONB (to the north of Orford Ness) is assessed as rising to low magnitude but remaining not significant (moderate/minor).</p> <p>The assessment has identified that the introduction of the VE array areas in the offshore waters will increase the evidence of apparent development and human activity, as a modern intervention in the distant seascape setting of the SCHAONB, contributing some further changes to the tranquillity experienced in sea views, as an additional element that further interrupts or defines a presence or limit on the perceived endlessness of the aspect out to sea on the horizon across the gap between East Anglia TWO and Galloper. The changes</p>



SCHAONB Special Quality	Assessment
	<p>identified do not affect the strength of the tranquillity perceived within the SCHAONB to the degree the qualities are substantially eroded and are considered to be of low magnitude and not significant (moderate/minor). Opportunities to experience a sense of tranquillity will remain as the increased in the windfarm element will not over-ride the naturalistic elements in the landscape and seascape that are the basis for calm and tranquillity. The opportunity to experience tranquillity in a naturalistic environment will not be changed to a significant degree by the VE array areas, as further developed located over 37km away from the SCHAONB, with other natural heritage features prevailing and continuing to provide opportunities to experience a sense of relative tranquillity within a natural environment, i.e. a peaceful, calm state, without noise in a natural setting.</p>
<p>Natural Heritage Features</p>	<p>The contribution of the VE array areas to the cumulative effect with Tier 1 projects on the natural heritage features of the SCHAONB is assessed as being of zero magnitude and not significant on all SCHAONB natural heritage features special qualities. There will be:</p> <ul style="list-style-type: none"> > No direct changes to the characteristic expressions of geology which mark the boundary of the AONB or the striking expressions of geology and sedimentation that defines the crumbling coastal cliffs; > No direct physical landscape changes to the varied, nationally and internationally protected sites such as SSSI, SPA and SAC; and > No changes to the dynamic coastal regimes and resulting transitions in character. <p>The appearance of the VE array areas as an additional offshore windfarm to the Tier 1 projects would not change the fundamental characteristic of the dynamic coastline and geomorphological features of the coast, or the dynamic processes that will continue to fundamentally shape the coastal environment and its distinctiveness.</p>



ESSEX

- 10.13.32 The potential impacts identified and assessed for the VE array areas alone on seascape, landscape and visual receptors in Essex are of negligible or low magnitude and not significant (as assessed in Section 10.11). It is considered that these potential impacts have limited potential to interact further with changes associated with East Anglia ONE North, East Anglia TWO and Sizewell C, due to the distance, lack of visibility and lack of effects of these projects on receptors in Essex.
- 10.13.33 Although theoretical visibility of Tier 1 offshore wind farms is indicated in the cumulative ZTV (Figure 10.24) from parts of the Essex coastline, the cumulative wireline visualisations from Viewpoint 12 The Naze (Figure 10.37b) and Viewpoint 13 Walton Pier (Figure 10.38b) illustrate that East Anglia ONE North will not be visible at this range; and that there is very limited theoretical visibility of just the extremity of WTG blade tips of East Anglia TWO, at distances of approximately 64km from the Naze and 66km from Walton. Even during excellent visibility periods, the EA2 WTGs are unlikely to be visible from coastal viewpoints and receptors in Essex at this range, due to the small size of the blade tips, low to the horizon, low contrast with the sky, atmospheric conditions out to sea and the visual acuity of the eye to distinguish WTGs at such long distances. Sizewell C will not be visible from receptors along the Essex coastline due to the coastal orientation and intervening coastal landforms, particularly Orford Ness, which prevents views to Sizewell from Essex.
- 10.13.34 The contribution of the VE array areas to the cumulative effect with Tier 1 projects on the perceived character, views and visual amenity experienced from the Essex coastline within the SLVIA study area, including from representative viewpoints, settlements and the England Coast Path, is assessed as being of negligible to zero magnitude and even for receptors of high sensitivity at the coast, its resulting contribution to the cumulative effect on views and perceived character of the seascape off the Essex coast is assessed as being **not significant** (minor to negligible). There are no significant cumulative effects predicted to arise on receptors in Essex with Tier 1 projects due to the lack of visibility and avoidance of further impacts associated with East Anglia ONE North, East Anglia TWO and Sizewell C.



TIER 2 CEA

INTRODUCTION

- 10.13.35 The Tier 2 CEA considers all projects with a Scoping Report submitted on the Planning Inspectorate programme of projects within the SLVIA study area as listed in Table 10.31 and shown in Figure 10.22, which consists of the North Falls offshore wind farm (herein 'North Falls'), as well as all projects considered in Tier 1 (permitted and submitted applications that are not yet implemented).
- 10.13.36 The EIA Scoping Report for North Falls was submitted to The Planning Inspectorate in July 2021 (North Falls Offshore Wind Farm, July 2021) and the Scoping Opinion was published in August 2021 (The Planning Inspectorate, August 2021). North Falls Offshore Wind Farm PEIR (May 2023) was included in the statutory consultation (16 May to 14 July 2023).
- 10.13.37 The Tier 2 CEA focuses on the additional cumulative effect of the VE array areas with the North Falls array area (Figure 10.22). The North Falls array area lies within the Outer Thames Estuary located approximately 37.6 km from shore. The North Falls array area is situated around the western and southern boundary of Greater Gabbard/Gabbard offshore windfarm and extends southwards.
- 10.13.38 North Falls has a maximum project design envelope for seascape, landscape and visual consisting of up to 34 WTGs with a maximum blade tip height of up to 377m above MHWS, with up to two OSPs (North Falls Offshore Wind Farm, September 2023). The WTGs will be lit and marked as required for aviation and navigation purposes.

CERTAINTY AND DATA CONFIDENCE

- 10.13.39 The cumulative landscape and visual effects of scoping stage sites are not generally considered in CEAs for wind farm development, in line with best practice guidance (NatureScot, 2021), which states that:
- > *'An assessment of cumulative impacts associated with a specific development proposal should encompass the effects of the proposal in combination with:*
 - > *existing development, either built or under construction;*
 - > *approved development, awaiting implementation; and*
 - > *proposals awaiting determination within the planning process with design information in the public domain. Proposals and design information may be deemed to be in the public domain once an application has been lodged, and the decision-making authority has formally registered the application'.*
- 10.13.40 This guidance generally recommends cumulative assessment goes only as far as assessing projects where an application has been lodged, however, it does also state that *'occasionally it may be appropriate to include proposals which are in the early stages of development in an assessment, particularly where clusters of development or "hotspots" emerge. However, a degree of pragmatism is required to enable proposals to progress to determination'.*



- 10.13.41 GLVIA3 (Landscape Institute, 2013) also supports the approach of assessing projects with planning consent and those that are subject of a valid planning application, stating (7.14) that *'schemes that are at the pre-planning or scoping stage are not generally considered in the assessment of cumulative effects because of uncertainty about what will actually occur, that is, it is not 'reasonably foreseeable'*.
- 10.13.42 GLVIA3 does however note, that *'there may be occasions where such schemes may be included in the assessment if the competent authority or consultation bodies consider this to be necessary. Such a request should only be made if absolutely necessary to make a realistic assessment of potential cumulative effects'*.
- 10.13.43 Offshore specific guidance (PINS, 2019) recommends that projects where a scoping report has been submitted are considered in the CEA within the Tier 2 assessment, while also recognising that there is a decreasing level of detail likely to be available moving from Tier 1 to Tier 3, and less certainty in terms of the whether the effects assessed in a Tier 2 CEA would materialise or occur to the level assessment in the CEA, given the uncertainty of the consent, the limited amount of information available on which to base assessments and the potential for project design envelopes to change during the application and consenting process.
- 10.13.44 For the purpose of this CEA, an indicative layout has been created for North Falls by adjusting the southern array area layout from the North Falls PEIR (May 2023), adjusted to fit within the new North Falls array area boundary (Figure 10.22) as an indicative MDS layout for cumulative assessment. This indicative layout has been used as the basis for the cumulative ZTV of North Falls (Figure 10.25) and this layout is shown in the wireline visualisations (Figures 10.26 – 10.46) consisting 57 WTGs with a maximum blade tip height of up to 377m above MHWS.
- 10.13.45 The Tier 2 CEA undertaken within this SLVIA is however, a high-level qualitative assessment, as the information available on North Falls is limited, and is not well-defined to the point that its cumulative impacts with the VE array areas can be fully assessed in detail.
- 10.13.46 The potential cumulative effects arising with North Falls are a subset of those considered for the VE array areas and is informed by the assessments undertaken in the assessment of potential impacts in Section 10.11, with project alone effects of low or negligible magnitude having limited potential to interact significantly with changes associated with Tier 2 projects.
- 10.13.47 The contribution of the VE array areas to the Tier 2 cumulative effect with North Falls on views/visual amenity, seascape and landscape character is described for each geographic region within the SLVIA study area with reference to representative viewpoints on these coastlines and the cumulative wireline visualisations presented in Figures 10.26 to 10.46.

SUFFOLK



- 10.13.48 North Falls offshore windfarm will be located approximately 39.9km from the closest point of the Suffolk coastline (Figure 10.22) at Old Felixstowe (Viewpoint 11, Figure 10.36c). It has potential to contribute to cumulative effects with the VE array areas on seascape, landscape and visual receptors in Suffolk, where they will be viewed in combination in offshore views towards the existing Greater Gabbard and Galloper wind farm grouping. North Falls will be located closer to the coast than the VE array areas, split into two array areas around the western boundary of Greater Gabbard offshore windfarm.
- 10.13.49 The North Falls array is unlikely to be visible in views from the northern parts of the SCHAONB roughly between Kessingland, Southwold and Sizewell Beach, from which it is located approximately 50 - 70km offshore from the SCHAONB coastline. The VE array areas will result in negligible cumulative change with North Falls from this northern section of the SCHAONB coastline (between Kessingland and Sizewell Beach) due to the absence of effects from North Falls at such long range, which therefore result in limited cumulative interaction with the VE array areas. This is evident in the cumulative wireline views from Covehithe (Figure 10.40c), Southwold (Figure 10.26c) and Dunwich (Figure 10.27c).
- 10.13.50 The VE array areas have the potential to result in cumulative effects with North Falls from the SCHAONB coastline southwards from approximately Sizewell Beach (Figure 10.29c) such as from the coastlines between Thorpeness, Aldeburgh, Orford Ness, Shingle Street and Felixstowe in the southern portion of the SCHAONB. From these areas of the SCHAONB coast, the North Falls array is likely to be viewed as extending the lateral spread of WTGs into the open sea to the south of the operational Greater Gabbard and Galloper grouping, from the southern parts of the SCHAONB, albeit at long distances to North Falls of between 40 – 50 km from the coast. Due to the larger dimensions of the North Falls WTGs than the existing WTGs they are likely to be viewed with a larger apparent scale than the operational WTGs in views from this southern portion of the SCHAONB and will extend the lateral spread of WTGs southwards along the seascape horizon, at long range offshore.



10.13.51 As identified in the project alone and Tier 1 cumulative assessments, the VE array areas will; however, be viewed at greater distance in views from the Sussex coast, mainly subsumed behind Greater Gabbard and Galloper. North Falls is also located at very long range offshore between 40-50km from the closest areas of the southern part of the SCHAONB coastline. In these views from the southern portion of the SCHAONB, North Falls is likely to be more notable in offshore views and will contribute more to the cumulative effect, due to position around the western side of the existing wind farms and its southerly extension of the lateral spread that extends the wind farm developed skyline to the south of Greater Gabbard and Galloper. This is in comparison to the VE array areas which sit to the east of the operational wind farms and do extend their lateral spread in these views from the southern portion of the SCHAONB. Although the VE array areas may therefore contribute to increasing the influence of WTGs in the wind farm developed section of the views together with North Falls, increasing the density and spread of the overall array, the VE array areas are assessed as having a low contribution to the cumulative magnitude of change with North Falls and result in a not significant (moderate/minor) contribution to the cumulative effect with Tier 2 projects on seascape, landscape and visual receptors/views in Suffolk, including representative views from the coast (Viewpoints 1 - 11); the perceived character of LCTs 5, 6, 7, 8 and 28; and the special qualities of the SCHAONB.

ESSEX

10.13.52 North Falls offshore windfarm will be located approximately 40.7km from the closest point of the Essex coastline at The Naze (Viewpoint 12, Figure 10.37). It has potential to contribute to cumulative effects with the VE array areas on seascape, landscape and visual receptors in Essex, where they will be viewed in combination in offshore views towards the existing Greater Gabbard and Galloper wind farm grouping. North Falls will be located closer to the Essex coast than the VE array areas, around the western and southern boundary of Greater Gabbard / Galloper offshore windfarm.

10.13.53 In views from Essex, North Falls will therefore be viewed on the sea skyline, partially to the fore of Greater Gabbard and Galloper, but also extending the lateral spread of WTGs into the open sea to the south of the Greater Gabbard and Galloper grouping. Due to the larger dimension of the North Falls WTGs and their closer position to the coast than the existing WTGs, they are likely to be viewed with a larger apparent scale, increasing the visual influence and lateral spread of WTGs in this part of the offshore views from the Essex coast, albeit at considerable range offshore at distances over approximately 40km from the Essex coast.



10.13.54 The VE array areas are likely to be viewed at greater distance in views from the Essex coast, subsumed behind Greater Gabbard and Galloper. Although the VE array areas may therefore contribute to increasing the influence of WTGs in the wind farm developed section of the views together with North Falls, increasing the density of the overall array, the VE array areas are assessed as having a low to negligible contribution to the cumulative magnitude of change with North Falls (taken as low for the purpose of effect significance) and result in a not significant (minor) contribution to the cumulative effect with Tier 2 projects on seascape, landscape and visual receptors/views from Essex, including representative views from the coast at Viewpoint 12 The Naze (Figure 10.37), Viewpoint 13 Walton Pier (Figure 10.38) and illustrative views from Viewpoint E Harwich (Figure 10.44) and Viewpoint F Clacton-on-Sea (Figure 10.45).



10.14 CLIMATE CHANGE

- 10.14.1 This section provides a high-level in-combination climate impact (ICCI) assessment in respect of seascape, landscape and visual (SLV) receptors, in accordance with the Institute of Environmental Management and Assessment (IEMA) Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation, June 2020 (IEMA, 2020). The information provided in this section will be drawn upon and summarised in Volume 6, Part 4, Chapter 1: Climate change. As outlined in Volume 6, Part 4, Chapter 1: Climate Change, the operational phase of VE would enable the use of renewable electricity which would result in a positive greenhouse gas impact, resulting in a significant beneficial effect.
- 10.14.2 Table 10.37 presents the effects of VE in combination with anticipated future climate change on SLV receptors, *i.e.* it assesses the extent to which anticipated future climate change exacerbates the effects of VE on the identified environmental receptor (IEMA, 2020). Table 10.37 sets out the ICCI for the VE array areas in respect of SLV receptors.
- 10.14.3 The overall finding is that anticipated future climate change effects are unlikely to exacerbate or change the assessed effects of the VE array on SLV receptors in any perceptible way. The impacts of climate change in the local area are also not assessed to be contributed to by the VE array to any significant extent.
- 10.14.4 The cumulative projects assessed as part of this SLVIA are listed in Table 10.31. The assessment of these developments on the cumulative impact on SLV receptors is considered in Section 10.13. It is not considered that the anticipated future climate change effects are unlikely to exacerbate or change the assessed effects of the VE array on SLV receptors in any perceptible way.



Table 10.37: Potential Effects of Climate Change on SLV Receptors

Receptor	Potential Climate Effect	Level of Significance	Potential ICCI	Cumulative Effects
Construction, operation and maintenance, and decommissioning				
SLV receptors	Increase in winter precipitation / decrease in summer precipitation.	The identified impacts are considered unlikely to exacerbate or reduce the SLV effects of the VE array to any notable degree.	A rise in winter precipitation levels and/or decrease in summer precipitation levels may influence vegetation cover that contributes to landscape character and provide visual screening of the VE array, particularly in winter. However it is not possible to predict to any degree of accuracy what the result of this change of would be. Frequency of visibility of the VE array at distance offshore may decrease during periods with increased winter precipitation, however these changes are considered unlikely to exacerbate or reduce the landscape of visual effects of VE to any notable degree. The effects of VE are assessed in optimum visibility conditions to ensure the worst-case is assessed.	The identified impacts are considered unlikely to exacerbate or reduce the SLV effects of any cumulative impacts to any notable degree.



Receptor	Potential Climate Effect	Level of Significance	Potential ICCI	Cumulative Effects
SLV receptors	Increase in temperature and heat wave frequency.	The identified impacts are considered unlikely to exacerbate or reduce the SLV effects of the VE array to any notable degree.	A rise in air temperatures and the frequency of heat waves may have an effect on the growth rates and types of vegetation, which may influence the amount of screening of VE, however it is not possible to predict to any degree of accuracy what this would be.	The identified impacts are considered unlikely to exacerbate or reduce the SLV effects of any cumulative impacts to any notable degree.
SLV receptors	Increase in summer storm intensity and heavy rainfall events.	The identified impacts are considered unlikely to exacerbate or reduce the SLV effects of the VE array to any notable degree.	<p>Frequency of visibility of VE at distance offshore may decrease during periods with increased summer storm intensity, however these changes are considered unlikely to exacerbate or reduce the visual effects of VE to any notable degree. The effects of VE are assessed in optimum visibility conditions to ensure a worst-case is assessed.</p> <p>The increase in the number and severity of storms with higher precipitation and wind strength have resulted in higher numbers of trees coming down in severe</p>	The identified impacts are considered unlikely to exacerbate or reduce the SLV effects of any cumulative impacts to any notable degree.



Receptor	Potential Climate Effect	Level of Significance	Potential ICCI	Cumulative Effects
			<p>weather. This may particularly be the case when trees are in leaf and the ground rain-drenched or waterlogged as the leaves of the tree act like a sail and the ground conditions not able to withstand the force of gusts. This trend is likely to continue with climate change. This may have an effect of screening of VE, however it is not possible to predict to any degree of accuracy what this would be.</p>	



Receptor	Potential Climate Effect	Level of Significance	Potential ICCI	Cumulative Effects
SLV receptors	Increase in mean sea level/ flooding.	The identified impacts are considered unlikely to exacerbate or reduce the SLV effects of the VE array to any notable degree.	<p>The need for increased flood defence measures is likely to be a driver for change in relation to the coastline and water courses as well as potential changes to other land use practices. These may range from a more 'natural' approach through the introduction of vegetation to higher elevations or a more engineered approach, for example through increased numbers or size of break waters along the coastline. It is not possible to predict what approaches (if any) would be taken to address this, and consequently what impact this would have on the SLV effects of the VE array.</p> <p>An increase in mean sea level/ flooding may affect the character of the coast/ seascape, however these changes are considered unlikely to exacerbate or reduce the SLV effects of VE to any notable degree.</p>	The identified impacts are considered unlikely to exacerbate or reduce the SLV effects of any cumulative impacts to any notable degree.



10.15 INTER-RELATIONSHIPS

10.15.1 A description of the likely inter-related effects arising from the VE array areas on seascape, landscape and visual receptors is provided in Volume 6, Part 2, Chapter 14: Inter-relationships.

10.15.2 For seascape, landscape and visual receptors, the following likely significant effects have been considered within the inter-related assessment:

- > Changes to views experienced by people from specific and representative viewpoints and from visual receptors;
- > Changes to the perceived seascape (coastal) character of coastal character areas;
- > Changes to the perceived landscape character and qualities of designated landscapes; and
- > Changes to night-time views and perceived character of coastal character as a result proposed development lighting.

10.15.3 Table 10.38 lists the inter-related effects (project lifetime effects) that are predicted to arise during the construction, operation and maintenance phase, and decommissioning of the VE array areas and also the inter-related effects (receptor-led effects) that are predicted to arise for seascape, landscape and visual receptors.

10.15.4 As noted above, effects on seascape, landscape and visual receptors also have the potential to have secondary effects on other receptors and these effects are fully considered in the topic-specific chapters. These receptors and effects are:

- > **Landscape and Visual** (Volume 6, Part 3, Chapter 2: Landscape and Visual Impact Assessment) - temporary (during construction, operation and maintenance and decommissioning phases), long-term (during operation and maintenance phase only) and reversible (post-decommissioning) addition of the VE array areas resulting in direct effect to views from and indirect effect to perceived character of coastal areas of Essex near the landfall and onshore cable route;
- > **Archaeology and Cultural Heritage** (Volume 6, Part 3, Chapter 7: Archaeology and Cultural Heritage) - temporary (during construction, operation and maintenance and decommissioning phases), long-term (during operation and maintenance phase only) and reversible (post-decommissioning) addition of the VE array areas resulting in direct effect to views from and indirect effect to perceived character of Registered Parks and Gardens (RPGs), including Bawdsey Manor, and the Suffolk Heritage Coast;
- > **Socio-Economics and Tourism** (Volume 6, Part 3, Chapter 3: Socio-Economic, Tourism and Recreation) - temporary (during construction, operation and maintenance and decommissioning phases), long-term (during operation and maintenance phase only) and reversible (post-decommissioning) addition of the VE array areas resulting in indirect effect to visitor and tourist use of the coast including receptors such as beaches, recreational routes, golf courses and visitor attractions.



Table 10.38: Summary of potential inter-related effects for seascape, landscape and visual receptors

Description of Impact	Phase			Project Effects
	C	O	D	
Lifetime effects				
Changes to views experienced by people from specific and representative viewpoints and from visual receptors	✓	✓	✓	No greater than individually assessed impacts. Although impacts are broken down into different receptors (viewpoints and visual receptors) the actual receptor is the same in each case i.e., the people perceiving the effect. Therefore, these people will only perceive the effect one way (visually) at one point in time, and will not experience the construction, operation and decommissioning phases simultaneously, or across multiple pathways.
Changes to the perceived seascape (coastal) character of coastal character areas	✓	✓	✓	No greater than individually assessed impacts. Although impacts are broken down into different receptors based upon physical and perceived characteristics (coastal character areas) the actual receptor is the same in each case i.e., the people perceiving the effect on coastal character. Therefore, these people will only perceive the effect one way (visually) at one point in time, and will not experience the construction, operation and decommissioning phases simultaneously, or across multiple pathways.
Changes to the perceived landscape character and qualities of designated landscapes	✓	✓	✓	No greater than individually assessed impacts. Although impacts are broken down into different receptors based upon physical and perceived characteristics (landscape character types) and planning policies (landscape designations) the actual receptor is the same in each case i.e., the people perceiving the effect on coastal character. Therefore, these people will only perceive the effect one way (visually) at one point in time, and will not experience the construction,



Description of Impact	Phase			Project Effects
	C	O	D	
				operation and decommissioning phases simultaneously, or across multiple pathways.
Changes to night-time views and perceived character of coastal character as a result proposed development lighting	×	✓	×	No greater than individually assessed impacts. Although impacts are broken down into different receptors (viewpoints and visual receptors) the actual receptor is the same in each case i.e., the people perceiving the effect. Therefore, these people will only perceive the effect one way (visually) at one point in time, and will not experience the construction, operation and decommissioning phases simultaneously, or across multiple pathways.
Receptor led effects				
Receptor led effects (i.e. those that interact, spatially and temporally, to create inter-related effects on a receptor) will not occur on seascape, landscape and visual receptors, since changes are experienced by the same receptor in each case (people) and in one way (visually) at one point in time, therefore effects on views and on perceived character are inter-linked, and do not interact to produce a different, or greater effect, on a receptor than when effects are considered in isolation.				

10.16 TRANSBOUNDARY EFFECTS

- 10.16.1 Transboundary effects identified in the scoping report and/ or subsequent transboundary screening undertaken by PINS should be considered. Transboundary effects arise when impacts from a development within one European Economic Area (EEA) states affects the environment of another EEA state(s).
- 10.16.2 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to seascape, landscape and visual from the VE array areas upon the interests of other European Economic Area (EEA) States.
- 10.16.3 There are no terrestrial areas of EU member states located within the SLVIA study area (Figure 10.3). The VE array areas are located approximately 79.5 km from the coastline of the nearest EU member state (France), from where the ZTV (Figure 10.8) indicates limited theoretical visibility of the VE array areas due to the influence of distance and effects of earth curvature.
- 10.16.4 Actual visibility of the VE WTGs at such long distance will be further limited by the prevailing visibility and weather conditions, which have been demonstrated by the Met Office visibility data in Table 10.15 to be infrequent at very long range, with no visibility recorded over 60 km.



10.16.5 Transboundary effects have therefore been scoped out of the SLVIA, as agreed with the Inspectorate (Table 10.5) since there is no potential for significant effects at such long distance; the coastline of other EU member states is outside the SLVIA study area and would have no visibility of the construction and operation of the offshore infrastructure.

10.17 SUMMARY OF EFFECTS

10.17.1 A summary of the residual effects of the VE array areas in respect to seascape, landscape and visual receptors is presented in Table 10.39.



Table 10.39: Summary of effects for seascape, landscape and visual

Description of effect	Effect	Additional mitigation measures	Residual impact
Construction			
Impact 16.1: Impact (daytime) of the construction of VE array areas on seascape character	The effects arising as a result of the construction of the VE array areas are assessed as being of the same magnitude and significance on all seascape character, landscape character and visual receptors as those arising due to their operation and maintenance, as assessed in Section 10.11, differing primarily as the effects will be short-term and temporary, during the length of the construction phase.		
Impact 16.2: Impact (daytime) of the construction of VE array areas on perceived landscape character			
Impact 16.3: Impact (daytime) of the construction of VE array areas on special qualities of designated landscapes			
Impact 16.4: Impact (daytime) of the construction of VE array areas on visual receptors / views			
Operation			
Impact 16.5: Impact (daytime) of the operation and maintenance of the VE array areas on seascape character			
Indirect effect on perceived seascape character – SCT03 Nearshore Waters	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Indirect effect on perceived seascape character – SCT05 Coastal Waters	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible



Description of effect	Effect	Additional mitigation measures	Residual impact
Direct effect on seascape character – SCT06 Offshore Waters	Medium magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term, reversible
Indirect effect on perceived seascape character – MCA19 Essex and South Suffolk Estuaries and Waters	Low magnitude Not significant (minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term, reversible.
Impact 16.6: Impact (daytime) of the operation and maintenance of the VE array areas on perceived landscape character			
Essex			
Indirect effect on perceived landscape character – LCA F7 Brightlingsea-Clacton-Frinton Coast	Negligible magnitude Not significant (minor/negligible)	None proposed	Not significant adverse effects Minor/negligible in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCA F8 Hamford Water	Negligible magnitude Not significant (minor/negligible)	None proposed	Not significant adverse effects Minor/negligible in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCA F9 Stour Estuary Slopes	Negligible magnitude Not significant (minor/negligible)	None proposed	Not significant adverse effects Minor/negligible in EIA terms Long-term and reversible
Suffolk			
Indirect effect on perceived landscape character – LCT5 Coastal Dunes and Shingle Ridges	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible



Description of effect	Effect	Additional mitigation measures	Residual impact
Indirect effect on perceived landscape character – LCT6 Coastal Levels	<u>Marshes flanking the River Blyth, Minsmere Level and Meare at Thorpeness:</u> Low magnitude Not significant (minor)	None proposed	<u>Marshes flanking the River Blyth, Minsmere Level and Meare at Thorpeness:</u> Not significant adverse effects Minor in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCT6 Coastal Levels	<u>Marshes flanking the sides of the Rivers Alde, Ore and Butley:</u> Low magnitude Not significant (moderate/minor)	None proposed	<u>Marshes flanking the sides of the Rivers Alde, Ore and Butley:</u> Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCT7 Estate Sandlands	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCT8 Open Coastal Fens	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCT28 Wooded Fens	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Impact 16.7: Impact (daytime) of the operation and maintenance of the VE array areas on special qualities of designated landscapes			
Indirect effect on perceived SCHAONB Special Qualities	Low magnitude	None proposed	Not significant adverse effects



Description of effect	Effect	Additional mitigation measures	Residual impact
	Not significant (moderate/minor)		Moderate/minor in EIA terms Long-term and reversible.
Impact 16.8: Impact (daytime) of the operation and maintenance of the VE array areas on visual receptors / views			
Direct effect on view – Viewpoint 1 Southwold (Gun Hill)	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 2 Dunwich Beach	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 3 Dunwich Heath	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 4 Sizewell Beach	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 5 Thorpeness	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 6 Aldeburgh	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms



Description of effect	Effect	Additional mitigation measures	Residual impact
			Long-term and reversible
Direct effect on view – Viewpoint 7 Orford Castle	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 8 Burrow Hill (Suffolk Coast Path)	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 9 Orfordness (Bomb Ballistics Building)	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 10 Shingle Street	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 11 Old Felixstowe	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 12 The Naze, Walton	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 13 Walton Pier	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible



Description of effect	Effect	Additional mitigation measures	Residual impact
Direct effect on view – Viewpoint 14 Walton, Mill Lane	Zero magnitude Not significant (no effect)	None proposed	Not significant adverse effects No effect Long-term and reversible
Direct effect on views – ECP Jaywick to Harwich (Essex)	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on views – ECP Harwich to Shotley Gate (Essex)	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on views – ECP/SCP Shotley Gate to Felixstowe Ferry (Suffolk)	<u>Section 1, 3, 4 Bristol Hill to Felixstowe:</u> Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on views – ECP/SCP Shotley Gate to Felixstowe Ferry (Suffolk)	<u>Section 5 Landguard Point to Martello Tower, F. Ferry:</u> Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on views – ECP/SCP Felixstowe Ferry to Bawdsey (Suffolk)	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on views ECP/SCP – Bawdsey to Aldeburgh (Suffolk)	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible



Description of effect	Effect	Additional mitigation measures	Residual impact
Direct effect on views ECP/SCP – Aldeburgh to Pakefield (Suffolk)	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on views ECP/SCP – Pakefield to Lowestoft (Suffolk)	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Impact 16.9: Impact (night-time) of the operation and maintenance of VE array areas lighting on visual receptors / views			
Direct effect on view at night – Viewpoint 2 Dunwich Beach	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view at night – Viewpoint 6 Aldeburgh	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view at night – Viewpoint 11 Old Felixstowe	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on view at night – Viewpoint 12 The Naze, Walton	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Impact 16.19: Impact (night-time) of the operation and maintenance of VE array areas lighting on seascape and landscape character			
Indirect effect on perceived landscape character of LCTs along Suffolk coast at night	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects



Description of effect	Effect	Additional mitigation measures	Residual impact
			Moderate/minor in EIA terms Long-term and reversible
Indirect effect on perceived SCHAONB Special Qualities at night	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible.
Indirect effect on perceived landscape character of LCTs along Essex coast at night	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Decommissioning			
Impact 16.10: Impact (daytime) of the decommissioning of the VE array areas on seascape character	The effects arising as a result of the decommissioning of the VE array areas are assessed as being of the same magnitude and significance on all seascape character, landscape character and visual receptors as those arising due to their operation and maintenance, as assessed in Section 10.11, differing primarily as the effects will be short-term and temporary, during the length of the decommissioning phase.		
Impact 16.11: Impact (daytime) of the decommissioning of the VE array areas on perceived landscape character and special qualities of designated landscapes			
Impact 16.12: Impact (daytime) of the decommissioning of the VE array areas on visual receptors / views			
Cumulative effects			
Impact 16.24: Cumulative effect (daytime) of the construction, operation and maintenance, and decommissioning of VE array areas on seascape character, landscape character and views / visual receptors (Tier 1*)			



Description of effect	Effect	Additional mitigation measures	Residual impact
*All permitted and submitted applications, but not yet implemented			
Indirect effect on perceived seascape character – SCT03 Nearshore Waters and SCT05 Coastal Waters	Medium-low magnitude Not significant (moderate)	None proposed	Not significant adverse effects Moderate in EIA terms Long-term and reversible
Direct effect on seascape character – SCT06 Offshore Waters	Medium magnitude Not significant (moderate)	None proposed	Not significant adverse effects Moderate in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCT5 Coastal Dunes and Shingle Ridges	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCT6 Coastal Levels	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCT7 Estate Sandlands	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCT8 Open Coastal Fens	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Indirect effect on perceived landscape character – LCT28 Wooded Fens	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms



Description of effect	Effect	Additional mitigation measures	Residual impact
			Long-term and reversible
Indirect effect on perceived SCHAONB Special Qualities	<u>Southern part of the SCHAONB (south of Orford Ness):</u> Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
	<u>Northern part of the SCHAONB (north of Orford Ness):</u> Low magnitude Not significant (moderate/minor)	None proposed	<u>Northern part of the SCHAONB (north of Orford Ness):</u> Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible.
Direct effect on view – Viewpoint 1 Southwold (Gun Hill)	Medium-low magnitude Not significant (moderate)	None proposed	Not significant adverse effects Moderate in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 2 Dunwich Beach	Medium-low magnitude Not significant (moderate)	None proposed	Not significant adverse effects Moderate in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 3 Dunwich Heath	Medium-low magnitude Not significant (moderate)	None proposed	Not significant adverse effects Moderate in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 4 Sizewell Beach	Medium-low magnitude Not significant (moderate)	None proposed	Not significant adverse effects Moderate in EIA terms Long-term and reversible



Description of effect	Effect	Additional mitigation measures	Residual impact
Direct effect on view – Viewpoint 5 Thorpeness	Medium-low magnitude Not significant (moderate)	None proposed	Not significant adverse effects Moderate in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 6 Aldeburgh	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 7 Orford Castle	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 8 Burrow Hill (Suffolk Coast Path)	Zero magnitude Not significant (no cumulative effect)	None proposed	Not significant adverse effects No cumulative effect Long-term and reversible
Direct effect on view – Viewpoint 9 Orfordness (Bomb Ballistics Building)	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 10 Shingle Street	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on view – Viewpoint 11 Old Felixstowe	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms Long-term and reversible
Direct effect on views ECP/SCP – Felixstowe Ferry to Bawdsey (Suffolk)	Negligible magnitude Not significant (minor)	None proposed	Not significant adverse effects Minor in EIA terms



Description of effect	Effect	Additional mitigation measures	Residual impact
			Long-term and reversible
Direct effect on views ECP/SCP – Bawdsey to Aldeburgh (BSA1 to BSA5)	Low magnitude Not significant (moderate/minor)	None proposed	Not significant adverse effects Moderate/minor in EIA terms Long-term and reversible
Direct effect on views ECP/SCP – Aldeburgh to Hopton-on-Sea (ASH1 to ASH5)	Medium-low magnitude Not significant (moderate)	None proposed	Not significant adverse effects Moderate in EIA terms Long-term and reversible
Direct effect on views from Essex coastline	Negligible to zero magnitude Not significant (Minor or no effect)	None proposed	Not significant adverse effects Minor or no effect in EIA terms Long-term and reversible
Indirect effect on perceived landscape character of LCTs forming Essex coastline	Negligible to zero magnitude Not significant (Minor or no effect)	None proposed	Not significant adverse effects Minor or no effect in EIA terms Long-term and reversible

10.18 CONCLUSIONS

10.18.1 The SLVIA is based on the Rochdale Envelope with assessment based on likely effects of a realistic ‘worst case’ scenario . Effects assessed are therefore a worst-case and precautionary.

10.18.2 The SLVIA also takes a precautionary approach in relation to ‘frequency of effect’. The effects of the VE array areas are assessed based on optimum visibility conditions, as a worst-case. ‘Excellent’ visibility is not actually ‘prevailing’ in terms of its frequency across the year, therefore the VE WTGs will often be viewed in less than the optimum visibility conditions assumed and shown in the visualisations. Excellent visibility to distances beyond 40km from the coast has been identified in Met Office visibility data (Table 10.15) as occurring for only approximately 14% of the time (equating to approximately 52 days of the year).



- 10.18.3 Effects have not been downgraded either in magnitude or significance from variations in weather and visibility and how infrequently the effects will be experienced. Effects are based on the worst-case with clear visibility and need to be considered in context of the limited time effects will actually occur.
- 10.18.4 Visual representations (photomontages) in Figure 10.26 to 10.46 have been produced in accordance with best practice. They are ‘technical visualisations’ that are accurate and objective, but a tool to be ideally used in the field, when looking at the seascape from the viewpoint location. Viewing at a desk cannot replicate the experience being at the viewpoints on the coast, where the landscape is experienced with smells, sounds and movement of the sea. When at the viewpoint, the whole experience is important, including views down the beach, up the beach and the openness of sky above.
- 10.18.5 The visual representations can never be the same as the real experience of the change but are useful assessment tools to help understand the likely change resulting from the VE array areas. The scale of the VE WTGs is best appreciated at the viewpoints with reference to the photomontages included in the SLVIA. If viewed correctly at the correct printed image size, these provide a close representation of the vertical scale of turbines in actual viewpoints.
- 10.18.6 Guidance (Landscape Institute, 2013) recommends that in preparing photomontages, weather conditions shown in the photographs should be either:
*‘representative of those generally prevailing in the area; or
taken in good visibility, seeking to represent a maximum visibility scenario when the development may be highly visible’.*
- 10.18.7 The SLVIA takes the latter approach. Photographs for all viewpoints were taken in ‘very good’ or ‘excellent’ visibility conditions, during summer and in the afternoon or evening - to represent a ‘worst-case’ maximum visibility scenario. The VE WTGs have also been rendered with sufficient contrast against the skyline and backdrop to illustrate their maximum visibility in each image. The visualisations should be interpreted in that context i.e. they show a worst-case. ‘Very good’ and ‘excellent’ visibility are not actually ‘prevailing’ in terms of their frequency across the year. Often, the project turbines will be viewed in less than the optimum visibility conditions shown in the visualisations.
- 10.18.8 The VE array areas are located within the Offshore Waters SCT (06) - open expanses of deep sea, located at long distance from the shoreline, busy shipping waters, large vessels, dredging activity, gas wells and three existing offshore windfarms.
- 10.18.9 The large scale of the open seascape is considered more likely to be able accommodate windfarm development than areas of more, complex seascape close to the shore. The form of the coastline is relatively straight and regular in orientation, with the VE array areas located parallel and distant from the coast, avoiding direct interactions with views of coastal landforms and viewed consistently.
- 10.18.10 The ‘Offshore Waters’ seascape forms the wider, distant offshore seascape setting to the SCHAONB, however the VE array areas are located well outside the ‘nearshore waters’ and ‘coastal waters’ that define the immediate seascape setting of the SCHAONB (Figure 10.4).



- 10.18.11 The VE array areas will not result in any direct changes to the current pattern of elements that define landscape character of the closest areas of the coastline. No physical attributes that define special qualities of the SCHAONB will be changed.
- 10.18.12 The SCHAONB is located 37.3km from the VE array area and in the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB at its closest point (Orford Ness). The majority of the SCHAONB coastline is however located beyond 40 km from the VE array areas. The northern parts of the SCHAONB extend for example to Southwold (47 km) and Kessingland (54.5 km), and the southern part of the SCHAONB extends to Felixstowe (49 km). Views of the VE array areas will primarily be experienced from the narrow strip where the coastal edges of Suffolk meet the sea, between Covehithe in the north, Orford Ness and Felixstowe; and from the coastal edges of Essex between Harwich and Clacton-on-Sea.
- 10.18.13 Due to their location at considerable distance outside the SCHAONB and from the Essex coastline, the VE array areas only impact on the perception of character and qualities – which is considered as an indirect effect. Changes to the perceived character occurs in views from parts of the SCHAONB and Essex coastline, rather than ‘on’ or ‘within’ the landscape.
- 10.18.14 The effects of the VE array areas derive from changes to views from the coast of the SCHAONB and the Essex coastline out to sea, adding an additional element in the simple composition of shingle, sea and sky - the juxtaposition of elements perceived from the coastal edge.
- 10.18.15 The VE array areas do not affect the immediate setting of the SCHAONB but will be seen on and beyond the horizon as ‘horizon development’ to a large open seascape, rather than being viewed ‘within’ its immediate nearshore seascape. The assessment distinguishes between the ‘immediate setting’ of the SCHAONB and ‘horizon development’ as a way of distinguishing between the effects of development on the distant visual horizon/open seascape compared to development at close range in the foreground seascape (immediate setting). Where WTGs are visible closer to shore, in the foreground seascape or visible next to coastal focal points or complex and enclosed coastal landscapes, there is potential for adverse effects of higher magnitude on setting, whereas offshore wind farm developments tend to have lower levels of effect, or less adversity, when located in the seascape backdrop away from the seascapes visible at the coast, in locations on or beyond the horizon (‘horizon development’). The VE array areas are within the seascape setting of the SCHAONB and may be visible in views out of the SCHAONB (during periods of excellent visibility), and by virtue of its nature, siting and size/scale is likely to have an impact on the setting and special qualities of the SCHAONB, however these are assessed in the SLVIA and found to be not significant. These effects are also identified as occurring infrequently, since excellent visibility to distances beyond 40km from the coast only occurs for approximately 14% of the time (equating to approximately 52 days of the year) based on Met Office visibility data (Table 10.15).
- 10.18.16 Effects occur from geographically focused areas along the immediate coastal edges where these panoramic, long distances views offshore are available and an aspect of character and qualities.



- 10.18.17 The lateral spread of the VE array areas will occupy between 22° to 32° of the horizontal field of view (HFOV) in total, however the majority of the WTG array will be viewed behind and in the same section of the view as the existing Greater Gabbard and Galloper offshore wind farms, thereby minimising the additional horizontal spread of WTGs. The VE array areas will only result in WTGs occupying an additional lateral spread of up to approximately 8° of the HFOV to the north of Galloper, in views from the northern part of the SCHAONB, which is considered a relatively narrow addition as a portion of the 180° sea view available to the observer.
- 10.18.18 Some effects on the SCHAONB have been identified including in relation to specific individual 'special qualities'. These are the particularly those aspects that relate to long distance panoramic views out to sea and along the coastal landforms, bays and heaths; and the juxtaposition of elements in these views, as experienced from parts of the coastal edge of the SCHAONB looking out to sea.
- 10.18.19 The SLVIA has found that the VE array areas would not give rise to significant effects on views or the perceived character and qualities of the coastline, owing principally to its location at long distance offshore from both the SCHAONB coast of Suffolk (over 37.3 km to the array areas and 38 km to the nearest WTG within the array areas) and the coast of Essex (over 52.7 km), together with the position of the VE arrays subsumed behind operational wind farms and the limited additional lateral spread of the VE WTGs on the sea skyline (in which it will generally be beyond and to the east of the Greater Gabbard and Galloper wind farms).
- 10.18.20 Not significant effects, assessed as moderate/minor in EIA terms, will take place during construction, operation and decommissioning on the views experienced by receptors from the northern part of the SCHAONB coastline (north of Orford Ness) and the perceived character of its coastal landscape and seascape types, including the coastline of SCT03 Nearshore Waters, parts of LCT5 Coastal Dunes and Shingle Ridges, LCT6 Coastal Levels, LCT7 Estate Sandlands, LCT8 Open Coastal Fens and LCT28 Wooded Fens.
- 10.18.21 Not significant adverse visual effects, assessed as moderate/minor in EIA terms, will occur visually to some receptors views including from the northern parts of the SCHAONB such as from Southwold, Dunwich Beach, Dunwich Heath, Sizewell Beach, Thorpeness, Aldeburgh, Orford Castle and Orfordness; and from parts of the ECP/SCP in Suffolk such as between Aldeburgh and Pakefield.
- 10.18.22 Correspondingly, not significant effects assessed as moderate/minor in EIA terms will occur to a number of special qualities of the SCHAONB: including its distinctive sense of place (sea cliffs and shingle beaches), large open vistas/sense of openness, relative wildness/tranquillity and expansive views offshore.
- 10.18.23 These effects are assessed as reducing from the southern part of the SCHAONB coastline (south of Orford Ness) and from Essex, where effects are assessed as not significant and minor in EIA terms on the views and perceived character of the coastal landscape types including parts of SCT03 Nearshore Waters, LCT5 Coastal Dunes and Shingle Ridges, LCT6 Coastal Levels, LCA F7 Brightlingsea-Clacton-Frinton Coast, LCA F8 Hamford Water and LCA F9 Stour Estuary Slopes.



- 10.18.24 Not significant adverse visual effects, assessed as minor in EIA terms, will occur visually to some receptors views including from the southern parts of the SCHAONB such as from Shingle Street, Felixstowe, The Naze and Walton Pier; as well as from the Jaywick to Harwich section of the ECP in Essex; and from parts of the ECP/SCP in Suffolk such as between Shotley Gate to Felixstowe Ferry, and Bawdsey to Aldeburgh. In views from southern Suffolk and north Essex, the addition of the VE array areas results in a negligible magnitude of change, due to the combination of its distance from the coastline and position behind the operational wind farm grouping, in which it blends with these existing WTGs to appear well accommodated within its surroundings.
- 10.18.25 Correspondingly, not significant effects assessed as minor in EIA terms, will occur to the special qualities of the southern part of the SCHAONB (to the south of Orford Ness). The reduction in effects to the south of Orford Ness experienced in views and perceived character/qualities is attributable to the position of the VE array areas increasingly being subsumed behind Galloper and Greater Gabbard wind farms from southern parts of the SLVIA study area coastline, in southern Suffolk and north Essex, in which the VE array areas do not extend the lateral spread of WTGs on the skyline and instead are located entirely behind the existing array of operational WTGs. The VE array areas result in an inconspicuous change to the baseline character since it adds elements that are already substantially characteristic in the seascape and will result in negligible levels of change to the existing character.
- 10.18.26 Not significant effects to the special qualities of the SCHAONB would not undermine the statutory purpose of the SCHAONB and would not compromise the purposes of designation. The Proposed Development may result in some not significant effects, assessed as moderate/minor or minor in EIA terms to the SCHAONB special qualities, but would not compromise the purposes of designation of the SCHAONB. The SCHAONB would remain an area of outstanding natural beauty and the reasons for designating it as such would remain.
- 10.18.27 The Cumulative Effect Assessment (CEA) undertaken within the SLVIA (Section 10.13) takes into account the impact associated with the VE array areas together with other relevant plans, projects and activities.
- 10.18.28 The CEA assesses the cumulative effect of the proposed development with other projects (Table 10.30) against the baseline (Section 10.7), with the assessment of significance apportioning the amount of the effect that is attributable to the VE array areas.
- 10.18.29 Existing projects and those which are under construction (Table 10.31) are included in the SLVIA baseline and described as part of the baseline conditions.
- 10.18.30 A tiered approach is utilised within the CEA, based on their development or planning status. The Tier 1 assessment considers all permitted and submitted applications, that are not yet implemented (including Eat Anglia ONE North, East Anglia TWO and Sizewell C. Tier 2 projects (where a scoping report has been submitted) are also considered, including North Falls, however this is necessarily undertaken at a higher level due to the lack of publicly available information.



- 10.18.31 In terms of cumulative effects with Tier 1 projects, it is considered that the impacts of the VE array areas have limited potential to interact further with changes associated with East Anglia ONE North, East Anglia TWO and Sizewell C due to the distance, lack of visibility and lack of effects of these Tier 1 projects on receptors in Essex. Not significant effects, assessed as minor to negligible in EIA terms, are predicted to arise on receptors in Essex with Tier 1 projects due to the lack of visibility and avoidance of further impacts associated with East Anglia ONE North, East Anglia TWO and Sizewell C.
- 10.18.32 Theoretical visibility of Tier 1 project is likely to occur from parts of the Sussex coastline between Felixstowe and Lowestoft and it is apparent in the cumulative wireline visualisations (Figures 10.26 to Figure 10.46) that the VE array areas may result in a cumulative effect with East Anglia ONE North and East Anglia TWO in views from the Suffolk coast.
- 10.18.33 In views from the Suffolk coastline moving north between Sizewell and Southwold/Covehithe, the northern VE array area is likely to be viewed as extending the lateral spread of WTGs northwards in the 'space' on the sea skyline between Galloper and East Anglia TWO, in which the northern VE array area contributes to the cumulative effect of distant offshore WTG development on the sea skyline. These cumulative effects are assessed as being slightly higher in views moving north of Aldeburgh, such as from Sizewell Beach, Dunwich Heath, Dunwich Beach and Southwold, where the contribution of the VE array areas to the cumulative effect is assessed as not significant and moderate in EIA terms (due to the contribution of the VE array areas to the WTG developed skyline with other Tier 1 projects). These moderate effects are assessed as not significant on view primarily due to the magnitude of change factors evaluated, which is assessed as medium-low (and is therefore not considered to be of high or even medium magnitude). On balance the cumulative effect is considered not significant given the relatively narrow additional increase in lateral spread of the VE WTGs; their introduction as elements that are similar to those that have already been consented; and their very long distances from these viewpoints beyond the sea skyline, coupled with the long distance of other Tier 1 projects, which diminishes the potential 'curtaining' effect, and limits the cumulative effect to occurring in only the most optimum, infrequent, visibility conditions. The potential for cumulative effects with Tier 1 projects to ultimately occur are also still uncertain given the status of other Tier 1 projects, particularly East Anglia TWO (although it received DCO in March 2022, the project did not participate in the 2022 Contracts for Difference Allocation Round 4).
- 10.18.34 This contribution of the VE array areas to the cumulative effect is considered less in views from the southern part of the SCHAONB. With the addition of the VE array areas, a clear 'gap' between Galloper and East Anglia TWO will be retained in views from the Suffolk coast further south between Felixstowe and Thorpeness, which will contribute to defining these wind farms as separate features. It is evident that the VE array areas will result in a diminishing cumulative effect moving southwards along the Suffolk coast, as the WTGs of the VE array areas increasingly appear subsumed behind the operational Greater Gabbard and Galloper WTGs and have less influence on the undeveloped section of skyline.



- 10.18.35 The contribution of the VE array areas to the cumulative effect upon the Natural Beauty of the SCHAONB is assessed and it is concluded that although the VE array areas may result in some not significant (moderate and moderate/minor) effects on the identified special qualities, due to the extended spread of WTGs in views from a limited geographic part of the north SCHAONB coastline, the purposes of the SCHAONB designation will not be compromised nor the integrity of the SCHAONB and its fundamental character. The SCHAONB will fundamentally remain an area of outstanding natural beauty for which it is designated and can accommodate the change that will be brought about by the VE array areas in the context of other Tier 1 projects, without significant harm to its baseline character and qualities, which would therefore not compromise the statutory purposes of the SCHAONB designation.
- 10.18.36 The Suffolk Seascape Sensitivity Study identifies the sensitivity of seascape and Suffolk's adjacent coastal landscapes and designations (SCHAONB) to offshore wind farm development. The VE array areas are located within Zone SCZ 08: East Anglia Outer Offshore, which is assessed in the Suffolk Seascape Sensitivity study as being of medium-low sensitivity to change. The supporting sensitivity assessments include descriptions of Zone SCZ 08 as '*an area of more limited seascape/visual constraints, especially to the east*', where '*an extension of Greater Gabbard/ Galloper to the east and south east within the area may cause limited effects*' and '*the effects on these receptors are significantly modified and reduced by the minimum distance of the zone offshore which means that most developments would be perceived as small and would be visible/perceptible between 10-20% of the time*'. The assessments of the VE array areas undertaken in this SLVIA support the conclusion that the area to the south-east of Zone SCZ 08 is an area with lower sensitivity with more limited constraint, due to the considerable distance offshore and position subsumed behind the operational Greater Gabbard and Galloper Offshore Wind Farms.
- 10.18.37 The closest point of the VE array areas is located 37.3km from the SCHAONB. The location of the existing Galloper wind farm means that the view of the majority of the VE WTGs from the SCHAONB is behind the existing Galloper wind farm. There will be a necessary separation between the VE WTGs and existing Galloper wind farm WTGs, and final WTG size and layout details will be confirmed post consent. In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for the assessment. The Suffolk Seascape Sensitivity study (Figure 6) identifies 39.5km as the distance representing an average low visual magnitude of change for WTGs of between 301-400m blade tip height. The assessments of the VE array areas undertaken in this SLVIA corroborate the finding of low magnitude of change for a project with 399m blade tip height WTGs located over 38 km from the closest point of the SCHAONB (at Orford Ness).



10.18.38 The Suffolk Seascape Sensitivity study (Figure 8) also identifies a recommended buffer for the SCHAONB/Heritage Coast of 40km for WTGs between 226 – 400 m blade tip height, in line with the OESEA (2020) Visual Buffer Study (Table 13.4) suggested buffer of 40 km for offshore wind farm development off AONBs/Heritage Coasts (based on a limit of visual significance) (shown in Figure 10.6). The findings of the update addendum to the Suffolk Seascape Sensitivity to Offshore Wind Farms (Suffolk County Council, 2023) apply to offshore windfarms with WTGs greater than 400m high. The maximum height of the VE WTGs has been reduced from 424m to 399m blade tip height (above LAT) (395m above MHWS) as described in Table 10.18. The update addendum highlights the OESEA 2020 conclusions that 40km was a ‘reasonable’ and ‘substantial’ buffer from designated coastal landscapes for WTGs up to 400m high to blade tip.

10.18.39 Such distance buffers are derived from other SLVIAs and mathematically extrapolated using a rule of thumb ‘ratio’. There is no established guidance which reduces SLVIA to a quantitative assessment of values in a tabular matrix, which should not substitute for project specific assessment (as it does not allow for other factors that influence magnitude), however it is considered that the VE array areas largely achieve the recommended buffer distances within the Suffolk Seascape Sensitivity study and OESEA 2020. Although the VE array area boundary is 37.3 km from the SCHAONB at its closest point at Orford Ness, the majority of the SCHAONB is located well over 40km from the VE array area boundary and only a small part of Orford Ness is located within 40 km (Figure 10.6). In the northern and western extent of the northern array the closest WTG to the coast of Suffolk is expected to be a minimum of 38km from the SCHAONB. The MDS layout assessed in the SLVIA assumes the closest WTG is 38.7 km from the SCHAONB and that WTGs will be located in the most northern extent of the northern array – this represents the worst-case scenario (or MDS) for the assessment. The majority of VE WTGs will be located well beyond 40 km from the SCHAONB. The northern parts of the SCHAONB for example extend to Southwold (47 km) and Kessingland (54km), and the southern part of the AONB extends to Felixstowe (51km). Although the nearest WTGs of VE are between 38km - 40km away from the SCHAONB coast, the number of WTGs around this distance is minimised in order to avoid significant adverse effects. The majority of VE WTGs will be located beyond the medium magnitude threshold over 42.5km from the closest point of the SCHAONB and below the ‘probable significance’ threshold for a high sensitivity receptor, and at greater distances from the wider SCHAONB coastline to the north and south. It is considered that the VE array areas are located at and beyond a ‘reasonable’ and ‘substantial’ buffer from the SCHAONB for WTGs of 399m high to blade tip, and that changes of low magnitude and not significant effects in EIA terms, will occur to the special qualities of the SCHAONB that would not undermine the statutory purpose of the SCHAONB nor compromise the purposes of its designation.



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