

Section 1
Introduction



1 INTRODUCTION

1.1 THE APPLICANT

Humber Wind Limited is proposing to build and operate a 300 MW offshore wind farm, the Humber Gateway Offshore Wind Farm, located off the Holderness Coast (East Riding of Yorkshire). Humber Wind Limited is a wholly owned subsidiary of E.ON UK plc (referred to herein as E.ON).

E.ON is one of the UK's leading power and gas companies, generating and distributing electricity and retailing power and gas. It is part of the E.ON Group, the world's largest investor-owned power and gas company. The company generates approximately 10% of the UK's electricity from a portfolio of coal, gas and oil fired power stations, combined heat and power stations and renewable electricity generating plants. E.ON also maintains substations, power lines and cables across central England, as well as supplying gas and electricity to millions of homes and businesses through its Powergen and E.ON Energy businesses.

E.ON's business strategy fully recognises and embraces the importance of renewable energy and is one of the UK's leading renewable generation businesses. The company's portfolio comprises 21 onshore and offshore wind farms and totals 215 MW. These include the UK's first offshore wind farm at Blyth, Northumberland, and the UK's second large-scale (60 MW) offshore wind farm at Scroby Sands, Norfolk. E.ON has recently started construction work on its third offshore wind farm, Robin Rigg (180 MW). This is located in the Solway Firth and is due to be completed in 2009. E.ON is also in partnership with Shell and DONG to construct London Array, a 1,000 MW offshore wind farm which would be the world's largest such project. E.ON has recently completed construction of the UK's largest dedicated biomass power station, near Lockerbie, and the company also co-fires biomass at two coal-fired power stations.

Over the last five years, E.ON has invested over £225 million in renewable energy projects in the UK and the Group plans to spend €3 billion by 2010 in renewable energy generation, primarily in wind, a significant portion of which will be invested in the UK.

E.ON is accredited to ISO14001 for development, construction and operational activities. This is the international standard for environmental management systems and requires that E.ON maintains a system which assesses, manages and reduces any potential negative effects its activities may have on the environment, while seeking to increase the positive environmental effects.

1.2 BACKGROUND TO THE PROPOSAL

1.2.1 Overview

The proposed Humber Gateway Offshore Wind Farm is located north of the mouth of the River Humber, within an area of sea approximately 8km off the Holderness Coast of East Yorkshire. Depending on the capacity of the turbines, the wind farm will consist of between 42 and 83 turbines. The proposal also includes an offshore substation, up to three meteorological masts, inter-array cables and subsea export cables (that will come ashore near Easington).

An underground cable is proposed from Easington to Salt End (a distance of around 30 km) to enable the electricity to be connected into the National Grid at a proposed new substation at Salt End, on the east side of Hull.

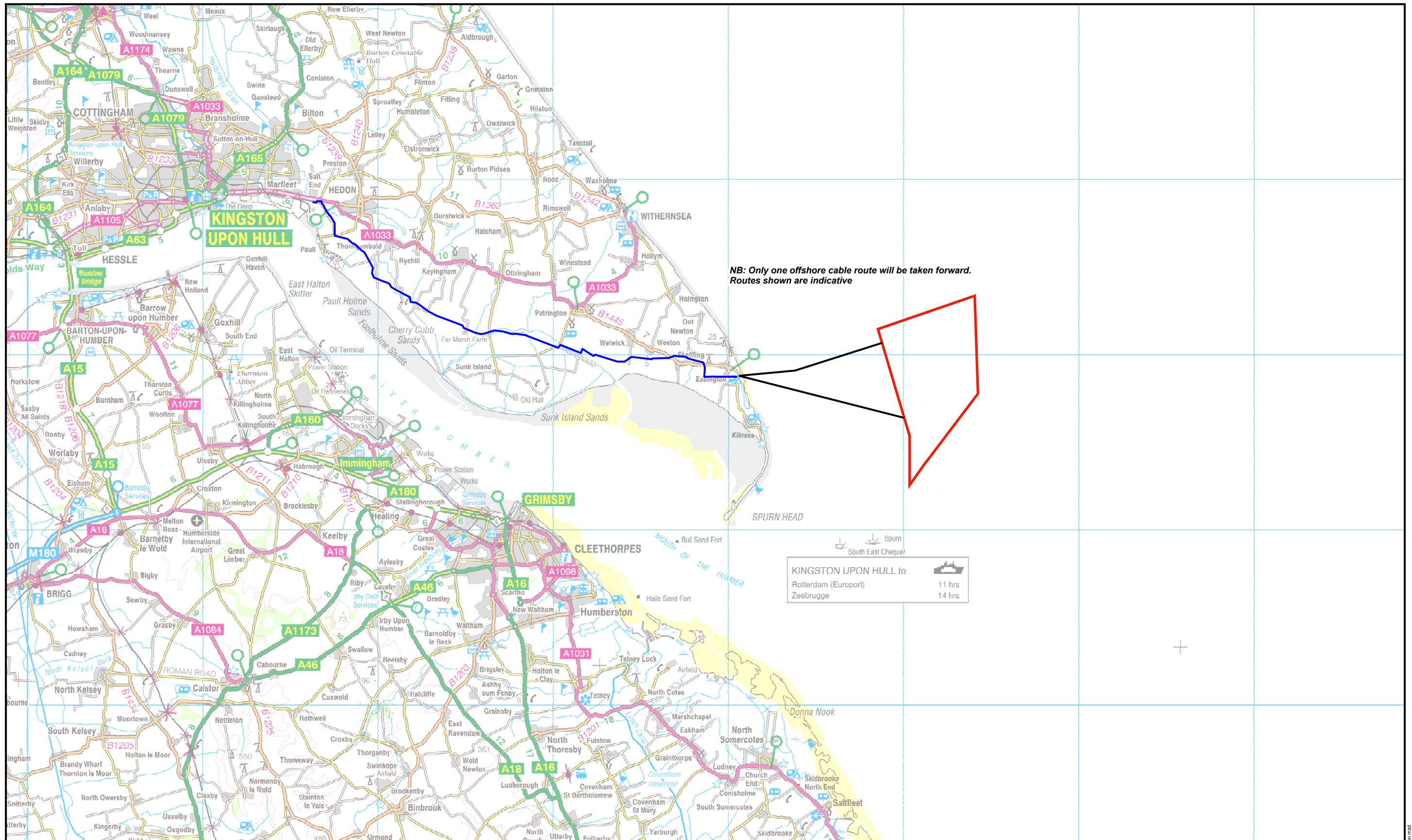
The operational life of the project is expected to be 40 years (in line with the Crown Estate lease). After 20 to 25 years, re-powering (i.e. replacing the wind turbines at the end of their economic life with new turbines) may be necessary, but this will be subject to further environmental studies and further marine consents.

A full description of the offshore elements of the project (up to Mean High Water Springs) is presented in *Section 6* of this Environmental Statement. The onshore elements of the project are described in a separate Environmental Statement which covers the underground cable works above Mean High Water Springs.

1.2.2 Site Location

The site has an area of 35 km² and is located within the *Greater Wash Strategic Environmental Assessment Area*. This area was identified by the UK Government in 2002 as a suitable location for offshore wind farm development and a site was awarded to Humber Wind Limited following a competition launched by the Crown Estate in July 2003 to bid for sites.

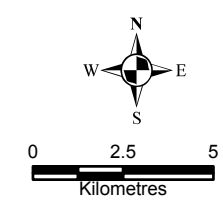
The Humber Gateway site lies to the east of Easington and Spurn Head, a long sand peninsula at the mouth of the Humber Estuary (*Figure 1.1*). At its northernmost point, the site is 8 km from Easington on the Holderness Coast. At the site's southernmost point, it is 14.6 km from the nearest point on the Lincolnshire coast. Its southern edge borders an area of deep water known as New Sand Hole.



NB: Only one offshore cable route will be taken forward.
Routes shown are indicative

KINGSTON UPON HULL to	
Rotterdam (Europort)	11 hrs
Zeebrugge	14 hrs

- KEY:
- Humber Gateway Site
 - Indicative Cable Route Options
 - Onshore Cable Route

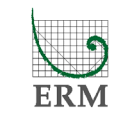


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TITLE: **Figure 1.1
Location of the Humber Gateway
Project**

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DRAWN: FS	APPROVED: CW	SCALE: as per scale bar
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1.2.3 Need for the Project

Climate change is a global issue and part of the strategy to combat the threat involves cutting carbon emissions. Energy generation is a key issue for the future, and the provision of electricity from clean, renewable sources will play a vital role in tackling the problem.

The UK Government recognises the many benefits of renewable energy and is actively supporting the growth of renewable generation to tackle climate change. A target for 15.4% of electricity supplied in the UK to come from renewable sources by 2015 has already been set, and the 2007 Energy White Paper sets out an aspiration to increase this to 20% by 2020.

However, the 2007 Spring European Council has set even more ambitious goals. Agreement was reached for achieving a 20% share of total EU energy consumption from renewable sources by 2020 and a reduction of at least 20% in greenhouse gas emissions by 2020. The European Commission will be publishing proposals on how this will be achieved in January 2008, including provisional targets for member states. Initial analysis indicates that at least 35% of electricity in the UK will need to be supplied from renewables by 2020 to achieve this target.

The Humber Gateway project will make a significant contribution both to the achievement of these targets and to the global responsibility of tackling climate change. The key project benefits are shown in *Table 1.1*. The carbon dioxide savings are current estimates of likely emissions savings, since the yield of the wind farm will not be accurately known until it is built.

Another key role for offshore wind energy is to ensure that the UK has a diverse supply of electricity from many sources. This is vital to secure electricity supplies.

Table 1.1 Key Project Benefits

Parameter	Current Estimates
Estimated annual net renewable energy output	920 GWh yr ⁻¹ (based on a load factor of 35%)
Estimated annual homes equivalent	195,000 homes (based on an average domestic household consumption of 4,725 kWh) (source, BERR) ⁽¹⁾
CO ₂ offset	395,000 tonnes (based on BERR figures)

⁽¹⁾ Department for Business, Enterprise and Regulatory Reform, formerly DTI.

1.3 PURPOSE AND STRUCTURE OF THIS DOCUMENT

To satisfy the requirements of the consenting procedures for offshore wind farms (as discussed in *Section 3*) and to provide adequate environmental information for the purposes of Environmental Impact Assessment (EIA), E.ON commissioned ERM to prepare this Environmental Statement (ES).

This ES describes the impacts associated with the *offshore elements* of the proposed scheme (i.e. those aspects of the scheme which are below Mean High Water Springs) and includes details of:

- the site layout, comprising the turbines, their foundations, the meteorological masts, the offshore electricity substation and the inter-array cables; and
- the submarine export cables (i.e. the cables from the wind farm to the shore).

Where impacts to *onshore features* are predicted as a result of offshore activities, they are included in this ES.

This ES is accompanied by a Non Technical Summary (NTS). Appendices are available on a CDROM. *Table 1.2* describes the structure of the ES.

The *onshore elements* of the project are described in a separate Onshore Cable Route Environmental Statement that covers works above Mean High Water Springs. This includes the proposed underground cable, which falls under the jurisdiction of the Local Planning Authority, the East Riding of Yorkshire Council. In addition, a new onshore electricity substation is required for the project near Salt End which will be the subject of a separate planning application, accompanied by a separate ES that will be produced in due course.

Together, these ESs will cover the whole of the proposed development, including the construction, operation, maintenance and decommissioning of the wind farm and associated infrastructure and comprise:

- Humber Gateway Offshore Wind Farm: Offshore Environmental Statement;
- Humber Gateway Offshore Wind Farm: Onshore Cable Route Environmental Statement; and
- Humber Gateway Offshore Wind Farm: Onshore Substation Environmental Statement.

The EIAs have been carried out in accordance with the requirements of *EC Directive 85/337/EEC* as amended by *Directive 97/11/EC*. These Directives have been transposed into UK law by means of a number of regulations and other statutory instruments, as described in *Section 3*.

Table 1.2 Structure of the Offshore Environmental Statement

Section	Title
	Non Technical Summary ⁽¹⁾
1	Introduction
2	Policy Background and Need for the Project
3	Legislative Context and Regulatory Requirements
4	Environmental Impact Assessment Process
5	Site Selection and Consideration of Alternatives
6	Project Description
7	Description of the Physical Baseline Environment
8	Description of the Biological Baseline Environment
9	Description of the Human Baseline Environment
10	The Physical Environment – Assessment of Impacts
11	The Biological Environment – Assessment of Impacts
12	The Human Environment – Assessment of Impacts
13	Cumulative and In-Combination Impacts
14	Potential Impacts to European Sites of Nature Conservation Importance

Table 1.3 Appendices


Appendix	Title
A	Summary of Consultation Responses
B1	Coastal Processes Baseline Assessment
B2	Coastal Processes Embedded Mitigation Assessment
C1	Baseline Study of the Marine Ecology
C2	<i>Sabellaria</i> Report
C3	Biotope and Cobble Reef Report
D1	Seabird Survey Programme Findings
D2	Seabird Collision Risk Assessment
E1	Marine Mammal Survey Report
E2	Baseline Underwater Noise Measurements
E3	Acoustic Field Prediction Modelling Results
F	Archaeological Gazetteer
G	Greater Wash Round 2 Offshore Wind Farms: Cumulative Effects Scoping Report

⁽¹⁾ The Non Technical Summary is produced as a separate volume.

1.4 THE EIA TEAM

The EIA team, led by ERM, includes technical specialists from ERM as well as a number of specialist sub contractors. The EIA team is summarised in *Table 1.4*.

Table 1.4 The EIA Team

Scope	Organisation
Overall EIA co-ordination	
Marine ecology	
Intertidal and coastal habitats	
Fish and shellfish	
Ornithology	
Marine mammals	
Landscape, seascape and visual impacts	
Airborne noise	
Commercial fisheries	
Social and economic issues	
Benthic / intertidal ecology surveys	IECS ⁽¹⁾ (University of Hull)
Ornithological surveys	
Erosion assessment	
<i>Sabellaria</i> and cobble reef assessments	
Coastal processes	ABPmer
Hydrography and geophysical surveys	Titan Environmental Surveys Ltd
Photomontages	Envision
Commercial fisheries consultation	Precision Marine Survey Limited
Aviation, communications and marine navigation	QinetiQ
Aviation consultation	Malcolm Spaven
Subsea noise	NPL ⁽²⁾ and Loughborough University
Shipping and navigation	Anatec
Archaeology	Wessex Archaeology
Marine mammals surveys	RPS
Ornithological radar surveys	Central Science Laboratory
Legal advice	Bond Pearce



⁽¹⁾ Institute of Estuarine and Coastal Studies.

⁽²⁾ National Physical Laboratory.

