

LID6 Environmental Statement

On behalf of Lincs Wind Farm Limited

Non-Technical Summary May 2010



Produced in association with



centrica **DONG**
energy energy
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Non-Technical Summary

Introduction

This document provides a Non-Technical Summary (NTS) of the Environmental Statement (ES) produced as part of the consent application for the construction of six offshore wind turbines (the LID6) off the Lincolnshire coast.

The NTS aims to provide an overview of the key findings of the Environmental Impact Assessment (EIA) undertaken by Centrica on behalf of Lincs Wind Farm Limited as it seeks consent for the LID6 turbines and associated inter-array cables. This NTS provides a description of the project, including an overview of the reasons that new consent is being sought for these six turbines which have already been consented via existing consents issued to the currently operational Lynn & Inner Dowsing project, developed by Centrica.

However, for more detailed information you should refer to the main ES. The ES describes in detail the need for the LID6 turbines and also the background to seeking new consents for the turbines and associated electrical infrastructure.

The ES is the formal report of the EIA process undertaken by Centrica, on behalf of Lincs Wind Farm Limited, into the potential impacts of the construction, operation and eventual decommissioning of the LID6 and assesses environmental impacts in relation to the existing biological, physical and human environments as well as identifying appropriate measures for mitigation and monitoring.

The Applicant

In December 2009, Centrica sold 50% of its stake in the Lincs Offshore Wind Farm to DONG Energy and Siemens Project Ventures (SPV), 25% stake per party, to form the project company Lincs Wind Farm Limited. Centrica is the lead developer for the Lincs Offshore Wind Farm and the LID6 project.

Centrica is the UK's leading residential supplier of energy and related home services, with growing interests in continental Europe and North America. Centrica has extensive experience in offshore development and recognises the importance of understanding and managing its environmental impacts.



Turbine array

The Need for Renewable Energy

The UK government signed up to the Kyoto Protocol and agreed to take on a reduction target of 12.5% over the period 2008-2012. The Kyoto Protocol became a legally binding treaty on 16th February 2005. The UK Government subsequently set a separate domestic goal of reducing carbon dioxide emissions by 20% below 1990 levels by 2010 and 60% by 2050.

With specific reference to offshore wind, an ambitious target of 33GW of installed capacity have been proposed by the UK Government, with the recent announcement of a third round of offshore wind farm licensing, providing the mechanism whereby up to an additional 25GW of capacity may be installed. This would add to the existing 8GW of offshore wind from Rounds 1 and 2.

The Project

The proposed LID6 project would be located approximately 6km off the coast of Lincolnshire, at its closest point, in the Greater Wash. The project is within UK territorial waters, with three turbines sited within the Inner Dowsing Offshore Wind Farm site and three turbines located within the Lynn Offshore Wind Farm.

The development consists of six Siemens 3.6MW Wind Turbine Generators (WTG), along with associated foundations and inter-array cables. Other offshore ancillary structures, such as substations and export cables, have been consented as part of the Lincs Offshore Wind Farm. It is intended that these six turbines and their associated infrastructure would be constructed at the same time as the Lincs project, which is scheduled to commence the main offshore construction phase in Spring 2011.



Turbine construction using jack-up barge (MPIO Resolution)

Background to this Application

The LID6 turbines were originally authorised to be constructed in 2003. Two Transport and Works Act (1992) Orders were issued to Centrica, permitting them to develop up to 60 turbines within the Lynn and Inner Dowsing (LID) Offshore Wind Farm sites. However, due to a grid capacity restriction onshore, only 54 of the 60 consented turbines were built (in 2007/08).

LID6 Environmental Statement

Following a review of consent and licence issues, Centrica was instructed by relevant government departments that they needed to re-apply for new consents for these six turbines and that an EIA would be required to support any consent application. This NTS forms part of the ES produced via this EIA process.

Consenting Requirements

The principal licences, consents and permissions required for LID 6 are:

- FEPA construction licence (Food and Environment Protection Act 1985); and
- Transport and Works Act Order (TWAO) (Transport and Works Act 1992).

Environmental Impact Assessment (EIA) Process

Environmental Impact Assessment is a tool for systematically examining and assessing the impacts and effects of a development on the environment. The resultant ES reports on the EIA and contains:

- A description of the development, including any alternatives considered;
- A description of the existing environment at the site and surrounding areas;
- A prediction of the potential impacts on the existing human, physical and natural environment at the site and assessment of subsequent effects (including a description of methods used to assess impacts);
- A description of mitigation measures to avoid or reduce such effects;
- A description of measures to monitor the effects; and
- A Non-Technical Summary (this document).

It is important to note that environmental effects of the LID6 turbines and inter-array cables have been previously assessed via the original LID ESs published in 2002 and more recently via the cumulative impact assessment sections of the Lincs ES (January 2007), the Docking Shoal ES (December 2008) and the Race Bank ES (January 2009).

All previous assessments concluded that no significant impacts were predicted from these turbines as part of the overall LID project, or cumulatively when assessed together with the Lincs, Race Bank and Docking Shoal projects. Therefore, the scope of this EIA has been focussed on re-assessing previous assessments using new data collected as part of the LID environmental monitoring programme.

Identification of Likely Significant Effects

The potential significant impacts associated with this proposed development have been identified through a variety of methods, listed below:

- Review of generic EIA guidance for offshore wind farms;
- Review of the Lynn, Inner Dowsing and Lincs ESs;
- Analysis of additional data collected since the submission of the Lynn, Inner Dowsing and Lincs ESs;
- Consultation with key stakeholders; and
- Experience and expertise of the EIA project team.

Impact identification and evaluation was carried out via a number of standard methods and techniques. Significance levels were assigned to each impact in order to provide a consistent framework for considering and evaluating impacts. The assigned definitions are set out in the table below. Where the assessment necessitated a variation in terminology, this is explained in the relevant section of the ES.

Significance	Definition
No Impact	No change from the baseline condition.
Negligible	Very slight change from baseline condition. Change barely distinguishable, approximating to the "no change" situation.
Minor Adverse	The impact is undesirable but of limited concern.
Moderate Adverse	The impact gives rise to some concern but it is likely to be tolerable (depending on its scale and duration).
Major Adverse	The impact gives rise to serious concern and is judged unacceptable.
Minor Beneficial	The impact is of minor significance but has some environmental benefits.
Moderate Beneficial	The impact provides some gain to the environment.
Major Beneficial	The impact provides a significant positive gain to the environment.

Summary of Environmental Effects

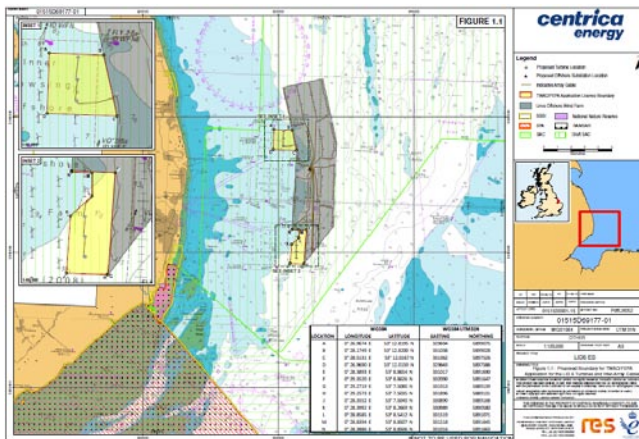
Introduction

The following sections summarise the potential environmental impacts associated with LID6 as detailed in the ES. Impacts on the following environmental parameters have been assessed, with mitigation requirements included where necessary:

- Nature conservation;
- Coastal processes;
- Water and sediment quality;
- Marine ecology;
- Marine mammals;
- Fish resources;
- Ornithology (birds);
- Landscape and visual impact;
- Cultural heritage;
- Shipping and navigation;
- Other marine users;
- Commercial fisheries;
- Air traffic;
- In-air noise; and
- Sub-sea noise.

Nature Conservation

There are a number of conservation designations in the marine and coastal environments adjacent to the LID6 site within The Wash and along the north Norfolk coast. The LID6 development area does not overlap any of these conservation features and given the distance of the LID6 from each of the designations, the potential impact on conservation designations is *negligible*. The LID6 site does, however, overlap the proposed Inner Dowsing, Race Bank and North Ridge Special Area of Conservation (pSAC) and requires consideration of potential impacts on the conservation objectives of this site. The potential impacts of the LID6 on each of the pSAC conservation objectives are assessed to be of *negligible* significance.



Location of LID6 study site of Lincolnshire coast

Coastal Processes

A desk-based assessment was carried out to determine any changes the project would have on local coastal processes, including wave and tidal conditions, sediment transport, suspended sediment and seabed profiles. The LID6 is predicted to have some localised impact in the immediate vicinity of the turbines, but will not have any significant impact further away from the site. Changes due to the presence of the offshore structures are considered to be less than those experienced due to the natural variation, and as such, the potential impacts are considered *negligible*.

The sediment in the study site is coarse and largely immobile, and as such, impacts associated with scour are considered of *minor* significance. Scour protection is, therefore, not anticipated.

Water and Sediment Quality

Changes in water quality associated with the re-suspension of sediment (including any embedded contaminants) and the use of chemical agents and fuels during construction, were assessed to be of *negligible* significance against background levels. Similarly, no impact is predicted on bathing water quality as a result of the LID6 development.

Marine Ecology

Numerous surveys have been carried out to characterise and monitor the marine benthic (bottom-dwelling) environment within and around the LID6 site. The sea bed communities in this area are typical of the region and characterised by patchy communities of worms and shellfish. No species of conservation significance have been recorded in the immediate area of these six turbines and those species present are considered to be well adapted to living in a dynamic and periodically disturbed environment.

The direct impact on habitats and species during construction of the turbines and inter-array cables are considered to be of short-term duration and of *negligible* significance. Turbines will be sited so as to avoid any sensitive habitats. Indirect impacts from sediment disturbance and deposition from construction activities are also considered to be of *negligible* significance due to the tolerance of benthic communities to such disturbances.

Impacts associated with the presence of turbines during operation are considered to be of *negligible* significance due to the small area of impact in comparison to the total wind farm area. Impacts associated with scour adjacent to turbines bases is expected to be *negligible* due to the coarse nature of the seabed sediments. As such, no scour protection has been proposed for the LID6 site.



Examples of benthic species present in study area

Marine Mammals

Three species of cetaceans and two species of seal are recorded in the vicinity of the LID6 site on an annual basis: harbour porpoise; white-beaked dolphin; minke whale; harbour seal; and grey seal. Harbour porpoise were the only cetacean recorded in previous surveys of the study area and only small numbers of seals were recorded. This finding is consistent with regional studies of the Greater Wash area.

Despite the study site not being a strategic area for cetaceans and seals, a Marine Mammal Mitigation Protocol will be implemented to ensure that any potential impacts upon marine mammals are minimised. This will involve the use of dedicated Marine Mammal Observers who will monitor the area of any piling for a minimum of 30 minutes prior to any piling activity to ensure that no marine mammals are in the vicinity of these works.

Fish Resources

Surveys carried out as part of the LID and Lincs ESs showed the fish species to be typical for the area. An important component of the community is the abundant and relatively diverse fauna of small, demersal fish species such as the dragonet, pogge, gobies, flatfish, shortspined sea scorpion and the commercially important whiting. Herring and sprat occur in small numbers and are likely to be the most important pelagic species in the area.

Crustaceans were found to be the dominant fauna in the area in fisheries surveys in and around the LID and Lincs sites, with pink shrimp the most abundant invertebrate species. Pink shrimps, brown shrimps and numerous crab species (swimming, spider, shore and hermit crab) are important prey to fish species, including those of commercial importance.

Impacts on fish species and habitats associated with increased levels of sedimentation, deposition and scour of sediment adjacent to turbines were considered to be of *negligible* significance. Indirect loss of key fish habitats associated with the presence of turbines and the shoaling effects of pelagic fish, which were both assessed to be of *minor* significance. For impacts on fish species associated with underwater noise see the section on sub-sea noise.

Ornithology (Birds)

Monthly boat-based bird surveys have been carried out across both the LID and Lincs sites since 2004 and continue to date. Aerial surveys have also been undertaken across this region since 2005 and since 2007, a shore-based radar survey has been undertaken to monitor the effects of the LID project on pink-footed geese. Based on recent bird data, a total of 32 bird species have been recorded in the area around the Inner Dowsing wind farm and 31 around Lynn. Overall the numbers of birds recorded have been quite low compared to other offshore wind farm sites in the Greater Wash region.

The most abundant species recorded on the Lincs site were guillemot, pink-footed goose, common gull, razorbill, little gull, great black-backed gull and herring gull. On the wind farm site itself only pink-footed goose exceeded 500 individuals.

Red-throated divers occurred within the Lincs site at near nationally important numbers, while common scoter, black-throated diver, great northern diver, fulmar, gannet, common gull, lesser black-backed gull, common tern, guillemot and razorbill occurred in regionally important numbers. Combined species peak densities of around 20 individuals per km² were recorded, in July 2004, February 2005 and October 2005, which are at the lower end of the range for the wider North Sea.

Impacts covering a range of potentially sensitive species were assessed for the LID6 and only the predicted collision risk for the pink-footed goose was determined to be of significance. This is considered to be a highly precautionary assessment and overall, the collision risk modelling did not indicate any significant increases in mortality due to the addition of the LID6 turbines to the existing Lynn and Inner Dowsing wind farms.



Boat-based bird surveys

Landscape and Visual Impact

Despite the sensitivity of the Lincolnshire coastline to potential visual effects, the effects of the LID6 turbines are predicted to be minimal due to the distance offshore and its location both within the LID site and adjacent to the Lincs site.

The impacts of the LID6 turbines on seascape, landscape and visual effects, including assessment of their cumulative impact, were assessed both as part of the original LID applications submitted in 2002 and, more recently, within the Lincs cumulative Seascape, Landscape and Visual Impact Assessment (SLVIA) assessment submitted in 2007. The landscape, seascape and visual Impacts of the development were considered *negligible*.



Photomontage depicting LID, Lincs and LID6 turbines

Cultural Heritage

As part of this EIA process, an archaeological assessment was undertaken to determine the potential for submerged artefacts, wrecks and coastal remains through a desk-based study and interpretation of geophysical data of the LID6 site. The assessment identified no known maritime sites and only limited potential for the presence of further maritime sites. There is, however, evidence for the presence of submerged prehistoric archaeology. The proposed mitigation aims to avoid impact on maritime sites and to investigate further the areas of prehistoric archaeological potential.

If previously unknown archaeological sites are discovered during construction, a 'finds reporting protocol' will be implemented. A Written Scheme of Investigation will also be developed to ensure that appropriate mitigation and monitoring measures are defined where appropriate.

The overall effect of the construction of the LID6 turbines and associated infrastructure upon archaeological remains is considered *negligible*.

Shipping and Navigation

The LID6 site is located away from the main shipping lanes. The closest passing shipping and coastal traffic tends to keep to the east of the LID development including the area in which the LID6 turbines would be located. Once the Lincs Offshore Wind Farm has been constructed, the passing distance to the east will increase. In terms of small vessel activity, this predominantly takes place to the west of the existing LID and proposed LID6 sites.

The proximity of the LID6 turbines to the existing LID turbines and the planned Lincs development indicates there should be *negligible* impact on shipping and navigation.

Other Marine Users

Other marine users in the general study area include tourism, recreational users, coastal defence, oil and gas exploration and production, marine aggregate extraction, marine disposal sites, military exercise areas, telecommunications, electricity cables and pipelines. The LID6 site is located in an area used for recreational sailing and inshore of licensed marine aggregate extraction sites. The LID6 site may have a *minor* impact on sailing routes and on vessels transit times to marine aggregate sites. For other marine users, the LID6 development is judged to have *no impact*.



Kite-surfer and turbine seascape

Commercial Fisheries

The primary fishing vessels which fish in and around the area of the LID6 turbines are based at King’s Lynn, Boston, Grimsby, Bridlington, Skegness, Brancaster and Wells. At a regional and local level, fishing data for the region shows substantial variations over a ten-year period in fishing effort and the values of landings.

Impacts during construction may include increased steaming time to other fishing grounds and temporary loss or restriction of access to fishing grounds. The potential impacts are considered to be *minor*, due to the limited number of vessels involved and relative size of the LID6 site. All impacts identified during the operation of the wind farm are considered *negligible* as fishing can continue during the operational life of a wind farm.



Fisherman and nets

Air Traffic

As lead developer of Lincs Offshore Wind Farm, Centrica has worked co-operatively with NATS during the Lincs assessment to develop a technical solution for the Claxby radar station to safely track aircraft in the vicinity of offshore wind farms in The Wash area. This technical solution would also be used to mitigate any impacts from the LID6 turbines.

In-Air Noise

Impacts of in-air noise resulting from the LID6 development are primarily restricted to marine users in the nearby area or those on or near the coastline on the nearest shore. Pile driving operations are considered to produce the greatest constructional noise. Given the offshore location of the LID6, noise impacts on coastal communities are assessed to be *negligible*. Operational noise is also assessed to be *negligible* or *no impact*.

Noise levels in the immediate vicinity of the turbines at sea will naturally be higher than perceived on land. Work undertaken for the Lynn Offshore Wind Farm indicates this level to be less than 70 dB(A), which is unlikely to cause significant impact for the temporary human receptors in the area.

Sub-Sea Noise

Impacts of sub-sea noise on epibenthic communities and fish and shellfish are assessed to be *negligible* to *minor* and were assessed to be at an acceptable level to the marine environment. Impact of sub-sea noise on marine mammals is assessed in the section on marine mammals. Industry best practice will be used where appropriate to further mitigate any noise impacts on sensitive species. Subsea noise generated via the first four piling events for the existing Lincs project will also be monitored in order to validate predictions made in the EIA.

Summary and Conclusions

Lincs Wind Farm Limited is applying for new consents to construct the LID6 turbines at the same time as the main Lincs project, which is due to begin offshore construction in March 2011. The six turbines and associated infrastructure have previously been consented as part of the now operational LID project but were not built due to grid capacity restrictions onshore.

An EIA has been undertaken that builds upon previous assessments undertaken for the LID and Lincs projects since 2002. No major adverse impacts upon the environment have been identified via this EIA process and, given the successful implementation of mitigation and monitoring measures committed to by Lincs Wind Farm Limited, combined with ongoing dialogue with interested stakeholders and the Regulatory Authorities, it is predicted that the LID6 project will not have any significant, long-term impacts upon the local environment.



LID6 Environmental Statement

On behalf of Lincs Wind Farm Limited

Non- Technical Summary

May 2010

The Environmental Statement can be viewed during the statutory consultation period at the following locations:

Skegness Library, 23 Roman Bank, Skegness, Lincolnshire PE25 2SA

Boston Library, County Hall, Boston, Lincolnshire PE21 6DY

Holbeach Library, Church Street, Holbeach, Spalding, Lincolnshire, PE12 7LL

Hunstanton Library, Westgate, Hunstanton PE36 5AL

Wells-next-the-Sea Library and Learning Centre, Station Road, Wells-next-the-Sea, Norfolk, NR23 1EA

East Lindsey District Council, Planning and Regeneration, Tedder Hall, Manby Park, Louth, Lincolnshire LN11 8UP

Boston Borough Council, The Planning Department, West Street, Boston, Lincolnshire, PE21 8QR

South Holland District Council, Planning Department, Priory Road, Spalding, Lincolnshire, PE11 2XE

King's Lynn and West Norfolk Borough Council, King's Court, Chapel Street, King's Lynn, Norfolk, PE30 1EX

North Norfolk District Council, Council Offices, Holt Road, Cromer, Norfolk NR27 9EN

Requests for copies of the Environmental Statement (there may be a charge), or additional copies of this Non-Technical Summary (free), should be made in writing to:

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A version of the Non-Technical Summary is also available to download from the Lincs project pages on the Centrica Energy website:
www.centricaenergy.com/renewables

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