

East Anglia ONE North
Offshore Windfarm

East Anglia ONE North Offshore Windfarm

Summary of Environmental Considerations

Table of contents

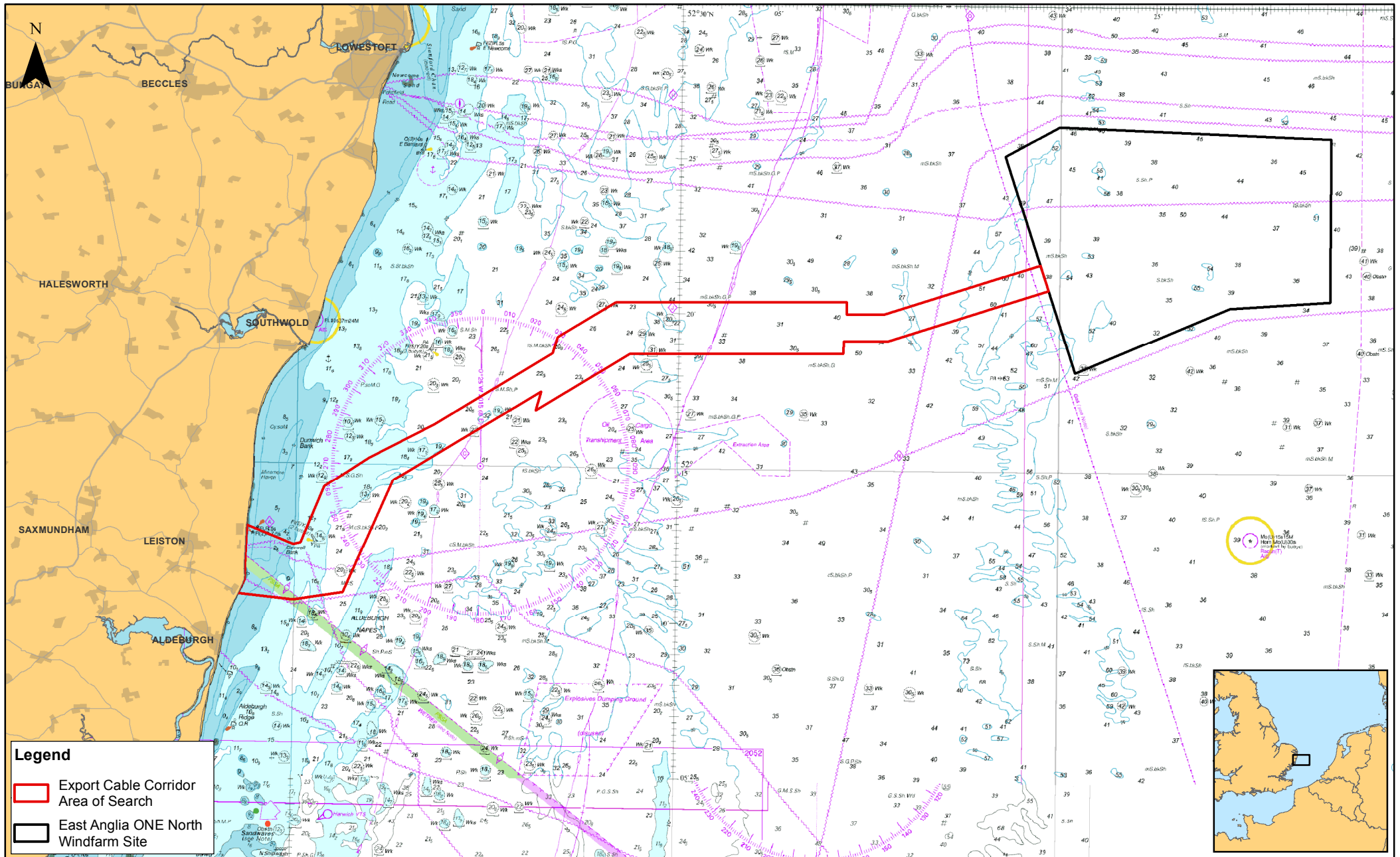
1	Introduction	3
2	Project Description	7
3	Onshore Topics for Environmental Impact Assessment	9
3.1	Ground Conditions and Contamination	9
3.2	Air Quality	9
3.3	Water Resources and Flood Risk	9
3.4	Land Use	10
3.5	Terrestrial Ecology	10
3.6	Archaeology and Cultural Heritage	11
3.7	Noise and Vibration	11
3.8	Traffic and Transport	12
3.9	Health	12
3.10	Seascape Character and Visual Amenity	12
3.11	Landscape Character and Visual Amenity	13
3.12	Socio-Economics	14
3.13	Tourism and Recreation	14
4	Offshore Topics for Environmental Impact Assessment	15
4.1	Marine Geology, Oceanography and Physical Processes	15
4.2	Water and Sediment Quality	15
4.3	Benthic (seabed) Ecology	16
4.4	Fish and Shellfish Ecology	16
4.5	Marine Mammals	17
4.6	Birds	17
4.7	Commercial Fisheries	18
4.8	Shipping and Navigation	19
4.9	Civil and Military Aviation and Radar	19
4.10	Marine Archaeology and Cultural Heritage	20
4.11	Infrastructure and Other Users	20
4.12	Topics Not Included in the EIA	21
5	Contact Details	22

1 Introduction

1. This document provides a high level summary of the environmental topics that will be considered in the Environmental Impact Assessment (EIA) for the proposed East Anglia ONE North offshore windfarm. It outlines the approach to be taken to the EIA and the key potential impacts to be considered in the EIA.
2. ScottishPower Renewables (SPR) is part of the Iberdrola Group, a world leader in clean energy with an installed capacity of over 28,000MW, and the leading wind energy producer worldwide. SPR is at the forefront of the development of the renewables industry through pioneering ideas, forward thinking and outstanding innovation which, in turn, drives economic success.
3. SPR is helping to drive the Iberdrola Group's ambition of being the "Utility of the Future" and, by the end of 2017, will have 40 operational windfarms in the UK producing over 2,500MW of clean energy, including two offshore windfarms. We manage all of our operational sites, including our international offshore portfolio, through our innovative and world leading Control Centre at Whitelee Windfarm.
4. SPR is currently building the 102 wind turbine East Anglia ONE offshore windfarm approximately 43km off the coast of Suffolk. This £2.5 billion project is planned to deliver energy to meet the annual demand of over 580,000 homes¹ and should be fully operational during 2020. This project will be followed by the 1,200MW East Anglia THREE offshore windfarm which recently received development consent. Building on these first two projects within the East Anglia portfolio, SPR now seek to formally progress development of the proposed East Anglia TWO and proposed East Anglia ONE North projects.
5. The environmental topics will be assessed in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations). The results of the proposed East Anglia ONE North project EIA will be published in an Environmental Statement (ES) which will accompany the application for consent.
6. The topics outlined herein have been identified and included within a Scoping Report, which is due to be submitted to the Planning Inspectorate on the 10th November 2017 by ScottishPower Renewables. A summary of topics to be considered within the EIA is provided in Section 3.
7. For a full overview of the proposed East Anglia ONE North project, this document should be read in conjunction with the East Anglia ONE North Windfarm Scoping Report. The Scoping Report will be available on the Planning Inspectorate website shortly after the 10th November, 2017.

¹ Calculated taking the number of megawatts (714) multiplied by the number of hours in one year (8,766), multiplied by the average load factor for offshore wind (36.7 %, published by the Digest of United Kingdom Energy Statistics), divided by the average annual household energy consumption (3,900 kWh), giving an equivalent of powering 588,981 homes.

8. Figure 1.1 shows the East Anglia ONE North windfarm site and export cable corridor area of search. Figure 1.2 shows the East Anglia ONE North project onshore study area.



Legend

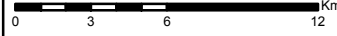
- Export Cable Corridor
- Area of Search
- East Anglia ONE North Windfarm Site



Rev	Date	By	Comment	Approved:	PP
0	27/09/17	KO	Second Issue.	Prepared:	KO
0	08/09/2017	KO	First Issue.	Checked:	BK

1:300,000

Scale @ A3

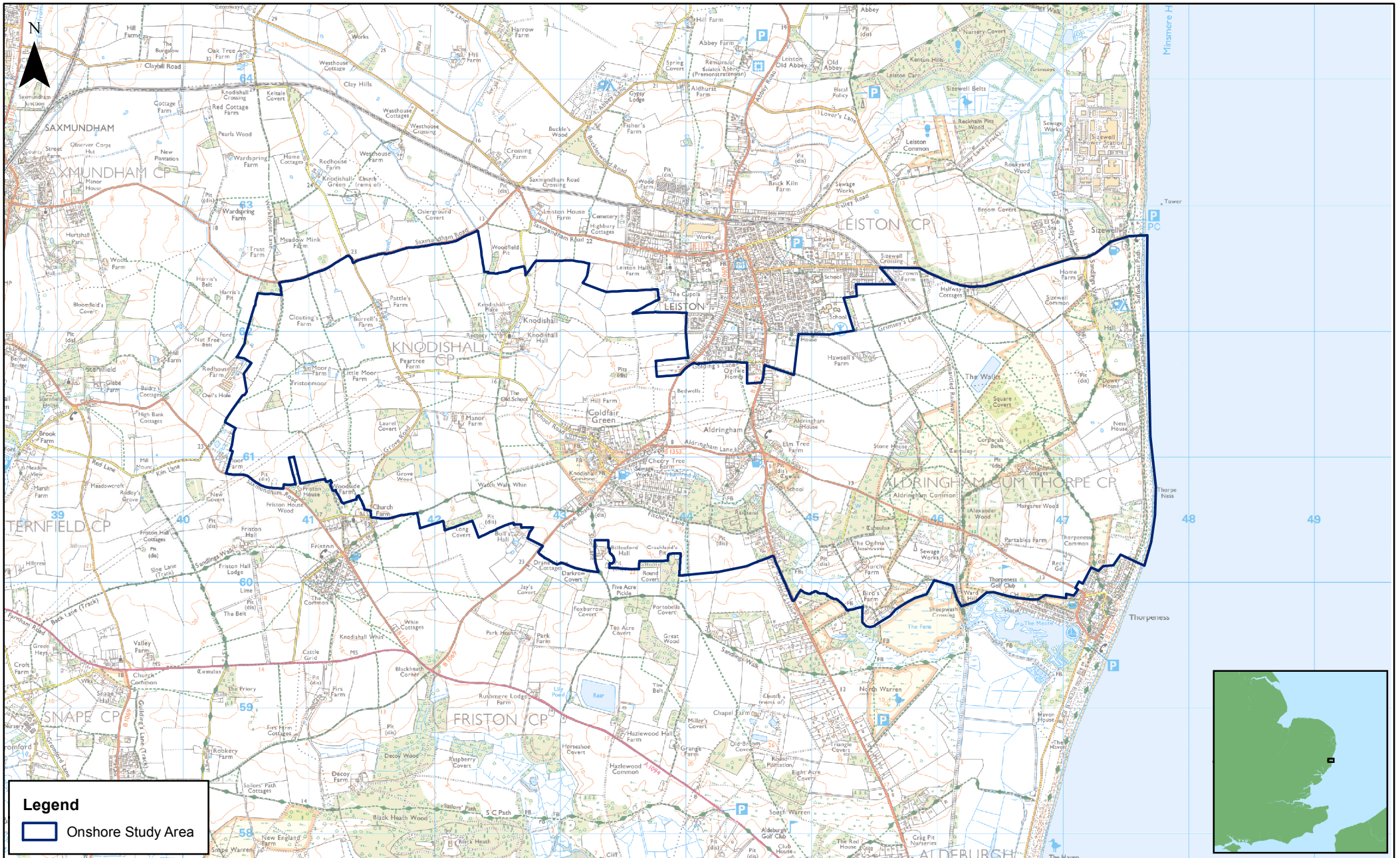


East Anglia ONE North Scoping

East Anglia ONE North Windfarm Site & Export Cable Corridor Area of Search

Source: © The Crown Estate, 2017. Charts from MacWhinney.co.uk © Licence No 09015-0645-MF0005. Not to be used for navigation.
This map has been produced to the latest known information at the time of issue, and has been produced for your information only.
Please consult with the BPE Offshore GIS team to ensure the content is still current before using the information contained on this map.
To the fullest extent permitted by law, we accept no responsibility or liability (including negligence or otherwise) in respect of any errors or omissions in the information contained in the map and shall not be liable for any loss, damage or expense caused by such errors or omissions.

Drg No	EA1N-DB-0027	Datum:	WGS 1984
Rev	1	Date	27/09/17
Figure	1.1		Zone 31N



Legend

Onshore Study Area

SCOTTISHPOWER RENEWABLES

Rev	Date	By	Comment	Approved:
1	27/09/17	KO	Second Issue.	Prepared: KO
0	31/08/17	KO	First Issue.	Checked: PW
				Approved: JA

1:40,000
Scale @ A4

Source: © Crown copyright and database rights 2017. Ordnance Survey 100031673.
This map has been produced to the best known information at the time of issue, and has been produced for your information only. Please consult with the SPN Offshore GIS team to ensure the content is all current before using the information contained on this map. To the fullest extent permitted by law, we accept no responsibility or liability (whether in contract, tort (including negligence) or otherwise) in respect of any errors or omissions in the information contained in the map and shall not be liable for any loss, damage or expense caused by such errors or omissions.

East Anglia ONE North Scoping
Onshore Study Area

Drg No	EA1N-DB-0001
Rev	1
Date	27/09/17
Figure	1.2

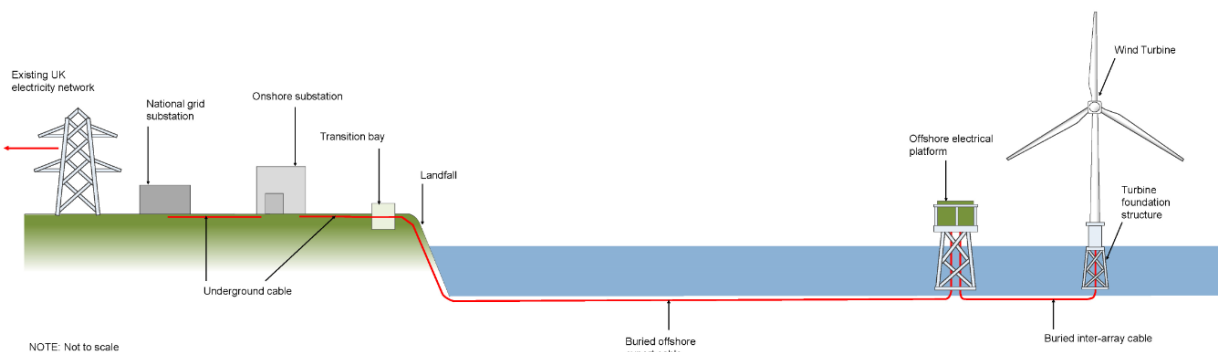
Coordinate System:
BNG
Datum:
OSGB36

2 Project Description

9. The proposed East Anglia ONE North project would require the following infrastructure;

- Up to 67 offshore wind turbines, constructed on foundations that would be secured to the seabed.
- Offshore electrical platforms to collect power generated by the wind turbines.
- Offshore export cables to export generated power to shore.
- A landfall, including a transition bay, which would join the offshore export cable to the onshore export cable.
- Onshore export cables to transport power from the windfarm to an onshore substation.
- National Grid infrastructure which would allow power from the onshore substation to be exported into the national electrical grid.

10. The schematic below provides an overview of the required infrastructure.



Schematic 1- Infrastructure required for the proposed East Anglia ONE North project

11. The East Anglia ONE North project is proposed to have an overall installed capacity of up to 800MW. When operational the project would have the potential to provide up to 650,000 homes² with power.
12. It is proposed that where the onshore cable routing is parallel, and subject to regulatory certainty, the East Anglia TWO project would install ducting for the East Anglia ONE North project as the East Anglia TWO project would be constructed first. The East Anglia ONE North project would then undertake a simpler cable pulling operation during its onshore construction, for the bulk of the cable installation. It is also proposed that the required National Grid infrastructure would be consented and installed as part of East

² Calculated taking the number of megawatts (800) multiplied by the number of hours in one year (8,766), multiplied by the average load factor for offshore wind (36.7 %, published by the Digest of United Kingdom Energy Statistics), divided by the average annual household energy consumption (3,900 kWh), giving an equivalent of powering 659,922 homes.

Anglia TWO. However, as it cannot be guaranteed that the East Anglia TWO project will be consented (or constructed) the EIA for the East Anglia ONE North project will include two assessment scenarios – one in which ducts and National Grid infrastructure are pre-installed and one in which they are not. Thus the following sections are written assuming ducts and National Grid infrastructure will not be pre-installed by the proposed East Anglia TWO project in order to capture the worst case for East Anglia ONE North.

3 Onshore Topics for Environmental Impact Assessment

13. The following onshore topics will be assessed in the East Anglia ONE North project EIA. This list maybe updated following the receipt of a formal scoping opinion from the Planning Inspectorate.

3.1 Ground Conditions and Contamination

14. The proposed East Anglia ONE North project has committed to lay onshore cables underground and it is therefore important to consider the geology of the area, as well as current and historical land use that may have resulted in contamination.
15. The onshore study area is largely agricultural in nature, which represents potential for various sources of pollution to be present in relation to current agricultural activities. Settlements within or adjacent to the onshore study area include Leiston, Aldringham, Friston, Knodishall and Coldfair Green – developed areas also have the potential for historic sources of ground contamination.
16. Potential impacts which will be considered for geology and land quality include:
- Impacts on ground conditions and groundwater through potential mobilisation of contaminants during excavation; and
 - Impacts associated with any potential interaction with historic contamination.

3.2 Air Quality

17. As with many onshore developments, construction and operational activities associated with the East Anglia ONE North onshore infrastructure may affect local air quality as increased numbers of vehicles and machinery would be active and dust maybe generated, particularly during construction.
18. The onshore study area is within Suffolk Coastal District Council's (SCDC) jurisdiction. An initial review of the baseline air quality conditions indicates that there are no Air Quality Management Areas (AQMA) within the onshore study area, indicating that there are no current issues with air quality.
19. Potential impacts which will be considered for air quality include;
- Impacts associated with generation of dust and particulates; and
 - Impacts associated with exhaust emissions from construction traffic.

3.3 Water Resources and Flood Risk

20. It is important to understand any impacts that the East Anglia ONE North onshore infrastructure could have on nearby rivers and water sources.

21. There are two rivers located within or adjacent to the onshore study area. The Hundred River passes through Knodishall and on towards Thorpeness; and a small tributary of the River Alde passes through Friston and discharges at Ham Creek.
22. The Environment Agency has produced flood zone maps that show areas at risk of flooding. These maps indicate that most of the onshore study area is within a low flood risk area (Flood Zone 1). There are no flood defences or coastal sea defences within the onshore study area.
23. Potential impacts which will be considered for water resource and flood risk include;
 - Impacts to groundwater and surface water resource, including identified sensitive areas; and
 - Changes to flood risk.

3.4 Land Use

24. The land use in the onshore study area is predominantly agricultural including a mix of arable and grazing pasture. A number of settlements are located within or adjacent to the study area including: Leiston, Aldringham, Friston, Knodishall and Coldfair Green. There are areas of 'non-agricultural' land, comprised of woodland areas and waterbodies (e.g. rivers and ponds) within the onshore study area.
25. Other land uses include the Suffolk Coast Path, which runs along the coastline between Felixstowe and Lowestoft and is present within the onshore study at the coast between Sizewell and Thorpeness. Inland there numerous Public Rights of Way (PRoWs), bridleways and other footpaths.
26. Potential impacts which will be considered for land use will include;
 - Impacts on soil structure and drainage systems;
 - Impacts on farming;
 - Impacts to PRoWs and cycle ways;
 - Impacts on utilities; and
 - Impacts on human health.

3.5 Terrestrial Ecology

27. The onshore study area includes the coastline between Sizewell and Thorpeness, and covers an inland area that comprises a predominantly agricultural landscape including a mix of arable and grazing pasture, with hedgerows acting as field boundaries, and occasional pockets of woodland. Part of Sandlings Special Protection Area is located within the onshore study area and represents a notable area of woodland and heathland to the east of Leiston.
28. The strip of coastline includes coastal shingle / dune habitat in the northern area, and shingle leading into low sandy cliffs at the southern extent. The majority of the coastal

strip within the onshore study area is designated as a Site of Special Scientific Interest for vegetated shingle.

29. Potential impacts which will be considered for ecology will include;
- Impacts to qualifying features of statutory and non-statutory designated conservation sites;
 - Impacts of permanent and temporary loss of habitat;
 - Impacts to habitats (noise, air quality, lighting);
 - Impacts to legally protected species; and
 - Impacts due to invasive species.

3.6 Archaeology and Cultural Heritage

30. Significant archaeological discoveries have been made across Suffolk and there is a high potential for further archaeological remains to be discovered within the onshore study area. The settlements of Leiston, Aldringham, Friston, Knodishall and Coldfair Green are likely to have archaeological or cultural heritage assets associated with them. Within the onshore study area there are five Scheduled Monuments, one Grade II* and 13 Grade II listed buildings.
31. Potential impacts that will be considered for archaeology and cultural heritage include;
- Impacts to buried archaeological remains from excavations during construction;
 - Impacts on the setting of designated and non-designated built heritage assets through the presence of construction works and operational infrastructure; and
 - Impacts on the historic landscape through the presence of construction works and operational infrastructure.

3.7 Noise and Vibration

32. Whilst the majority of the onshore study area comprises of agricultural land, noise receptors within the onshore study area include residential and commercial properties in Leiston, Aldringham, Friston, Knodishall and Coldfair Green. There are also numerous discrete residential properties and farms throughout the onshore study area.
33. Locations for onshore infrastructure will consider noise impacts to local residents and how any impacts can be minimised.
34. Potential impacts that will be considered for noise and vibration include;
- Impacts on human and ecological receptors associated with noise;
 - Impacts on noise sensitive human and ecological receptors associated with vibration;
 - Impacts due to operational substation noise; and
 - Cumulative impacts with other noise generating activities.

3.8 Traffic and Transport

35. The nearest main road to the onshore study area is the north-south running A12 London to Great Yarmouth road which was de-trunked in 2001 and is managed by Suffolk County Council.
36. The route between the A12 and the Leiston / Sizewell area has previously been used for the construction of Sizewell A and Sizewell B nuclear power stations, as well as more recently for the Sizewell Dry Fuel Store and Galloper Wind Farm. This route exits the A12 at Yoxford heading east along the B1122 leading around the north of Leiston and then heading towards Sizewell as "Lover's Lane".
37. Further information for the traffic and transport EIA will be gathered through survey, desk-based assessment and consultation with local authorities.
38. Potential impacts considered for traffic and transport will include;
 - Impacts on driver journeys, including driver delay;
 - Impacts to accessibility, including severance;
 - Impacts to pedestrian and cycle amenity;
 - Impacts on road safety; and
 - Cumulative impacts with other proposed developments.

3.9 Health

39. Potential impacts to human health will be considered within EIA, these will include impacts from noise and vibration, flooding, traffic, air quality, and ground contamination. The assessment of impacts to humans will be based on the latest public information available.
40. The assessment will identify potential impacts on the health of the local population in relation to the proposed project. Receptors that are sensitive to potential health impacts will be identified within the relevant ES chapters, and a review of these will be presented within the health impact assessment.
41. Potential impacts to be considered for health will include;
 - Disturbance or reduced amenity value;
 - Impacts due to changes in air quality;
 - Impacts due to exposure to contaminated land; and
 - Impacts during operation due to electro-magnetic fields (EMF).

3.10 Seascape Character and Visual Amenity

42. Seascape is defined as the coastal landscape and adjoining areas of open water, including views from land to sea, from sea to land and along the coastline. Landscape starts at the coastline and includes all areas inland.

-
43. The East Anglia ONE North windfarm site is located within the East Anglian Shipping Waters Seascape Character Area. The key characteristics of this area are a high level of offshore industrial activity and include important shipping routes, large offshore windfarms, offshore gas platforms and other offshore commercial activities, such as fishing and dredging.
 44. There are a number of important landscape areas in the wider seascape study area which have the potential to be affected by offshore infrastructure and will be considered in the EIA. These include the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB), Suffolk Heritage Coast and the Norfolk and Suffolk Broads National Park.
 45. Visual receptors within the seascape study area include the Suffolk and Norfolk coastlines, including coastal settlements, recreational walking and cycling routes and visitors to local tourist and historic interest features.
 46. Potential impacts to be considered for seascape, landscape and visual amenity include;
 - Visibility of construction activity on onshore receptors;
 - Visibility of construction activity on offshore receptors;
 - Visibility of operational wind turbines;
 - Cumulative impacts with other development.

3.11 Landscape Character and Visual Amenity

47. At a National level, the onshore study area is within the Suffolk Coast and Heaths National Character Area (NCA) and the South Norfolk and High Suffolk Claylands NCA.
48. Assessment of the potential impacts on landscape designations from onshore infrastructure (substation, National Grid infrastructure, etc.) will consider the Suffolk Coast and Heaths AONB, Suffolk Heritage Coast and the Norfolk and Suffolk Broads National Park.
49. The assessment will consider works at the landfall, along the onshore cable corridor, at the substation, and at the National Grid infrastructure, and will consider receptors with potential views of those works.
50. Potential impacts to be considered for landscape character and visual amenity include;
 - Landscape and visual impacts of the landfall and onshore cable corridor within the LVIA study area.
 - Landscape and visual impacts of the onshore substation and required National Grid infrastructure.
 - Cumulative impacts of the onshore substation and required National Grid infrastructure.

3.12 Socio-Economics

51. The East Anglia ONE North windfarm represents the continuation of investment to the East Anglia region by SPR following the commencement of construction of East Anglia ONE and the consenting of East Anglia THREE.
52. The proposed East Anglia ONE North offshore windfarm would require large-scale investment and would need to be supported by a substantial supply chain. There would be direct expenditure on key elements of the windfarm, such as wind turbines, foundations and cables. The project would also require wider services to the supply chain such as the supply of goods (e.g. fuel, paints, other consumables) and services (e.g. accommodation, catering, security, transport), some of which would result in economic impacts. The likely project expenditure for the proposed East Anglia ONE North offshore windfarm is not yet known, however, RenewableUK estimates that capital expenditure costs of developing and constructing an offshore windfarm are around £3 million per MW and the investment on East Anglia ONE by SPR is £2.5 billion.
53. Impacts may be direct (e.g. employment of construction workers), indirect (e.g. employment in the supply chain), or induced (e.g. employment / revenue in the wider economy, such as hotels and other services).
54. Potential impacts that will be considered for socio-economics will include;
 - Direct economic impacts, such as jobs directly related to the development;
 - In-direct economic impacts, such as jobs in the supply chain and other services; and
 - Induced economic impacts- jobs and spending in the wider economy.

3.13 Tourism and Recreation

55. Tourism is an important element of the New Anglia Local Enterprise Partnership, County, and District economy. In 2015, tourism and culture employed about 74,000 people and was worth £1.3bn to the region. In the Suffolk Coastal and Waveney Districts, the tourism economy was valued at £590m and provided 13% of all employment in 2015. Visitors to Suffolk are attracted by the character, culture, festivals, music, art, food, drink, clean beaches and spectacular coastline, river valleys, and the outstanding countryside and wildlife.
56. Important tourist features include the Suffolk Coast and Heaths AONB and seaside towns and villages along the coastline. The area is also important for tourists looking to undertake various recreational activities such as walking, cycling and horse riding throughout the AONB. Recreational sailing and angling are also important in the coastal and offshore area.
57. Potential impacts that will be considered for tourism and recreation include;
 - Impacts to tourism and recreational features due to construction activities; and
 - Impacts to tourism and recreational during operation from the presence of infrastructure.

4 Offshore Topics for Environmental Impact Assessment

58. The following offshore topics will be assessed in the East Anglia ONE North project EIA. This list may be updated following the receipt of a formal scoping opinion from the Planning Inspectorate.

4.1 Marine Geology, Oceanography and Physical Processes

59. The East Anglia ONE North windfarm site would cover an area of approximately 208km² off the coast of East Anglia. Water depths within the site range from 33m to 67m. Waves in this area of the southern North Sea tend to be generated by the wind and are variable in terms of size and direction.
60. Sandbanks are common seabed formations in the region and are present within the East Anglia ONE North windfarm site and export cable corridor Area of Search (AoS). Seabed sediment within the East Anglia ONE North windfarm site and export cable corridor AoS is expected to be mainly sand, with some muds and gravels.
61. Potential effects that will be considered in terms of physical processes will include;
- Effects to waves and tidal currents;
 - Effects on sediments and sedimentary structures;
 - Effects on suspended sediment concentrations and transport;
 - Interactions with other windfarms; and
 - Interactions with other activities.

4.2 Water and Sediment Quality

62. Suspended sediment and contaminant levels (e.g. hydrocarbons and heavy metals) are indicators of water quality both in the near-shore and offshore environments. Disturbing sea bed sediments so that they are released into the water would make the water cloudier and could also release contaminants held within those sediments, which can potentially reduce water quality.
63. There are two designated bathing water beaches at Southwold and the export cable corridor AoS passes through the Suffolk Coast Water Body.
64. Data collected for previous projects (East Anglia ONE and East Anglia THREE) suggests that sediment contamination in the vicinity of the East Anglia ONE North windfarm site is generally low.
65. Potential impacts that will be considered for water and sediment quality will include;
- Impacts to water and sediment quality from increased suspended sediment and the resuspension of contaminants; and

- Impacts to water and sediment quality from the release of contaminants from vessels and plant.

4.3 Benthic (seabed) Ecology

66. A broad scale survey of the seabed ecology of the former East Anglia Zone was conducted from June 2010 to January 2011. These studies included a combination of samples taken from the seabed using a grabbing device, fishing gear which was trawled across the seabed and underwater video imagery.
67. The analysis defined four distinct sediment types across the former East Anglia Zone based upon the quantities of sand, gravel and silt within each sample. The sediments in the East Anglia ONE North windfarm site are mainly sand and gravelly sand.
68. *Sabellaria spinulosa* is a type of worm which builds important reefs. *Sabellaria* was commonly recorded during the benthic survey and there is the potential for reef to be present in the East Anglia ONE North windfarm site and export cable corridor AoS.
69. Potential impacts that will be considered for benthic ecology will include;
 - Physical disturbance due to construction activities, including seabed preparation, and operational maintenance activities;
 - Smothering and impacts of suspended sediments during construction and operational maintenance;
 - Disturbance and distribution of contaminated sediments during intrusive works;
 - Underwater noise and vibration during construction;
 - Loss of habitat from the physical presence of infrastructure; and
 - Colonisation of foundations.

4.4 Fish and Shellfish Ecology

70. Fisheries landings data for the whole of the UK is collected by the Marine Management Organisation. Fisheries data is available for the East Anglia ONE North windfarm site and export cable corridor AoS. This data provides a good indication of fish species likely to be present and which species are likely to be dominant.
71. The landings data show that the main species caught are plaice, sprat, cod, sole, skates and rays, edible crab and whelks. There are several protected species that are potentially present such as Atlantic salmon, lampreys and Shad.
72. Potential impacts to be considered for fish and shellfish ecology include;
 - Physical disturbance due to construction activities, including seabed preparation, and operational maintenance activities;
 - Increased suspended sediment and smothering during construction and operation;
 - Disturbance to protected species;
 - Disturbance and distribution of contaminated sediments during intrusive works;

- Underwater noise and vibration disturbance during piling, vessel movement, seabed preparation and cable installation;
- Loss of habitat from the physical presence of infrastructure; and
- Electromagnetic Fields (EMF) during operation.

4.5 Marine Mammals

73. The southern North Sea, including the area of the East Anglia ONE North windfarm site,



generally has a relatively low numbers of cetaceans with the potential exception of harbour porpoise, white-beaked dolphin and seasonal occurrence of minke whale. Whilst white-beaked dolphins and minke whale are relatively rare, harbour porpoise are commonly seen. Two species of seal are also known to be present in the area, these are harbour seal and grey seal.

Copyright- Royal HaskoningDHV

74. Monthly marine mammal aerial survey data is currently being collected for the East Anglia ONE North windfarm site. In 10 months of survey, unidentified cetacean and harbour porpoise being the most commonly recorded species. The East Anglia ONE North windfarm site is within the Southern North Sea candidate Special Area of Conservation (cSAC) as it is thought to be an important area for harbour porpoise. The cSAC covers both winter and summer habitats of importance to harbour porpoise.

75. Potential impacts that will be considered for marine mammals will include;

- Underwater noise due to construction activities;
- Underwater noise from vessels (during construction and operations);
- Underwater noise during operation;
- Barrier effects from underwater noise;
- Electromagnetic fields;
- Disturbance to protected areas (cSAC and seal haul out sites); and
- Impacts on prey resource.

4.6 Birds

76. Bird data is currently being collected within the East Anglia ONE North windfarm site. The results of survey data collected to date, as well as data available from the surrounding area indicates that the key species of concern for the impact assessments are migrating birds and non-breeding birds.

77. Data suggest that there are generally low numbers of most species of bird across within the East Anglia ONE North windfarm site and surrounding area. Species of particular interest within the East Anglia ONE North windfarm site and export cable corridor AoS are expected to be; kittiwake, gannet, lesser black-backed gull and red throated diver.



78. Potential impacts which will be considered for birds will include;

- Disturbance due to the presence of vessels;
- Disturbance due to construction activities;
- Collision risk and barrier effects due to the presence of turbines;
- Impacts due to effects on habitats and prey species; and
- Cumulative impacts with other projects for collision, barrier and disturbance effects.

4.7 Commercial Fisheries

79. The majority of commercial fishing activity in and around the East Anglia ONE North windfarm site is undertaken by UK, Dutch and Belgium registered fishing vessels. These fishing boats are mainly beam trawlers aiming to catch sole and plaice in autumn and winter. Cod is caught by longlines (baited hooks attached to a fishing line) in the winter and spring. The longliners also catch rays, spurdog and bass throughout the year.



80. The inshore fishery along the export cable corridor AoS is mainly by boats using longlines, gillnets and pots. The main species fished inshore include sole, cod, plaice, skate and cockles.

81. Potential impacts which will be considered for commercial fishing will include;

- Impacts on commercially exploited species;
- Loss or restricted access to traditional fishing grounds;
- Displacement of fishing activity;
- Loss or damage to fishing gear;
- Increased collision risk; and
- Increased steaming times.

4.8 Shipping and Navigation

82. Shipping activity near the East Anglia ONE North windfarm site includes the passage of merchant vessels, ferries, fishing vessels, recreational craft, military vessels, and vessels engaged on specialist operations such as aggregate dredgers. There is a Deep Water Route to the east of the East Anglia ONE North windfarm site which is an important navigational route.
83. Shipping traffic within the East Anglia ONE North windfarm site mainly consists of cargo vessels, typically travelling between the Netherlands and eastern UK ports such as Harwich, Immingham, Hull and Teesport. There are also several passenger ferry routes within the wider study area, including routes from Harwich to Hoek and Rotterdam (Netherlands) and a route from Hull to Zeebrugge (Belgium).
84. Fishing and recreational vessels are likely to be found in the export cable corridor AoS.
85. Potential impacts which will be considered for shipping and navigation include:
 - Impacts on vessel routing;
 - Increased collision risk during construction and operation;
 - Displacement of commercial and recreational users;
 - Impacts to Search and Rescue services; and
 - Impacts to vessel anchoring.

4.9 Civil and Military Aviation and Radar

86. The nearest airport to the East Anglia ONE North windfarm site is Norwich International Airport which is approximately 74km away. The second nearest UK airport is London Stansted, which is 152km away. The nearest European airport is Schiphol Airport in the Netherlands, which is approximately 148km from the East Anglia ONE North windfarm site.
87. There is a military radar located at Trimmingham which is approximately 80km to the north west of the East Anglia ONE North windfarm site. There are four military bases in East Anglia and the East Anglia ONE North windfarm site overlaps with the Lakenheath South Aerial Tactics Area.
88. Potential impacts which will be considered for civil and military aviation and radar include:
 - Impacts on military and civilian radar systems due to construction vessels and permanent structures;
 - Interference with military and civilian aircraft routes;
 - Impacts on aircraft and helicopter main routes; and
 - Impacts on military training areas.

4.10 Marine Archaeology and Cultural Heritage

89. Archaeological features include maritime sites (wrecks and wreckage from prehistory to the present), aviation sites and submerged prehistoric archaeological sites. Archaeological features are identified through a combination of interpretation of different seabed survey types, records held by national inventories and other sources.
90. Whilst SPR are currently in the process of collecting and analysing new data from the East Anglia ONE North windfarm site and export cable corridor AoS, previous studies within the former East Anglia Zone indicate that wrecks and anomalies are spread relatively evenly throughout the area.
91. Potential impacts which will be considered for marine archaeology and cultural heritage include:
- Impacts to known and unknown heritage assets within the footprint of the proposed scheme or the footprint of activities such as seabed clearance and anchoring;
 - Increase/decrease in protection of heritage assets as a result of sediment accretion and changes to physical processes;
 - Impacts on the historic seascape through the presence of permanent infrastructure; and
 - In-combination effects on multiple heritage assets.

4.11 Infrastructure and Other Users

92. There are eight other offshore windfarm developments within 50km of the proposed East Anglia ONE North offshore windfarm, the closest being East Anglia ONE offshore windfarm (1.3km) and East Anglia THREE offshore windfarm (16.6km). The proposed East Anglia TWO offshore windfarm would be 10.1km away when built.
93. There is no oil and gas infrastructure within the East Anglia ONE North windfarm site.
94. Export cables for Galloper Wind Farm and Greater Gabbard Offshore Wind Farm are adjacent to the export cable corridor AoS, making landfall to the south of the existing Sizewell Nuclear Power Station infrastructure.
95. The southern North Sea has a significant number of cables, primarily telecommunication connections between the UK and continental Europe. The Ulysses 2 telecommunication cable runs from Lowestoft to IJmuiden in the Netherlands and intersects the East Anglia ONE North windfarm site.
96. Potential impacts which will be considered for marine infrastructure and other users include:
- Interactions with other windfarms;
 - Physical impacts on subsea cables and pipelines;
 - Impacts on disposal sites;
 - Impacts on Ministry of Defence activities; and

- Impacts on Sizewell nuclear power station offshore infrastructure.

4.12 Topics Not Included in the EIA

97. From our experience undertaking EIA for the nearby consented East Anglia ONE and East Anglia THREE windfarms, it is not anticipated that the East Anglia ONE North offshore windfarm would have significant impacts on the following topics, and therefore it is proposed that they are not included within the EIA;
- Offshore airborne noise;
 - Offshore air quality; and
 - Telecommunications and radar.
98. Justification for not including these topics within the EIA will be provided in the East Anglia ONE North offshore windfarm Scoping Report, due to be submitted for consultation on the 10th of November, 2017.

5 Contact Details

99. Would you like to contact us to discuss the East Anglia ONE North project? You can email the ScottishPower Renewables team directly or write to us using the details below.

100. Email us: eastangliaonenorth@scottishpower.com

101. All comments and responses should be addressed to:

Freepost RTLY-RLGH-GKSE
ScottishPower Renewables EA2 and EA1N
FREEPOST
25 Priestgate
Peterborough
PE1 1JL

102. The latest information relating to the proposed East Anglia ONE North activities can be found at: https://www.scottishpowerrenewables.com/pages/east_anglia_one_north.aspx

