

CHAPTER 2: ENVIRONMENTAL IMPACT ASSESSMENT

INTRODUCTION

2.1 Environmental Impact Assessment (EIA) is a process that is intended to ensure that planning permission for developments, which may have significant effects on the environment, should be considered only after prior assessment of the likely significant environmental effects of those projects has been carried out. The assessment is compiled into an Environmental Statement (ES) by the applicant and is guided by information received during consultation with statutory consultees, other organisations and members of the public.

LEGISLATIVE CONTEXT

2.2 Within England the requirements of the European Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, as amended by Council Directive 97/11/EC, are transposed with regard to the proposal in question by The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000.

2.3 Schedule 2 lists *‘a generating station, the construction of which (or the operation of which) will require a section 36 consent.’* for which an EIA must be undertaken where there are likely to be significant effects on the environment. Guidance on what amounts to significant effects, and indicative thresholds to EIA is given in Annex A of Circular 02/99 Environmental Impact Assessment¹ which states that the likelihood of significant effects from windfarms *‘will generally depend upon the scale of the development, and its visual impact, as well as potential noise impacts. EIA is more likely to be required for commercial developments of five or more turbines, or more than 5MW of new generating capacity.’*

2.4 The proposed development has a capacity of up to 54MW and as such is a Schedule 2 Development. Given the nature and size of the proposed wind park Ecotricity did not seek a Screening Opinion as to whether an EIA is required. As an initial application was made under section 36 of the Electricity Act 1989 to the Secretary of State prior to the request for a scoping opinion the regulations did not allow for a post submission scoping request. However in light of the official scoping process, providing a detailed basis for evaluation of environmental considerations an informal scoping process was adopted. This allowed for statutory consultees to be contacted directly on the proposal in the same way as they would of as part of an official scoping opinion.

METHODOLOGY

Guidance

2.5 The information which the developer requires to provide as part of the EIA process is presented in this ES. The preparation and production of this ES has been conducted in accordance with the latest Government Regulations and advice on good practice comprising of:

- The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000

- Circular 02/99 Environmental Impact Assessment
- Environmental Impact Assessment, Guide to Procedures (Department of Environment, Transport and the Regions, 2000)
- Preparation of Environmental Statements for Planning Projects that require Environmental Assessment, A Good Practice Guide (Department of the Environment, 1995)
- Guidelines for Environmental Impact Assessment (Institute of Environmental Management and Assessment 2004)
- A Handbook on Environmental Impact Assessment, Scottish National Heritage 2005
- EIA guidance, ODPM 2006

2.6 In addition to the above, each technical assessment contained within this ES refers to additional guidance, good practice and methodologies where appropriate.

Assessment and Design Approach

2.7 In order to minimise any adverse environmental effects of the proposed development, an iterative approach has been taken to the assessment and design of the Heckington Fen Wind Park. With this type of approach, where potentially adverse effects are identified during the assessment process, the design of the proposed development is modified in order to reduce or mitigate these effects as far as reasonably practicable. This approach is considered to be best practice and is preferable to carrying out a one-off post-design environmental appraisal. In sum, the locations and numbers of turbines have been determined by the studies undertaken for this EIA. The results of this process are discussed in more detail in **Chapter 3: Site Selection and Design**.

THE ENVIRONMENTAL STATEMENT

2.8 The Environmental Statement has been prepared to accompany an application to construct, install and operate a generating station under Section 36 of the Electricity Act 1989.

2.9 The provision of environmental information through an ES involves the compilation, evaluation and presentation of all the potential environmental effects of a proposed development. This, together with post application consultation responses from statutory consultees and the public, assists the decision maker, in this instance, the Secretary of State, in considering and determining the application.

2.10 Schedule 4 of The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000, require that an ES should include at least the following information:

- A description of the development comprising information on the site, design and size of the development;
- An outline of the main alternatives studied by the applicant, if such a process has been undertaken, and an indication of the main reasons for this choice taking into account environmental effects;
- A description of the aspects of the environment likely to be significantly affected by the development;

¹ Department of Environment, Transport and the Regions, 1999, HMSO, London

- A description of the likely significant effects of the development on the environment which should cover direct and indirect effects, secondary, cumulative, short, medium and long term;
- It should consider both temporary and permanent effects along with an indication of which are positive and negative;
- A description of the measures envisaged in order to avoid, reduce and, where possible, offset significant adverse effects (mitigation measures); and,
- A non-technical summary of the above.

SCOPING AND CONSULTATION

- 2.11 Consultation is a key aspect of the EIA process as it helps to inform the nature and scope of potential impacts and therefore the various technical studies that are required in order to allow these effects to be assessed.
- 2.12 Ecotricity carried out extensive consultation both prior to and during the informal scoping exercise. Consultations were initially undertaken with a number of key consultees to assess site feasibility, such as Ofcom and the Civil Aviation Authority. Consultation was then widened to include other statutory consultees such as Natural England and the Environment Agency.

Pre Scoping Consultation

- 2.13 A range of consultees were contacted as part of the site screening and feasibility process undertaken by Ecotricity. These early consultations assist with identifying key constraints and informing early technical feasibility and field work.
- 2.14 The following bodies were contacted at this stage in the process:
- Natural England and the RSPB
 - Environment Agency
 - Arqiva and National Grid
 - MLL telecom
 - Civil Aviation Authority (CAA), and NERL
 - Ministry of Defence (MOD)
 - English Heritage
 - Anglian Water, British Telecom, Cable & Wireless, Orange, Three and T-Mobile
 - Ofcom and the Joint Radio Company (JRC)
 - North Kesteven District Council
- 2.15 **Appendix 2.1** contains a summary of all the consultation responses received by Ecotricity, prior to the submission of the planning application.

Informal Scoping

- 2.16 An enquiry for the submission of a formal scoping opinion was submitted to DECC in September 2010. However due to the pre submission under section 36 of our application the regulations did

not allow for a formal scoping opinion to be made. However in accordance with best practice and to inform the various potential environmental implications of the proposed development an informal scoping process was adopted. The informal scoping report was sent to all the statutory consultees and set out the proposed methodology for each of the technical assessments and requested comment on the suitability of the proposals.

- 2.17 Ecotricity's Informal Scoping Report is included in **Appendix 2.2**. The responses to the informal Scoping Report can also be found in **Appendix 2.1** and consists of responses from:
- Health and Safety Executive
 - English Heritage
 - Natural England
 - NERL and CAA
 - Environment Agency
 - Natural England

Consultation during the Assessment Process

- 2.18 Throughout the survey and assessment process, the following organisations were involved in further consultation and meetings;
- North Kesteven and Boston District Council (Planning; Environmental Health – see **Chapter 10: Noise**)
 - North Kesteven and Boston District Council (Archaeology – see **Chapter 6: Cultural Heritage**;
 - Highways Authority and Public Rights of Way – see **Chapter 11: Transport & Access**)
 - Highways Agency - see **Chapter 11: Transport & Access**
 - Natural England – see **Chapter 7: Ecology**
 - English Heritage – see **Chapter 6: Cultural Heritage**

Statement of Community Involvement

- 2.19 Central Lincolnshire Statement of Community Involvement (SCI) provides the framework for public consultation, undertaken by the Developer and the Council, when applying for planning permission. Different classifications of developments require different levels of public consultation depending on their size, conformity with development framework and public interest. The Secretary of State classifies wind turbine developments as 'significant' applications, requiring wider and more in-depth public consultation. The consultations requirements for 'significant' developments are outlined within the SCI document. This proposal's public consultation process has adhered to these requirements, in that The Secretary of State, North Kesteven and Boston Council, statutory consultees and stakeholders, and the local community were consulted pre-application; a dedicated project website was established; and there was both an initial consultation session with residents and a public exhibition to disseminate the project information.
- 2.20 Before the submission of the section 36 planning application and subsequent follow up submission of an ES to The Secretary of State a questions and answers session was held with Heckington Parish Council on the 7th September 2009 and local residents were invited to attend through the

local parish newsletter. Around 10 parish councillors and 90 parishioners attended and raised questions and issues which were taken aboard during the process. Ecotricity staff were on hand to answer the questions as they arose.

- 2.21 Public exhibitions were also held on three consecutive days on the 6th, 7th and 8th of June 2011 at Heckington Village Hall, Swineshead Village Hall and South Kyme Coronation Hall respectively. This was manned by members of the Ecotricity team and the public were advised of the exhibition through 3,500 newsletters and invitation letters sent to properties up to 2km from the site and also including the population centres of Heckington, South Kyme, Swineshead and Great Hale. Members of the public were also invited by a newspaper advertisement in the Sleaford Standard and Sleaford Target and by email to local parish, ward and district councillors. Approximately 192 local residents attended the three day events. This exhibition was also made available in the Riverside Centre, Sleaford from 9th June to 17th June 2011.
- 2.22 In addition, the information shown at the exhibition is available online at <http://www.ecotricity.co.uk/heckington-fen> and questions can be raised via a direct telephone number or via heckington-fen@ecotricity.co.uk which allows the general public to raise any queries with Ecotricity if they were unable to attend the public exhibition or wish to discuss items further after they have considered their findings from the exhibition.
- 2.23 The Environmental Statement is also being made available at the North Kesteven and Boston Council website (<http://www.n-kesteven.gov.uk>; <http://www.boston.gov.uk/index.php>) and on the project page of the Ecotricity website detailed above to allow for public inspection to ensure the project details are readily accessible.

ASSESSMENT METHODOLOGY

- 2.24 Although each assessment applies a specific series of matrices and decision making tools to assist the assessor in determining the significance of predicted effects identified in the ES, the same general approach of information gathering and assessment has been undertaken throughout the EIA process to date. This is outlined below.

Identification of Issues

- 2.25 In light of the consultation responses received, the following issues have been technically assessed as part of the EIA process:
- Landscape and Visual;
 - Cultural Heritage;
 - Ecology;
 - Ornithology;
 - Hydrology;
 - Noise;
 - Transport and Access;
 - Aviation;
 - Shadow Flicker; and,

- Miscellaneous (Public Safety, Agriculture, Communications etc).

Technical Assessments

- 2.26 Following the identification of the issues to be addressed, technical assessments were carried out in order to predict the likely significant effects associated with the proposed development, inform the layout and design the wind park to avoid or reduce environmental impacts, and finally to propose further post design mitigation measures, where it is necessary, for identified effects. The findings of these assessments are presented within **Chapters 5 – 13** of this Environmental Statement. The principal stages of assessment are:

- Description of baseline conditions;
- Identification and assessment of potential environmental effects;
- Assessment of likely significant environmental effects;
- Mitigation;
- Summary of effects; and,
- Statement of residual significance.

Methodology

- 2.27 This section provides a description of the methodology used to produce the technical report and ES chapter, including a summary of all references, relevant guidance and legislation and consultations. The criteria used to define sensitivity and magnitude of change are also set out, together with criteria and a matrix for establishing significance.

Description of Baseline Conditions

- 2.28 The existing environmental character of the site is established, with particular reference to the relevant study area, through a combination of the following:
- Desk-based assessment, based on available data such as previous surveys, information derived from maps and aerial photographs;
 - Information provided by consultees; and,
 - Site surveys.

Identification and Assessment of Likely Significant Environmental Effects

- 2.29 This approach has been derived from published guidance on the subject of the assessment of environmental effects². It distinguishes between the construction, operation and decommissioning phases of the development.
- 2.30 The receptors that have the potential to be affected by the development are identified at this stage in the process. This will include both human receptors, (e.g. noise assessment) and environmental receptors such as flora, fauna, the water environment and archaeology.

² Guidelines for Environmental Impact Assessment (2004) Institute of Environmental Management and Assessment. A Handbook on Environmental Impact Assessment (2005) Scottish Natural Heritage

- 2.31 The **sensitivity** of each of the identified receptors is then established with reference to appropriate guidance. This is achieved by considering the possible interactions between the proposed development and the existing and future environment of the site as well as the capacity of the receptor to accommodate changes associated with the project.
- 2.32 Having identified the sensitivity of each of the receptors, the next stage is to characterise each of the impacts associated with the development. The impacts are characterised in terms of timing, scale, duration and reversibility alongside the likelihood of the impact occurring which allows the overall **magnitude of change** associated with the impact to be identified.
- 2.33 The assessment of potential environmental effects, in line with the requirements of Schedule 4 of the EIA (2000) Regulations, establishes whether identified effects are:
- Direct, indirect, secondary and cumulative;
 - Positive or negative;
 - Short, medium or long term; and,
 - Permanent or temporary.

Mitigation

- 2.34 Measures are identified in order to avoid, reduce or compensate for adverse effects, or to enhance positive effects. The design process is carried out on an iterative basis, where effects and mitigation measures identified during the assessment process are incorporated into an evolving design.
- 2.35 This approach of avoiding significant adverse effects wherever possible ensures that the proposed development reduces the impact upon the environment. Where effects cannot be avoided through site design individual chapters outline appropriate mitigation to reduce these effects or recommend compensatory measures.

Summary of Effects

- 2.36 Where appropriate for the assessment and summarised in tabular form, all identified significant effects are collated together with: a summary of mitigation; whether the effects are direct, indirect, secondary, cumulative, positive, negative, short, medium or long-term, and permanent or temporary; occur during construction, operation or decommissioning; the sensitivity and magnitude of change of/to the receptor; the significance before mitigation and the residual significance.

Statement of Residual Significance

- 2.37 Schedule 4 of The Electricity Works (Environmental Impact Assessment) Regulations (2000) requires that significant effects are described. Therefore each of the technical assessments is concluded with a **statement of residual significance**, identifying all the effects which are considered to be significant, following mitigation, in terms of the EIA (2000) Regulations.
- 2.38 The assessment of significance is based on the **magnitude of change** brought about by the impact and the **sensitivity** of the receptor. The 2006 guidance³ sets out significance as being a function

of: the value of the resource; the magnitude of the impact; the duration involved; the reversibility of the effect and the number and sensitivity of the receptor(s) involved.

- 2.39 **Table 2.1** overleaf is a matrix for identifying significant environmental effects, which balances the criteria used to define magnitude of change and sensitivity of the receptor in order to arrive at a level of significance. Whilst the EIA Regulations only require that 'significant' environmental effects are identified, it is considered essential that such criteria, as set out below, are used to enable the decision maker to distinguish between effects which are significant in terms of the Environmental Impact Assessment (England and Wales) Regulations 2000, and those which are material planning considerations which due weight should be accorded to. The shaded boxes in **Table 2.1** therefore represent effects considered to be significant in terms of the Environmental Impact Assessment (England and Wales) Regulations 2000.

- 2.40 Where appropriate each of the technical assessments contained within this Environmental Statement defines the criteria used for establishing significance and adapts the significance matrix in **Table 2.1** to meet the specific requirements of the assessment. However, the following criteria, although not prescriptive, has been adopted by Ecotricity as a basis for technical assessments.

Table 2.1: Matrix for Establishing Significance

		Sensitivity of Receptor			
		Low	Medium	High - Very High	
Magnitude of Impact	No change	Insignificant	Insignificant	Insignificant	
	Minimal change	Negligible -Minor	Minor	Minor - Moderate	
	Very Low - Low	Minor	Minor - Moderate	Moderate	
	Medium	Minor - Moderate	Moderate	Moderate - Major	
	High - Very High	Moderate	Moderate - Major	Major	Extreme

Extreme: These effects, if adverse, represent key factors in the decision making process. They are generally, but not exclusively associated with sites and features of national importance and resources/features which are unique and which, if lost, cannot be replaced or relocated.

Major: These effects are likely to be important considerations at a regional or district scale, but, if adverse, are potential concerns to the project, depending upon the relative importance attached to the issue during the decision making process.

Moderate: These effects, if adverse, while important at a local scale, are not likely to be key decision making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or a particular resource.

Minor: These effects may be raised as local issues but are unlikely to be of importance in the decision making process. Nevertheless, they are of relevance in the detailed design of the project.

³ DCLG (2006). *Environmental Impact Assessment: A guide to good practice and procedures – A Consultation Paper*.

Negligible: Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Insignificant: No effect identified.

- 2.41 Each technical assessment within this Environmental Statement sets out the techniques used to predict impacts and assess effects. In many cases the assessment techniques will be supplemented by professional judgment in assessing the significance of effect, where this is the case, this is highlighted accordingly.