

Section 4

Environmental Impact Assessment Process



## 4 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

### 4.1 INTRODUCTION

Environmental Impact Assessment (EIA) is a requirement of European Union Directives 85/337/EEC and 97/11/EC on assessment of the effects of certain public and private projects on the environment, as outlined in Section 3.

The primary objective of an EIA is defined in Article 2 of the Directive, which states that:

*“Member States shall adopt all measures necessary to ensure that, before consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects.”*

Article 8 of the Directive also states that *“The results of consultations and information gathered pursuant to [the EIA procedure] must be taken into consideration in the development consent procedure”*. The objective of the Directive is, therefore, to ensure that both the process and findings of the EIA are actively taken into consideration during the project design and subsequent planning consent process.

The Directives have been transposed into UK legislation by means of a number of statutory instruments. Those that are relevant to the consenting requirements for the Humber Gateway project are described in Section 3.

### 4.2 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

#### 4.2.1 OVERVIEW

The principal stages in the EIA process are as follows (although it should be noted that not all of these steps are necessarily required in all cases):

- screening of the project to determine whether or not an EIA is required;

- scoping of the issues to be considered in the EIA;
- baseline data collation;
- consultation with key stakeholders;
- identifying and assessing the nature and significance of potential impacts by reference to the baseline and any applicable standards or criteria;
- identifying any mitigation measures that will be applied; and
- identifying residual impacts post mitigation (including their significance).

In addition, the EIA process may include identification of monitoring proposals and enhancement measures.

#### 4.2.2 DETERMINING THE SIGNIFICANCE OF IDENTIFIED ENVIRONMENTAL IMPACTS

Whilst there is no statutory definition of significance, there is a broadly accepted approach to what constitutes significance and how this can be determined. This approach is both contextually based but also pragmatic in nature and seeks to use the information gathered on the specific site and development and determine what the relative, practical, impact will be on the environment.

Three key stages define this approach to assessing the significance of impacts, namely:

- identification of the baseline conditions and the sensitivity and importance of key receptors <sup>(1)</sup> (as defined on a topic by topic basis);
- identification of the magnitude of change, and consequential impact, upon these receptors; and
- identification of the significance of the impact.

There are a number of different approaches that can be adopted to identify the significance of the impact. The simplest way of assessing an impact is to define an impact criterion (for example, a standard or level) above which the impact is deemed to be **significant**. These criteria may be relative to the baseline

<sup>(1)</sup> In general, “receptors” can be defined as aspects of the biological, human or physical environment that have some value and are sensitive in some way to changes in the environment.

conditions or may be absolute criteria. This approach results in a statement that a particular impact is either **significant** or **not significant**.

However, in some cases (for example, in the assessment of visual impact) there are no accepted, definable criteria or standards. In these cases, the significance of impacts can be assessed by examining the relationship between the sensitivity of the receptor or resource and the degree of disturbance. This approach provides a framework within which professional judgement can be used to determine whether an impact is of **minor, moderate** or **major significance**. This approach can also be useful where it is appropriate to apply a series of different criteria. The matrix used in this EIA for combining the sensitivity of the receptor and the significance of the change is outlined in *Table 4.1*.

**Table 4.1 Assessing the Significance of Environmental Impacts**

Degree of Effect / Magnitude of Change	Importance / Sensitivity of Receptor / Resource			
	High	Medium	Low	Negligible
High	<b>Major significance</b>	<b>Moderate significance</b>	<b>Moderate significance</b>	<b>Not significant</b>
Medium	<b>Moderate significance</b>	<b>Moderate significance</b>	<b>Minor significance</b>	<b>Not significant</b>
Low	<b>Moderate significance</b>	<b>Minor significance</b>	<b>Not significant</b>	<b>Not significant</b>
Imperceptible	<b>Not significant</b>	<b>Not significant</b>	<b>Not significant</b>	<b>Not significant</b>

Where the matrix approach is used in this Environmental Statement, a topic specific matrix is presented in the relevant assessment section.

It should be noted that the position on the above table (i.e. **major, moderate, minor significance** or **not significant**) is central to the EIA process and indicates the level of impacts and, importantly, whether or not the impacts are significant in EIA terms. Where this type of approach is to be used, **major, moderate** and **minor** are all considered to be **significant** in EIA terms. It is important to note, however, that impacts of **minor significance**, both alone and in combination, are unlikely to be a major factor in the decision making process.

The nature of impacts can also be described with respect to their generic nature, as differentiated below (although it should be noted that these descriptions are not always helpful and have not necessarily been adopted throughout this EIA):

- Site-specific impacts – impacts that result from a geographically localised impact and which are significant, primarily at a neighbourhood or district level.
- Wider impacts – impacts that are individually significant at a regional level but which are unlikely to be significant locally.
- Positive impacts – impacts that have a beneficial influence on receptors and resources.
- Negative impacts – impacts that have an adverse influence on receptors and resources.
- Temporary impacts – impacts that persist for a limited period only, due for example, to particular construction activities (e.g. noise from construction plant). Where possible, the likely duration of impacts is identified.
- Permanent impacts – impacts that result from an irreversible change to the baseline environment (e.g. land take) or which persist for the foreseeable future.
- Direct impacts – impacts that arise from the impact of activities that form an integral part of the project.
- Indirect impacts – impacts that arise from the impact of activities not explicitly forming part of the project (e.g. increase in employment in service industries as a result of an influx of construction workers).
- Secondary impacts – consequential impacts that arise as a result of an initial impact of the project (e.g. reduced amenity of a community facility as a result of construction noise).
- Cumulative impacts – impacts that arise from the combination of different impacts at a specific location, the recurrence of the impacts of the same type at different locations and the interaction of different impacts over time.

It is also a central part of the EIA process that a statement of significance has been assigned to all potential and residual impacts (i.e. **significant** or **not significant**, or **major, moderate, minor significance**). Throughout this report, all significance ratings are presented in **bold italics**.

The same criteria and approach to assessing the significance of the impacts of the Humber Gateway project alone have also been adopted in the assessment of cumulative impacts.

#### 4.2.3 IDENTIFYING APPROPRIATE MITIGATION

Where significant effects are identified through the assessment process, consideration is given to appropriate mitigation to offset potential negative effects. Schedule 4 of the EIA Regulations defines mitigation as “a description of the measures envisaged in order to avoid, reduce and if possible, remedy significant adverse effects”.

The project description for Humber Gateway (*Section 6*) includes a number of design features which were discussed and adopted early on in the design process in order to reduce the potential impacts of the proposed development (e.g. soft start piling rather than piling without soft start). These measures are referred to as **embedded mitigation**.

Where significant impacts have been identified during the assessment process, further **additional mitigation** measures have been identified. These are described in the topic specific assessment sections.

#### 4.2.4 MONITORING

In the case of this ES, monitoring recommendations are described in the relevant topic assessment sections. In most cases, further consultation with the relevant stakeholders is anticipated following submission of the ES in order to agree the need for monitoring and any detailed requirements.

Monitoring of environmental changes or impacts during construction or operation can be a useful way of measuring the actual impacts of a development, which can help in the assessment of similar developments in the future.

#### 4.2.5 ENHANCEMENT

Enhancement refers to the genuine enhancement of an environmental interest, e.g. the improved management of established habitats or the creation of new habitats over and above what is required for mitigation and compensation. Enhancement measures that may be adopted are noted within the relevant specialist assessments, as and where appropriate.

#### 4.2.6 PRESENTATION OF THE ASSESSMENT

The description of the assessment of each environmental topic follows a common format, as follows:

- scope of the assessment (assessment criteria, consultation and embedded mitigation assumptions);
- assessment of potential impacts (assessment of the potential impacts and their significance);
- mitigation measures (a description of mitigation measures that will be adopted);
- assessment of residual impacts (assessment of the residual impacts that will remain after mitigation and their significance);
- monitoring (a description of any monitoring proposals);
- enhancements (a description of possible enhancements); and
- summary (a table summarising potential impacts, mitigation and residual impacts).

### 4.3 THE ‘ROCHDALE ENVELOPE’

*Section 3.5* outlines the Rochdale case law and highlights the ruling that only aspects considered in the ES can form the basis of planning consent. In consideration of this, the Rochdale envelope approach requires consideration of the **realistic worst case scenario** within the ES, to ensure that all potential scenarios of development and their likely significant environmental effects are assessed.

The Rochdale approach is appropriate for the Humber Gateway EIA as the definitive project details are not yet available and a number of options will remain under consideration until further geotechnical investigations, detailed engineering design, economic assessments and the procurement processes have taken place. Assessments have, therefore, been carried out based on the realistic worst case scenario in terms of potential impacts on the environment. This has been based on an overall ‘EIA envelope’ which encapsulates the full range of project parameters.

The general principle of the Rochdale envelope is that for each environmental topic, the impact assessment will be based on a range of project design parameters (e.g. turbines between 3.6 MW and 7 MW capacity) the key being that those parameters selected are considered to give the realistic worst case environmental impacts within the range. This will ensure that the environmental effects of the final constructed and operational scheme are no worse than those presented in the ES.

The end result is an EIA based on clearly defined environmental parameters that govern or define the full range of development possibilities, and hence the likely environmental impacts that could result from any scenario encapsulated in the Rochdale envelope. This approach ensures flexibility for the developer to cope with the uncertainties whilst giving security to the determining bodies that the environmental impact of the project will be no greater than that set out in the ES and may, in fact, be considerably less.

The realistic worst case scenarios differ from topic to topic. Therefore, in order for the EIA to assess the realistic worst environmental outcome, each specialist area has identified its own worst case from the project description described in Section 6. This has then been applied for the purposes of assessment.

The worst case scenario for each topic is based on the proposed option that would give rise to the most significant adverse environmental effects for that topic. For example, the foundation type that would be likely to give rise to the most significant impacts in terms of coastal processes will be gravity base foundations (during operation), whilst the worst case foundation type for construction noise impacts to marine mammals would be driven monopile.

## 4.4 ASSESSMENT OF CUMULATIVE IMPACTS

### 4.4.1 INTRODUCTION

As described above, the EIA Regulations require the ES to determine the cumulative impacts of wind farms in conjunction with other projects progressed (or to be progressed) in the past, present or foreseeable future. In addition, the *Habitats Directive (92/43/EEC)*, as implemented in UK law by the *Habitats Regulations (Conservation (Natural Habitats, &c.) Regulations 1994 (as amended))*, requires “appropriate assessment” of plans or projects that are likely to have a significant effect on a European site, when assessed either alone or in combination with other plans or projects.

In the context of offshore wind farms, cumulative effects might occur as a result of the development of an offshore wind farm at a single site, from multiple sites in close proximity, or in combination with effects from other human activities (for example, fishing activity, pipeline development, aggregate extraction, oil and gas development).

A report dealing with the cumulative effects of wind farm projects in the Greater Wash Strategic Area was produced by the Wash developers group in 2004 (*Appendix G*)<sup>(1)</sup>. This report identified areas of interactions based on the temporal and spatial components of the various environmental parameters reviewed.

The report proposed a “*building block*” approach to cumulative assessment which would effectively enable developers to move forward with their EIAs at different rates. The general principle of the building block approach was that each developer would consider the information that was reasonably available, either in the public domain or shared between developers at the time of ES submission.

The conclusions of the Scoping Report have been summarised in the topic specific assessment sections as appropriate.

### 4.4.2 SCOPE OF THE HUMBER GATEWAY CUMULATIVE ASSESSMENT

Whilst the general principles of the building block approach have been adopted, they have been adapted to ensure that all other developments that are proposed within the same timeframe as any part of the Humber Gateway project have been considered in the cumulative assessment for topics for which it is relevant (i.e. not all developments have been assessed for each topic).

The projects that will be considered in detail are set out below and shown in *Figure 4.1*, which also shows the current status of each of the projects (i.e. whether they are currently in the pre planning stage, in the planning process, consented but not yet built, being constructed or operational):

- Conisholme Fen Onshore Wind Farm (consented);
- Inner Dowsing Offshore Wind Farm (under construction);
- Lincs Offshore Wind Farm (in planning);
- Lynn Offshore Wind Farm (under construction);
- Docking Shoal Offshore Wind Farm<sup>(2)</sup>;

<sup>(1)</sup> Royal Haskoning, 2004. Greater Wash Round 2 Offshore Wind Farms: Cumulative Effects Scoping Report.

<sup>(2)</sup> It is understood that planning applications for these projects will be submitted in the early part of 2008.

- Race Bank Offshore Wind Farm <sup>(2)</sup>;
- Sheringham Shoal Offshore Wind Farm (in planning);
- Bangers Farm (1 and 2) Onshore Wind Farms (operational);
- Out Newton Onshore Wind Farm (operational);
- spoil disposal sites (operational); and
- licenced and proposed dredging areas (existing and proposed).

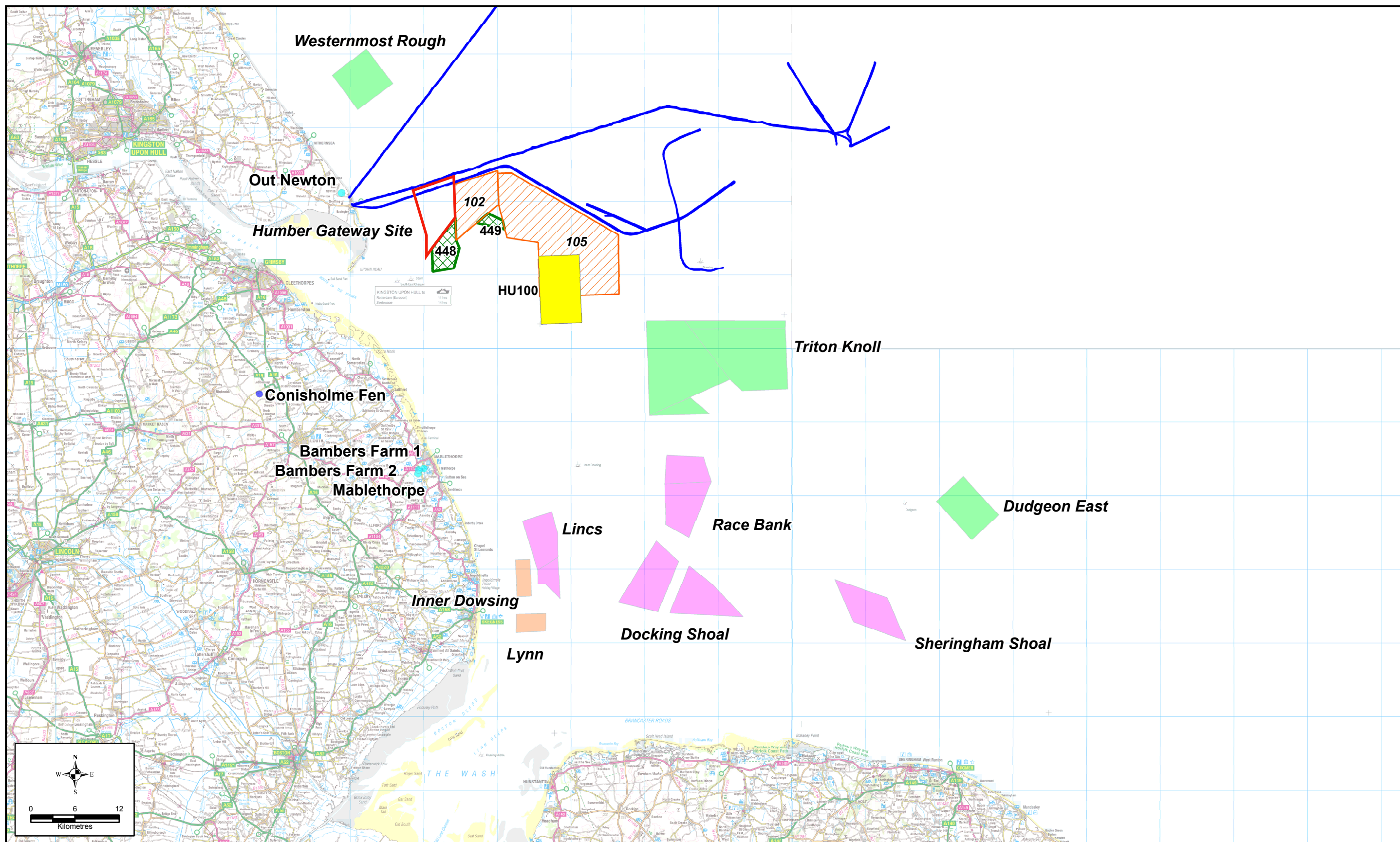
There are a number of other developments that may be constructed in the vicinity of Humber Gateway that are not so advanced in the development or planning process. For a variety of reasons, it has not been possible to include these in the detailed cumulative assessment for all environmental topics. The two key reasons are as follows.

- For some of these projects, there is little information available on their timing and, due to the fact that they are at a very early stage in the project development process, it is unlikely that they will be built concurrently with Humber Gateway. There would therefore be no cumulative construction impacts, although there still could be cumulative operational phase impacts at some unknown time in the future.
- There is generally insufficient information on the projects to enable a detailed cumulative assessment to be carried out. For other wind farms, for example, factors such as the number of turbines, the type of foundations to be used and the size and number of safety zones are unknown. Despite this, some assessment can be carried out for some topics by making some basic assumptions.

These projects have therefore been included at a commentary level only. That is to say, they have been considered during the assessment, but are not discussed in detail. As noted above, it is not possible to assess these projects at the same level of detail as those listed above, nor should they be given as much weight in the cumulative assessment. The projects that have been considered at commentary level only are:

- Dudgeon East Offshore Wind Farm (pre-planning);
- Triton Knoll Offshore Wind Farm (pre-planning);
- Westernmost Rough Offshore Wind Farm (pre-planning);
- the expanding sea bass fishery (proposed);
- Ministry of Defence activities (existing and proposed); and
- subsea pipelines and cables (existing).

In addition, the existing Mablethorpe Onshore Wind Farm has only been considered at commentary level due to the fact that it is a small, two turbine wind farm.



<b>KEY:</b>		<b>CLIENT:</b> 	<b>SIZE:</b> A3	<b>TITLE:</b> Figure 4.1 Location of Existing and Proposed Projects/Developments in the Greater Wash Area	
Humber Gateway Site	<b>Windfarms</b>			<b>DATE:</b> 11-01-2008	<b>CHECKED:</b> HB
Submarine Pipelines	Operational		<b>DRAWN:</b> FS	<b>APPROVED:</b> CW	<b>SCALE:</b> as scale bar
Licenced Dredge Areas	In Construction		<b>DRAWING:</b>	<b>REV:</b>	
Proposed Dredge Areas	Consented		<b>Fig. 4.1 Projects Location.mxd</b>		0
Disposal Site	In Planning				
	Pre-Planning				

## 4.5 SCOPING AND CONSULTATION

### 4.5.1 INTRODUCTION

Scoping is a key preliminary component of the EIA process. The primary aim is to identify the aspects of the environment and the issues that need to be considered when assessing the effects or impacts of a proposed development. Scoping is based on consultation with organisations and individuals with an interest in or knowledge of the proposed site.

### 4.5.2 HUMBER GATEWAY SCOPING AND CONSULTATION

A Scoping Report for the Humber Gateway project was sent to the Department of Trade and Industry (now BERR) in May 2004, in order to ensure that this ES contains the information required for them to evaluate the environmental effects of the development. The Scoping Report provided an outline of the development (including construction, operation and decommissioning). The report also included details of the need for the wind farm, the alternative sites considered, the results of the initial scoping exercise and the key issues to be considered in the ES.

A number of consultees were also sent the Scoping Report and E.ON has carried out extensive consultation throughout the EIA process. A full list of organisations that have been consulted or otherwise informed about the project and the progress of the EIA is presented below. A summary of consultation responses is given in *Appendix A*.

- Associated British Ports, Humber;
- Department for Business, Enterprise and Regulatory Reform, formerly DTI;
- BP Exploration Ltd;
- British Marine Aggregate Producers Association;
- Bridlington and Flamborough Fishermen's Society;
- Bridlington Town Council (Planning, Licensing and Environmental Committee);
- Campaign to Protect Rural England;
- Centre for Environment, Fisheries and Aquaculture Science (Cefas);
- CEMEX;
- Chamber of Shipping;
- Civil Aviation Authority;
- commercial fishermen;
- Cruising Association;
- CNS Systems – Navigation, Spectrum and Surveillance;
- Countryside Agency;

- Department for Culture, Media and Sport;
- Department for Transport;
- Department for Environment, Farming and Rural Affairs (Defra);
- Directorate of Airspace Policy;
- East Riding of Yorkshire Council;
- East Midlands Airport;
- English Heritage;
- Environment Agency;
- Government Office for Yorkshire and Humber;
- Hornsea and Withernsea District Fishermen's Association;
- Hull University;
- Humber Archaeology Partnership;
- Humberside International Airport;
- James Fisher Everard;
- Joint Nature Conservation Committee (JNCC);
- Joint Casualty and Compassionate Centre (JCCC);
- Marine and Fisheries Agency;
- Maritime and Coastguard Agency;
- Ministry of Defence (MoD) (Defence Estates);
- National Air Traffic Services En Route Ltd;
- National Federation of Fisherman's Organisations;
- Natural England (formerly English Nature);
- North Eastern Sea Fisheries Committee;
- North Lincolnshire Council;
- Royal Yachting Association;
- Royal Yorkshire Yacht Club;
- Royal Society for the Protection of Birds (RSPB);
- Sea Watch Foundation;
- Statoil ASA;
- Trinity House Lighthouse Service;
- UK Hydrographic Office;
- World Wildlife Fund; and
- Yorkshire Wildlife Trust.

### 4.5.3 PUBLIC CONSULTATION

Details of the Humber Gateway proposals have been publicised and made available to residents and their local community representatives. E.ON is committed to consulting widely with members of the public and will build on the meetings, discussions and presentations that have taken place so far. The following provides an overview of the public consultation activity to date:



- More than 14,000 letters and newsletters were sent during the summer of 2007 to residents from Easington to Hedon, between the proposed landfall south of Easington and the north of Withernsea, and south of the Humber between Grimsby and Mablethorpe.
- All residents were invited to exhibitions at locations near to their homes and transport to and from the venues was made available for those with mobility difficulties or for people without access to transport.
- The public exhibitions were also promoted through the local newsprint and broadcast media and posters were displayed around towns and villages.
- Five public exhibitions were subsequently held in September 2007, between the hours of 1400 and 2000. The events were held at Skeffling (the original venue of Easington Village Hall was not available due to flood damage), Patrington, Hedon, Withernsea and Cleethorpes.
- Local MPs, leading Councillors, Ward Councillors, Town and Parish Councillors, relevant Council Officers, regional government personnel and key business people were also sent invitations to the exhibitions.

Initial views on the Humber Gateway project were sought from those who attended the public exhibitions. In total, approximately 250 people attended the five exhibitions, and views were sought and documented by E.ON at the end of each meeting. Views were expressed by 243 people, and of those:

- 90% were supportive of the Humber Gateway project;
- 7% were generally supportive but had some concerns or wanted further information; and
- 3% were opposed to the Humber Gateway project.

Following E.ON's submission of the planning application for Humber Gateway, further public exhibitions will be held. In addition:

- a Humber Gateway website has been developed to provide updates about the proposals ([www.eon-uk.com/humbergateway](http://www.eon-uk.com/humbergateway)); and
- a free phone helpline has been set up to handle any enquiries following the initial round of communication and residents continue to use it.

Specific additional briefings and consultations have been held with commercial fishermen along the Holderness Coast and a programme of meetings with the fishing industry will continue.

#### 4.6 EIA BEST PRACTICE GUIDANCE

In carrying out the EIA, the following best practice guidance documents have been referred to:

- *DETR Circular 02/99 Environmental Impact Assessment*;
- *Code of Practice for Seabed Developers*, Joint Nautical Archaeology Policy Committee, 1988;
- *Historic Environment Guidance for the Offshore Renewable Energy Sector*, Wessex Archaeology, January 2007;
- *Consultation: Guidance for the Assessment of Cumulative Impact on the Historic Environment from Offshore Renewable Energy*, Oxford Archaeology, June 2007;
- *Marine Guidance Note 275*, Maritime and Coastguard Agency, 2004;
- *Lighting of Wind Turbines Generators in United Kingdom Territorial Waters*, CAA, 2003;
- *Wind Energy and Aviation Interests, Interim Guidelines*, Working Group for Wind Energy, Defence and Civil Aviation Interests, 2002;
- *Offshore Wind Farms – Guidance Note for EIA in Respect of FEPA and CPA Applications*, Cefas, June 2004;
- *Best Practice Guidelines for Wind Energy Development*, BWEA, 1994;
- *Health and Safety Guidelines*, BWEA, 2002;
- *Wind Farm Development and Nature Conservation*, BWEA, March 2001;
- *Recommendations for Fisheries Liaison*, BWEA, 2003; and
- *Best Practice Guidelines – Consultation for Offshore Wind Energy Developments*, BWEA, 2002.

In addition, wind industry specific studies undertaken by the Collaborative Offshore Wind Research into the Environment Group (COWRIE) led by the Crown Estate have been taken into consideration as appropriate.