APPENDIX 2.2: ECOTRICITY'S SCOPING REQUEST

REQUEST FOR SCOPING OPINION

PROPOSED HECKINGTON FEN WIND FARM

Secretary of State for Energy and Climate Change

North Kestevan District Council

September 2010

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1. INTRODUCTION

1.1 Ecotricity has carried out initial environmental investigations into the potential of a site at Heckington Fen, Lincolnshire to accommodate a wind energy development. The location of the site is shown on Figure 1.

1.2 These early investigations into wind speed, electrical connection, ecology, ornithology and access have indicated that the nature of the site and its environmental constraints are such that, with sensitive design, the site could accommodate a wind energy development. These early investigations took longer than anticipated and as a consequence a legal title to the site taken early in the process was close to expiry. To fully exercise the option rights and based on the early environmental investigations, Ecotricity took the decision to submit an application under Section 36 of the Electricity Act 1989 in December 2009. The application was acknowledged as valid by the Department of Energy and Climate Change on the 23 December 2009.

1.3 Under the provisions of the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 Part II (6), where an application is made under s36 of the Electricity Act 1989 the Secretary of State is required to determine if the development as submitted is EIA development. The outcome of that determination was contained in the letter from DECC to Ecotricity dated the 23 December 2009 which confirmed that, in the opinion of the Secretary of State, the proposal is EIA development.

1.4 Under the provisions of Part III (7) of the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 200 it is possible for a developer contemplating the submission of an application to request that the Secretary of State identify in writing his opinion as to the information to be provided in the environmental statement (a "scoping opinion"). As the application has already been submitted these provision do not apply. However, this document is submitted to enable statutory consultees to identify the issues of concern to them and to articulate them to the Secretary of State. This will in turn allow ecotricity to take account of the matters in the preparation of the ES.

1.5 This Request for a Scoping Opinion sets out the range of potential effects which are proposed for assessment within the ES, together with appropriate methodologies, and a description of the proposed development.

Ecotricity

1.6 Ecotricity is an electricity company specialising in renewable energy, principally the development of wind energy. Ecotricity has been building turbines and selling electricity since 1996. Ecotricity currently has 15 sites generating electricity from wind energy in the UK and a further three consented projects.

1.7 Ecotricity are committed to minimising anthropogenic climate change through the development of renewable energy generation, supplanting the nation's reliance on fossil fuels for electricity generation and the release of carbon dioxide (CO_2) to the atmosphere.

The Proposal

1.8 Early indications are that this site could support the development of up to 28 wind turbines with a combined installed capacity of 64.4MW and as such has required the submission of an application under Section 36 of the Electricity Act 1989. The proposed development would comprise the following:

- Installation of up to 28 wind turbines;
- Construction of ancillary works including access tracks, crane hard standings, electrical cabling and an electrical sub-station;
- Access from the public road;
- Temporary construction compound.

Purpose of Development

1.9 In line with strategic government objectives regarding combating climate change, we would estimate a UK wind park of 64.4MW installed capacity would typically generate 156 million units or kilowatt hours (kWh) per year[1], applying average UK wind farm performance. This is equivalent to the annual domestic electricity consumption of an estimated 47,000 medium houses[2].

1.10 In generating electricity from a renewable source it is expected that the proposed development would prevent the emission of an estimated 67,241 tonnes of CO_2 each year[3] as well as significant quantities of SO_2 and NO_x.

1.11 In September 2010 the Department of the Energy and Climate Change (DECC) published its '2008 Local Authority Carbon Dioxide Figures[4]. These statistics breakdown the CO_2 emissions of the UK to regional and district level. These calculations are a tool for the calculation of a District's Carbon Footprint. Domestic electricity consumption in North Kesteven District is calculated to have emitted 112kt of CO_2 in 2008.

1.12 A 'Carbon Footprint' can be defined as: 'a measure of the amount of carbon dioxide (CO_2) emitted through the combustion of fossil fuels; in the case of an organisation, business or enterprise, as part of their everyday operations; in the case of an individual or household, as part of their daily lives; or a product or commodity in reaching market.'

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[1] Assuming average UK wind farm performance with a capacity factor of 27.7% (2005-2009 average figure from Digest of UK Energy Statistics, DECC). Please note that the actual performance of the Heckington Fen Wind Park may vary.

[2] DTI (2000). Quarterly Energy Prices. Average UK annual domestic standard electricity bill assumes annual consumption of 3,300kWh for a medium household. http://www.dti.gov.uk/energy/inform/energy_prices/

[3] This figure is derived using a carbon dioxide offset ratio of 430g carbon dioxide per kWh of wind generation. It should be noted that future changes in the power generating mix and fuel costs in the UK over the life of the wind park means this figure may change over time.

[4] 2008 Local Authority Carbon Dioxide figures
http://www.decc.gov.uk/en/content/cms/statistics/climate_change/gg_emissions/uk_emissions/2008_local/2008_local.aspxx

Legislative Framework

1.13 The development of "installations for the harnessing of wind power for energy production" falls within Schedule 2 of the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000.

1.14 Schedule 2 developments may require an Environmental Impact Assessment where they exceed the thresholds set out in Schedule 2. In respect of the potential wind farm development the thresholds are:

The carrying out of development to provide a generating station:

i. the construction of which will require a Section 36 consent but which is not Schedule 1 development.

Public Consultation

1.15 During the preparation of the EIA, a programme of public consultation will be arranged, in line with the requirements of North Kesteven District Council Statement of Community Involvement. The purpose of this will be to inform local residents of our proposed development. It will include a range of consultation methods such as public open day at a local venue, adverts in local press and a dedicated webpage on our website (*www.ecotricity.co.uk*), along with an email address for any questions about the project. This process has already begun with a letter outlining the proposal delivered to 372 properties in the area around the site and a public meeting hosted by Heckington Parish Council. This consultation process will continue throughout the preparation process.

Policy Framework

1.16 There are currently many drivers at international, national, regional and local level for the development of renewable energy projects. Conventional generation of electricity from fossil fuels – coal, oil and gas – is the single biggest contributor of greenhouse gas emissions in the UK[5].

1.17 In July 2006 the Government published '*The Energy Challenge: Energy Review Report 2006*[6]', which renews the Government's commitment to the Renewables Obligation, the key economic driver for renewable energy. The RO has recently been extended from 2027 to 2037 in the 2008 RO Consultation. 2006 also saw the publication of the 'Stern Review: Economics of Climate Change', which highlights the global financial implications of climate change[7]. In November 2007 the Intergovernmental Panel on Climate Change (IPCC) published the '*IPCC Fourth Assessment Report: Climate Change 2007*' establishing overwhelming evidence of the link between mans activities and climate change[8]. This document emphasises the requirement to take action now on preventing further emissions of global warming gases.

[5] *DTI (2005). Renewables explained. http://www.dti.gov.uk/renewables/renew_1.1.htm*

[6] *DTI (2006) Our Energy Challenge: Securing clean, affordable energy for the long term. TSO, London.*

[7] *Stern, N. (2006) The Economics of Climate Change, Cabernet Office – HM Treasury.*

[8] *IPCC (2007). IPCC Fourth Assessment Report: Climate Change 2007. http://www.ipcc.ch/*

1.18 Current policy stresses the need to ensure a diverse portfolio of clean affordable energy for the UK for the long-term, with on-shore wind farms a key component of our future energy system. In particular, there are a range of national and regional targets for reducing greenhouse gases. National policy is likely to become further enhanced with the proposed ratification of the Climate Change and Sustainable Energy Bill which is currently with the House of Commons and the proposed PPS26 for 'Tackling Climate Change through Planning: the Governments Objectives'[9].

1.19 The UK government passed the Climate Change Act in November 2008[10] that introduced the world's first long term and legally binding framework to combat climate change. The key aims of the act are to help the transition towards a low-carbon economy in the UK, and to demonstrate UK commitment internationally, promoting global agreement.

1.20 Provisions include a legally binding target to cut greenhouse gas emissions 80% by 2050, caps on carbon emissions over five year budget periods, and a new independent body to report progress and set carbon budget levels.

1.21 The Chancellor's 2009 Treasury budget included the UK's first carbon budget, summarised in the table below[11].

Carbon Budget – Chancellor of the Exchequer's 2009 Treasury Budget

	Budget 1 (2008-2012)	Budget 2 (2013-2017)	Budget 3 (2018-2022)
Proposed budget ($MtCO_2e$)	3018	2782	2544
Annual equivalent percentage reduction below 1990 levels	22	28	34

1.22 The 80% cut in greenhouse gas emissions is greater than the previous 60% cut target derived from the 2000 Royal Commission report. In their statement to the House of Commons when introducing the legislation, the Secretary of State for the Department of Energy and Climate Change (DECC) explained that this was because independent assessment had shown that since 2000, emissions had risen faster than anticipated, and the severity of the forecasted impact of each degree of climate change was now greater.

1.23 In 2009 the Government published The UK Renewable Energy Strategy (2009) which sets out the path for meeting the carbon reduction targets agreed in the EU Renewable Energy Directive. The Strategy's lead scenario states that:

[9] *Planning Policy Statement 26: 'Tackling Climate Change Through Planning: The Government's Objectives', Discussion Document. September 2006.*

[10] *Climate Change Act 2008 - http://www.decc.gov.uk/en/content/cms/legislation/en/content/cms/legislation/cc_act_08/cc_act_08.aspx*

[11] *DECC press release 22 April 2009 http://www.decc.gov.uk/en/content/cms/news/pn047/pn047.aspx*

"by 2020 about 30% or more of all our electricity (about 117 TWh) – both centralised and small-scale generation – could come from renewable sources, compared to around 5.5% today. We expect the majority of this growth to come from wind power, through the deployment of more onshore and offshore wind turbines."[12] *(para.2.18)*

1.24 The document states that much of the renewables energy target will be from wind power. It also emphasises the need to streamline the delivery of renewable energy generation, stating:

"Our planning system must enable renewable deployment in appropriate places, at the right time, and in a way that gives business the confidence to invest. Thus we must speed up the system and make it more predictable, while ensuring that we continue to protect our environment and natural heritage and respond to the legitimate concerns of local communities." (para.3.6)

1.25 Published alongside the UK's Renewable Energy Strategy (2009) is the UK Low Carbon Transition Plan (2009). The document reiterates the pressing need to increase renewable generation within the UK to "*deliver emission cuts of 18% on 2008 levels by 2020.*"

On the 6th of July 2010 a letter from Communities and Local Government sent to Chief planning Officers of Local Planning Authorities in England formally announced the revocation of all Regional Strategies with immediate effect. Although RSS8 will no longer form part of the Development Plan in which to determine applications, the letter stated that evidence that informed the preparation of the Regional Strategies may be a material consideration depending on the specific case.

1.26 Reviewing Renewable Energy and Energy Efficiency Targets for the East Midlands (2009) provided the evidence base for draft revisions to RSS8 renewable energy targets and concludes that:

"The upper installed capacity for onshore wind is 776 MW, circa 310 2.5 MW turbines, or 31 windfarms. This capacity is twice the previous assessed potential, although is still relatively low compared with the available unconstrained wind resource. The region should aim to maximise onshore wind where possible as a key contributor to renewable energy in the region." (Executive Summary, page 4) 13

1.27 The adopted North Kesteven District Local Plan contains Renewable Energy Policy C17 covering renewable energy development proposals. The accompanying text acknowledges the vital role of increased renewable energy development to delivery of commitments on climate change.[14]

[12] *DECC (2009), The UK Renewable Energy Strategy http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/res/res.aspx*
[13] *Faber Maunsell / AECOM, Reviewing renewable energy and energy efficiency targets for the East Midlands, 12 June 2009, EMDA*
[14] *North Kesteven District Local Plan, adopted 21 September 2007.*

2. THE PROJECT

Site Description

2.1 A single farm business occupies the site, operating an arable enterprise. Land quality is shown as a mixture of Grade 1 and 2 on the provisional Agricultural Land Classification (ALC) map of England[15].

2.2 The developable area within the wind park site (the area within which the proposed turbines will be limited to) has been derived using a number of constraints. This approach assists in producing a layout which acknowledges the sensitivity of certain receptors which lie adjacent to the site.

2.3 The small scale national soils map, 'Soilscapes', shows the site within an area of loamy and clayey soils of coastal flats with naturally high groundwater.

2.4 The topography of the site is level and well drained, with a number of reens running through the site and the Head Dyke along the northern edge.

Site Selection

2.5 The appropriate siting and design of wind farms is important in terms of achieving an acceptable fit for the local environment in respect of visual and environmental issues and in order to optimise the energy generated from the turbines to ensure that they meet the overall aim of reducing carbon emissions. Ecotricity is committed to developing sites in locations which are technically feasible and where effects on the environment and nearby communities are considered to be acceptable.

2.6 The criteria considered at this early phase of the site selection process are:

- Wind speed;
- Grid connection;
- Site access;
- Availability of land;
- Residential amenity, in terms of noise and shadow flicker;
- Ecological and cultural heritage issues;
- Landscape considerations;
- Aviation and telecommunications considerations.

2.7 Preliminary studies have indicated that this potential development site meets the minimum criteria for Ecotricity to undertake further investigations into the suitability of developing the site. It is for this reason, that we are requesting a Scoping Opinion at this time.

[15] *www.magic.gov.uk*

Proposed Turbines

2.8 The potential wind park development would comprise up to 28 wind turbines on land to the north of East Heckington, as illustrated on Figure 1.

2.9 The exact turbine model has yet to be finalised at this stage. To date all Ecotricity's existing wind parks utilise Enercon wind turbines. Enercon are one of the largest manufacturers of wind turbines, the largest manufacturer in the German market and the dominant manufacturer and developer of direct drive wind turbines worldwide. For the purposes of this Scoping exercise an Enercon E-82 turbine model is used.

Subsidiary Buildings and Electrical Cabling

2.10 An electrical substation building will be required on the site to connect the wind turbines to the National Grid. This can be designed in a way that is sympathetic to the surrounding countryside and agricultural buildings.

2.11 All electrical cabling required between the substation and wind turbines will be buried underground, following the route of the turbine access tracks.

2.12 It is planned that the wind turbines will feed electricity into a new 132kV overhead line that will run south from the site to the much larger sub-station at Bicker Fen. These works will be carried out by the Distribution Network Operator (DNO) and will require a separate application through Section 37 of the Electricity Act 1989.

3. ENVIRONMENTAL IMPACT ASSESSMENT

3.1 Ecotricity's general approach to Environmental Impact Assessment is described in this section. The detailed methodologies for the various proposed technical assessments are described in Section 4.

3.2 The potential environmental effects during the construction and operational phases will be identified through this exercise and by dialogue with statutory and non-statutory consultees. The EIA will be undertaken in accordance with guidance produced by the Institute of Environmental Management & Assessment *et al*[16].

3.3 Environmental Impact Assessment is a procedure for drawing together, identifying and assessing in a systematic way, the likely significant environmental effects which may occur as a result of a development taking place. The ES will provide information to enable the Department for Energy and Climate Change (DECC) to consider the identified effects and determine the submitted Section 36 application.

3.4 Environmental Impact Assessment is not intended to be a one-off post design appraisal of the proposed development but rather is intended to be part of the project design process, informing and improving the design as the project develops. Ecotricity endorse this approach and should the proposal for the wind park at Heckington Fen be progressed, an iterative approach to layout design would be adopted with the scheme constantly under review as more information about the site is obtained.

Scoping

3.5 Scoping is an integral part of the EIA process as it seeks to focus the studies on those issues pertinent to the development.

3.6 This exercise is intended to seek agreement with key parties regarding the nature of assessments undertaken and their extent. This exercise also allows consultees to highlight any other relevant issues and provide background information which may assist with the assessment of effects.

3.7 Under the terms of the Regulations, local authorities must provide their Scoping Opinion within 5 weeks of receipt of a request.

Baseline Conditions

3.8 In order to predict the potential significant effects of the proposed wind park on the environment, it is necessary to have a full understanding of the baseline conditions at the site and wider area. Ecotricity has already started to compile information relevant to this and it will be realised through a combination of desk and field work comprising:

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[16] Institute of Environmental Management and Assessment, 2004, Guidelines for Environmental Impact Assessment, IEMA; Department of the Environment, 1995, Preparation of ESs for Planning Projects that Require Environmental Assessment: A Good Practice Guide, London, HMSO; Environmental Impact Assessment: Theory and Practice, 1994, Peter Wathern ed., Routledge, London and Guidelines for Landscape and Visual Impact Assessment, 2002, Institute of Environmental Management and Assessment and The Landscape Institute, Spon Press, London

- Consultation;
- Review of existing information and data; and,
- Field study.

3.9 This process of information gathering and review will allow sensitive receptors to be identified.

Assessment of Potential Environmental Effects

3.10 Once baseline conditions have been established for the site an assessment of potential environmental effects will be undertaken. The aim of this assessment is to establish the likely significant environmental effects of the development as required by the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000.

3.11 The detailed assessment methodology for each technical area will be clearly set out in the ES. Section 4 provides an overview of the intended approach and reference to published guidance as appropriate.

3.12 The assessment methodologies are based on the same approach of assessing the significance of the predicted effect:

- Defining the sensitivity of the receptor that will be affected by the development;
- Defining the nature of the predicted impact in terms of its duration, likelihood of occurrence and reversibility;
- Defining the magnitude of change from the baseline conditions established earlier.
- Identifying residual significant effects, following the implementation of mitigation measures.

3.13 Using published guidance where available and professional judgement where appropriate, the effects of the development will be identified as significant or not significant as required by the Regulations.

Mitigation

3.14 Mitigation is an important part of the EIA process and can comprise a variety of measures to avoid, reduce, off-set or compensate for predicted environmental effects. These measures can be embedded in the design of a project or can be incorporated through construction or operational measures.

3.15 As highlighted above, Ecotricity understands the iterative nature of wind farm design and as such most mitigation measures are incorporated at the design stage, through avoidance of impact wherever possible.

3.16 If mitigation cannot be fully achieved through the design process alone, appropriate operational mitigation will also be considered and presented within the ES.

Environmental Statement

3.17 The ES will form the written component of the EIA presenting details of the technical assessments undertaken as part of the process including illustrations where appropriate. It will include a full and detailed description of the project through the construction, operation and decommissioning phases and will be accompanied by a Non Technical Summary, as required by the Regulations.

4. TECHNICAL ENVIRONMENTAL ASSESSMENTS

4.1 This section identifies the assessments considered appropriate for the proposed development by ecotricity, and the proposed methodology for each.

Planning Policy

4.2 The ES will include a chapter which outlines the key policy drivers for renewable energy development in the District, the County, the East Midlands and nationally. This will include references to the North Kesteven District Local Plan, Planning Policy Statements and relevant regional guidance and policy.

4.3 Each technical assessment chapter will also outline relevant policy and relate it to the findings of the respective technical assessment undertaken as part of the EIA.

4.4 A Planning Statement will be prepared which will not form part of the ES. The Planning Statement will consider whether the proposed development complies with national, regional and local planning policy, and if not, whether a departure from policy is justified.

Landscape and Visual

4.5 The Landscape and Visual assessment will be undertaken by a suitably qualified Landscape Architect in order to establish the significance of the proposed development on the character of the landscape and important visual receptors such as cultural heritage resources, footpaths and residential properties.

4.6 The approach taken to landscape and visual impact assessment (LVIA) will be in accordance with the methodology set out in *Guidelines for Landscape and Visual Impact Assessment*, 2002, published by the Landscape Institute and the Institute of Environmental Assessment.

4.7 The LVIA will be informed by the use of computer generated Zones of Theoretical Visibility (ZTVs) which provide a bare ground graphic representation of the areas where the wind turbines will be visible from. We intend to include screening due to larger urban and woodland areas. The ZTV is based on land contour data and will not take account of screening by smaller areas of vegetation such as hedgerow. It represents a worst case scenario of the potential visibility of the development. The ZTV will be produced in accordance with the guidance published by Scottish Natural Heritage in *"Visual Representation of Windfarms: Good Practice Guidance"* 2006.

4.8 An initial appraisal of the landscape character and visual amenity of the study area indicates that a ZTV distance of 30km will be appropriate as the limit of the landscape and visual assessment considering the area's topography and visibility conditions.

4.9 A cumulative assessment will also be undertaken for other wind farms which are operational, have planning consent or have been registered as valid planning applications, within the vicinity of the site. This will address the guidance given by Scottish Natural Heritage in *"Cumulative Effect of Windfarms"*, Version 2 Revised,

2005. A cumulative ZTV study area limit of 60km will be applied. In other words, operational, consented or in planning wind farm sites will be considered within the cumulative assessment up to 60km from the Heckington Fen site.

4.10 The site itself does not fall within any statutory or local areas designated for landscape quality, although the landscape assessment will also take account of any impact on landscape designated areas. The site lies within the Fens, Landscape Character Assessment area.

4.11 The assessment will consider the key landscape features of the site and the landscape character of the wider receiving environment, and will determine the effect of the wind park development on each of the various landscape character areas identified in published assessments that could potentially be affected by the development.

4.12 The visual assessment of the wind park will be based on a range of representative viewpoints from within the study area including from:

- Settlements;
- Important transport routes;
- Key recreational and/or tourism resources;
- Designated landscapes;
- Gateway views and approaches to nearby settlements; and,
- other key views / areas as agreed.

4.13 The Local Planning Authority will be consulted on the selection of representative views as part of the assessment process.

4.14 Computer generated visual representations of the wind park will be used in order to assess the effect of the wind park on the selected viewpoints. This will be in the form of computer generated wirelines and photomontages prepared in accordance with *'Visual Representation of Windfarms: Good Practice Guidance, 2006*, published by Scottish Natural Heritage.

4.15 It is worth highlighting paragraph 20 of PPS22 which states:

> *"Local authorities should recognise that the impact of turbines on the landscape will vary according to the size and number of turbines and the type of landscape involved, and that these impacts may be temporary if conditions are attached to planning permissions which require the future de-commissioning of turbines."*

Ecology

4.16 The ES ecological assessment for this proposed development will be presented in its own chapter. Ornithological considerations will be considered within a separate chapter.

4.17 The proposed turbine locations are not within any international, national or locally designated areas of importance for nature conservation. The internationally designated conservation site at 'The Wash' is 15km from the wind park site. One SSSI lies approximately 10km to the south of the site.

4.18 Existing ecological records for the site and surrounding area will be obtained from the Biological Records Centre in order to refine the scope of ecological fieldwork.

4.19 An extended Phase 1 Habitat Survey will be undertaken for the proposed development area with extensive target noting to ensure that any important ecological features are recorded, although initial indications are that the site (under arable and improved pasture) is not likely to contain many features of high ecological value.

Ornithology

4.20 A review of existing records covering the site will be undertaken to inform the assessment.

4.21 Planning for Renewable Energy: A Companion Guide to PPS 22 (2004) states that:

> *"Experience indicates that bird species and their habitats are rarely affected by wind turbine developments……Evidence suggests that the risk of collision between moving turbine blades and birds is minimal both for migrating birds and for local habitats."*

4.22 An ornithology consultant has been appointed to undertake a comprehensive study of the site. Season specific monitoring, such as wintering bird surveys, breeding bird surveys and migratory bird monitoring, has been undertaken in accordance with Natural England's recommendations and as part of the site feasibility process. The results of these will be discussed with Natural England and RSPB. Any further surveys or monitoring methods which may be required will then be identified and any mitigation measures which are considered necessary will be proposed.

4.23 The identity and activity of all birds will be mapped using standard British Trust for Ornithology (BTO) codes for species and behaviour. In particular the location of individuals of the same species which can be heard or seen simultaneously will be recorded as this allows different territories to be mapped and the number of breeding territories in the survey area to be assessed. The date, visit number, observer and weather conditions during the visit will be recorded on the survey map for each visit.

Hydrology & Hydrogeology

4.24 Environment Agency online mapping shows the development site is not within a Source Protection Zone for a public water supply, and outside the extent of the extreme flood area.

4.25 The hydrology and hydrogeology assessment will involve the study of watercourses, soils and geological maps. The Environment Agency (EA), Black

Sluice Internal Drainage Board and North Kesteven District Council will be contacted to obtain further groundwater and surface water information including rainfall data, and information regarding abstractions. A detailed Flood Risk Assessment will also be carried out on the proposed site within the ES chapter, following EA guidelines and recommendations.

4.26 Based on this, the ES will assess the potential effects of the proposal on the hydrology, hydrogeology and water quality of the site and surroundings for the construction, operation and decommissioning of the project. Where potential effects are identified best practice measures will be agreed with the EA and will be adopted to minimise any effects.

Cultural Heritage

4.27 The Environmental Impact Assessment will include an assessment of the wind park on cultural heritage receptors within and around the proposed development site.

4.28 The assessment will be conducted in accordance with the relevant legislation protecting listed buildings, conservation areas and archaeological sites. Consideration will also be given to relevant archaeological and planning policy such as PPS 5: Planning for the Historic Environment.

4.29 An archaeological contractor has been appointed to undertake an extensive scoping exercise with relevant statutory bodies. They will consider both the potential direct and indirect effects of the proposed wind park on cultural heritage receptors ranging from sites of national to local significance. Cultural heritage receptors include:

- Scheduled Ancient Monuments;
- National Monuments Record sites;
- Sites of regional and local importance;
- Listed buildings;
- Conservation areas;
- Historic Battle Fields; and,
- Registered Parks and Gardens.

4.30 It is proposed that the study area will extend some 2km from the development footprint and will include a desk top review of archaeological information and a site walkover to visually inspect known features and identify the potential for the existence of previously unrecorded features of archaeological interest.

4.31 The study will also include consideration of the visibility of the wind turbines from cultural heritage receptors beyond the boundary of the application area and the consequent effect on the setting of these resources. The extent of this part of the assessment will be informed by the landscape ZTV.

4.32 Any archaeological fieldwork would be undertaken by a specialist subcontractor. The project designs would be agreed with the archaeological advisor to the local planning authority prior to the appointment of the subcontractor.

4.33 For the Cultural Heritage chapter of the ES, an assessment of significance would be made for each identified and potential historic environment resource. The potential impacts of the proposed development on these resources would be defined and assessed, and appropriate mitigation would be proposed. Residual impacts would then be assessed. The possible effects on the settings of significant cultural heritage resources would be assessed using a clearly defined methodology.

Noise

4.34 The development site is within a rural area with some background noise levels, generated from agricultural operations and the surrounding roads. In such areas background noise is often typified by transportation links and agricultural operations.

4.35 Given the likely noise characteristics of the area it will be necessary to ensure that the proposed wind turbines will not result in unacceptable increases in background noise.

4.36 The sound levels of wind turbines at high and low wind speeds can be accurately predicted and are guaranteed by the manufacturers.

4.37 A suitably qualified noise consultant will be appointed to undertake an assessment in accordance with ETSU R-97, *The Assessment and Rating of Noise from Wind Farms*[17] as advocated by PPS 22. The DTI (now BIS) re-iterated its support of the ETSU R-97 guidelines, for quantifying the potential noise impact of wind turbines, in 2006[18].

4.38 The assessment will be undertaken in consultation with an Environmental Health Officer (EHO) from the Council and will include the following:

- Identification of potential noise sensitive receptors;
- Survey of background noise levels at receptors, in tandem with wind speed monitoring at the site;
- Prediction of noise levels at each receptor;
- Assessment of compliance with ETSU R-97;
- Identification of mitigation measures, if predicted noise levels exceed the acceptable thresholds.

4.39 In order to further assess the impact of the turbines on sensitive receptors in the area, a map will be provided showing cumulative noise propagation contours. Such a map will allow the noise immissions from the turbines at various locations

[17] *ETSU-R-97 The Assessment and Rating of Noise from Wind Farms. ETSU for the Department of Trade and Industry*

[18] http://www.dti.gov.uk/energy/sources/renewables/planning/onshore_wind/noise/page18728.html

on site to be precisely predicted. If mitigation measures are necessary in order to comply with the Noise Working Group Report, a noise reduction management strategy will be detailed.

Transport and Access

4.40 The proposed wind turbines would be delivered to the site as component parts which would be abnormal loads. The proposed point of access is off the A17. A desktop analysis has already been undertaken to examine road widths to the site and concludes that no difficulties with the access to the site are expected. However, the ES will investigate the requirements on the access and transport route for this proposal.

4.41 The turbines would be transported from a nearby port via the principle roads network. The ES will investigate these potential routes and will identify the optimum route. The route will be assessed to identify any potential obstacles that are not recorded on Ordnance Survey data and a swept path analysis of any potential pinch points will be undertaken.

4.42 The proposed wind park is not itself a traffic generating use, however there will be an increase in traffic during the construction of the development. Baseline traffic count data will be obtained from the County Council for roads in the vicinity of the site which are potentially affected by construction traffic. The ES will consider the projected increase in traffic during all phases of the development against the baseline and using the Institute of Environment Management, Guidelines for the Environmental Assessment of Road Traffic and Guidance from the Highways Authority for using trunk roads for developments.

Aviation

4.43 Wind turbines, due to their nature and scale have the potential to impact upon the operation of civil and military aviation interests. The MoD, the National Air Traffic Services (NATS) and the Civil Aviation Authority (CAA) have all been consulted as part of the EIA process and their observations have influenced the locations of the turbines. Discussions are ongoing.

Miscellaneous Considerations

4.44 There are a number of other considerations which are required to be considered as part of the EIA, but which are unlikely to be identified as significant aspects. These will be grouped together in a chapter dealing with miscellaneous issues. This will include the consideration of issues such as health and safety guidance, air quality, socio-economic impacts and shadow flicker. All of which are considered in the site selection and most of which can be designed out of the wind park.

4.45 The effects of the proposed wind park on recreation and tourist resources will be assessed. This assessment will identify the key recreation and tourism resources in the area such as public rights of way and bridleways and based on existing research and knowledge will consider the potential effect of the wind park on these resources.

4.46 This assessment will also consider the effects of the development on socioeconomics, such as job creation during the construction phase, impact on local authority finances and diversification of the rural economy. The local generation of unsubsidised, market rate renewable energy for the local community will also be considered

4.47 The Companion Guide to PPS 22 Planning for Renewable Energy, Technical Annex: Wind states:

> *"Under certain combinations of geographical position and time of day, the sun may pass behind the rotor of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off; the effect is known as 'shadow flicker'. It only occurs inside buildings where the flicker appears through a narrow window opening."*

4.48 Shadow flicker is not a common occurrence and has been proven to occur only within ten rotor diameters of properties within 130 degrees either side of north[19].

4.49 There are unlikely to be any properties within this area, however an analysis of the shadow flicker effects from the turbines for residential properties in the locality will still be undertaken. Any areas that may be affected by shadow flicker will be graphically represented and the time and duration of potential shadow flicker effects will be detailed for each receptor identified. If any residential properties are found to be adversely affected, full mitigation measures will be detailed, which could involve shutting the appropriate turbine(s) down at times when shadow flicker effects occur.

4.50 A desk top assessment of safety issues associated with the proposed wind turbines will be undertaken. This will include potential risks to mechanical and electrical installations, humans and animals. Where safety risks are present mitigation measures will be identified.

4.51 Wind turbines can cause slight electromagnetic interference and as a result can have an effect on microwave telecommunication links and terrestrial TV and radio reception. Consultations have been undertaken with television and radio broadcasters, fixed link operators and mobile telephone service providers in order to ensure there are no adverse effects. Mitigation for any fixed link or mobile phone link interference is considered in full in the site design and environmental assessment.

4.52 For TV signal interference, in the unlikely event an objection is received, a mitigation scheme will be included in the ES. It should be noted that the digital switchover for the Heckington Fen region is scheduled to happen in 2011 using the existing Belmont transmitter. Digital TV reception is usually much more resistant to the effects of reflection than analogue.

4.53 The proposed development would generate electricity from a renewable source, without the release of greenhouse gases which are linked with global climate

[19] Planning for Renewable Energy: A Companion Guide to PPS22 (2004)

change. This assessment will consider the potential effect of the development on air quality based on the current situation.

4.54 Any other relevant issues raised by consultees, will be addressed as part of this assessment of miscellaneous issues.