



NUON RENEWABLES LTD
CHARWELTON WINDFARM SCOPING REPORT

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1. INTRODUCTION

1.1 General

Nuon UK Ltd ("Nuon") has identified a site to the south of Daventry, which is assessed as being potentially suitable for a windfarm development. The site is located east of Charwelton (Charwelton civil parish), south of Daventry in Northamptonshire. The site location is shown in Figure 1. In order to develop its proposals further, Nuon is intending to complete a number of technical investigations to determine whether a viable scheme can be accommodated on the site. Should a viable scheme be possible, then an application for planning consent may be submitted. It is anticipated that such an application will require an Environmental Impact Assessment under schedule 2 of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulation 1999 ("EIA Regs"). The findings of the EIA will be presented within an Environmental Statement to accompany any subsequent planning application.

Scoping is the first phase of consultation, which is designed to assist in determining the extent and scope of studies to support the EIA. The report sets out the assessment methodologies for the intended studies and invites comment upon them, in terms of content and appropriateness to the proposed scheme.

1.2 Request for Scoping Opinion

This report (and the covering letter) constitutes a formal Request for a Scoping Opinion for the proposal. This Scoping Report has been prepared by Arcus Renewable Energy Consulting Ltd ("Arcus") on behalf of Nuon.

1.3 Purpose of the Scoping Report

This Scoping Report defines the proposed structure for consultation and the approach to the EIA and the content of the ES. It presents an outline of the type of scheme that might be developed, and sets out methodologies for assessing the potential effects upon the local and wider environmental interests. Opinion is sought on the appropriateness and extent of the studies proposed.

Sections 1.4 to 1.6 of this document provide further information on the Applicant and the Assessment process.

The site boundary is shown on Figure 1. The turbine layout has not yet been finalised, and this would be likely to change as the results of the assessments become available and are fed back into the design process. A description of a typical scheme of a size that could be accommodated on this site is presented in section 2 of the report.

Section 3 of the report sets out the relevant planning background for renewable energy development. The proposed assessment methodologies for each of the technical discipline's are set out in sections 4 to 14. Where specific issues have been

determined to be insignificant or not applicable to the site and where no further assessment is proposed, this is noted in the relevant technical section.

1.4 The Applicant

Nuon UK Ltd (trading name Nuon Renewables) is the UK development subsidiary of nv Nuon. (Nuon UK Ltd is 100% owned by nv Nuon)

nv Nuon is a large power company active in the generation, marketing and distribution of electricity, gas and heat. With net turnover in 2005 in excess of €5,000 million and 9,500 employees, Nuon is a significant European utility company. nv Nuon is a market leader in the Netherlands and is recognised as one of the leading renewable energy companies in Europe.

The company is fully aware of the indispensable role that energy plays for consumers, companies and society and is committed to renewable power generation. This commitment is backed up by Nuon's ownership of wind, hydro and solar generation projects across the Netherlands, Belgium, Germany, The United Kingdom and Norway. A desire to bring sustainability and social responsibility together in the field of renewable energy is central to Nuon's activities. This means working with communities to create projects that enhance awareness and help foster new attitudes in the drive towards a better and more sustainable future.

Nuon has developed and constructed in excess of 560 MW of wind projects in Europe.

1.5 Environmental Impact Assessment

EIA is required by law for certain defined developments. For windfarms the decision on whether or not this is required has been delegated to local authorities. The EIA is an iterative process of assessment and design, whereby prediction and assessment of effects will feed back into the design of the windfarm proposal. The proposal can then be refined in order to avoid or reduce potential environmental effects.

The EIA process will give consideration to the potential for impacts to arise during:

- Construction (including temporary construction facilities);
- Operation (including any buildings or structures required during the lifetime of the windfarm, such as substation and anemometer mast); and
- Decommissioning (including any temporary facilities required).

The assessment will take the following into account, to arrive at an indication of significance (in terms of major, minor, or not significant):

- the type of effect (positive, adverse, uncertain etc.);
- the likelihood of occurrence of the effect (unlikely, likely, very likely etc.);
- the sensitivity and policy importance of the resource in question (international, national, regional and local); and
- the magnitude of the effect upon the resource (high, medium, low etc.).

The assessment will also consider whether any mitigation measures are required, and if so whether these are appropriate in scale and practicable.

1.6 Cumulative Assessment

New proposals for wind energy development have been stimulated by the policy support shown by the UK Government. At the time of writing it is known that there are other wind energy developments at various stages of development in the region. In the absence of any specific English guidance, the methodology adopted for assessing the cumulative effects of wind energy developments is in line with recent advice from Scottish Natural Heritage and the Scottish Executive Consents Unit in the form of the draft SPP6. Cumulative assessment will include all windfarms within the vicinity of the site, which are built, consented or in the planning process for which sufficient information including details of size, location and number of turbines is publicly available. Nuon will agree the extent of cumulative work relevant during consultations.

2. THE PROPOSED DEVELOPMENT

2.1 Site Description

The site is located approximately 1.5km south-east of Charwelton, 1km west of Preston Capes, and 1km north-east of Woodford Halse. The proposed area of interest covers approximately 2km². The site is owned by one landowner, and tenanted by one farmer. The site is in agricultural use. A stream drains the site and feeds into the River Cherwell which runs along the site's western boundary. The site lies within a natural "bowl", with gently rising land to the north, east and west. The location is shown in Figure 1.

2.2 Justification for the Development

In the recent Energy White Paper¹, the Government set a target of a 60% reduction in carbon dioxide emissions by 2050. On the 28th March 2006 the Climate Change Programme Review identified that the UK was unlikely to meet its targets for reducing CO₂ emissions by 20% by 2010 increasing the drive for renewable energy developments.

The Government has also set national targets for renewable energy aiming to achieve 10% of electricity produced from renewable resources by 2010 and 20% by 2020. Wind energy is seen as the most significant renewable energy source for achieving these targets in the short and medium term. Wind power does not create CO₂ emissions during its operational life and displaces other fuel sources, which generate greenhouse gas emissions.

The Draft Regional Spatial Strategy for the East Midlands (RSS8, March 2005) has set a regional target for generating a minimum of 10.6% (672MW installed capacity)

¹ White Paper: Our Energy Future – Creating a Low Carbon Economy, DTI February, 2003

of electricity from renewable sources by 2010, effectively doubling by 2020 with a target of approximately 1350MW. In *Energy Issues and the review of Regional Planning Guidance for the East Midlands* (Jan 2003) it was stated that only 1.6% of the Region's energy was generated from renewable sources.

The overall Regional target has been broken down by county and energy generation source. Northamptonshire's target for 2010 is 12MW of installed onshore wind capacity. Although Burton Wold Windfarm (approximately 30 miles to the north-east), which commenced generation in 2006, has a 20MW capacity, the Regional Spatial Strategy (section 4.3.57) makes it clear that the targets are indicative, and that "it should not be inferred that once the targets have been met within an area, that efforts should not continue to deliver additional renewable schemes".

2.3 Site Selection

The site came to Nuon's attention towards the end of 2004 as a result of a detailed study to identify potential sites within the East Midlands region.

An initial indicative design for the site has been established using a variety of standard criteria (e.g. minimum separation distances between adjacent turbines) to provide a basis for identifying the potential scope and nature of environmental effects. This initial design will be subject to revision in response to the identified environmental and technical constraints that emerge through the EIA process.

The proposal at this early stage of development envisages constructing and operating a wind farm of around five turbines and associated infrastructure including internal access roads, wind monitoring masts and a substation. The means by which the site will be connected to the transmission network has yet to be confirmed but may be by underground cable or overhead line. The environmental effects associated with the confirmed grid connection option will be considered within this assessment.

2.4 The Windfarm

The purpose of the development under consideration is the generation of clean electricity from a renewable source of energy, the wind. Although the design and layout have not been finalised (and will depend upon the results generated by the proposed assessments), this section describes the elements expected to be found in a scheme of a size which could be accommodated on this site.

The windfarm infrastructure required will include:

- In the order of five wind turbines and foundations;
- Access tracks;
- Meteorological mast;
- Control building; and
- Grid Connection (transformers, cables and substation).

2.5 Turbines

Indicative turbine details are as follows:

- | | |
|--------------------------------------|----------------|
| • Hub Height | Max 80 metres |
| • Rotor Diameter | Max 90 metres |
| • Height to blade tip | Max 120 metres |
| • Generating capacity (per turbine) | Approx. 2MW |
| • Total windfarm generation capacity | Approx. 10MW |

The final choice of turbine will be informed by the EIA process. A generic turbine specification envelope will be used for the purpose of modelling the effects on the various environmental receptors (e.g. visual amenity)

2.6 Access

The turbine components are likely to be delivered to the site using the existing road network. Use of public roads will require consultation with the appropriate bodies and an abnormal load assessment.

In terms of localised access to the site itself, it is expected that access would be taken from the A361, via the unclassified Charwelton - Preston Capes road. Existing farm access tracks would be used as far as possible to provide access to the turbines, construction compound, substation and meteorological mast. New tracks where required, would be constructed of a graded stone and be approximately 5 metres wide.

2.7 Meteorological Mast

A meteorological mast is required for power testing of the turbines and subsequently to provide a point for weather data collection, which will be integral to the running of the operational windfarm.

While the mast location is yet to be determined, it is likely to be placed on the site toward the prevailing wind and will be built to the same height as the turbine hub height. Further details will be provided within the ES.

A temporary guyed mast will be installed on-site during the EIA process (subject to planning consent) to provide details of the wind resource which will inform the final design. This mast will be removed once the windfarm becomes operational.

2.8 Grid Connection

Underground cabling, laid where possible alongside the access tracks, will link the turbine transformers to a single story control building and substation. Each turbine transformer will be located within the turbine tower.

The connection to the national grid falls under a separate consent process and will be subject to a separate environmental investigation. However, an indicative grid connection route(s) will be considered in the EIA.

2.9 Decommissioning

The windfarm will be designed with an operational life of 25 years. At the end of this period the site will be decommissioned and all equipment dismantled and removed. In principle all areas will be reinstated to a standard similar to that prior to construction. The ES will set out a detailed schedule of decommissioning works and standards.

3. REVIEW OF PLANNING POLICY

Guidance on planning policy in England is set out in the series of Planning Policy Guidelines (PPGs) and Planning Policy Statements (PPSs). These set out the framework within which local planning authorities are required to draw up their development plans and take decisions on individual applications to secure these objectives.

Government guidance on renewable energy developments is set out in PPS22: Renewable Energy (2004). The policy statement, while maintaining the usual planning controls is designed to encourage the planning system to make positive provision for renewable energy development.

Adopted and emerging policies are set out below.

3.1 Adopted Policy

The Development Policy framework for the area comprises:

- Regional Spatial Strategy for the East Midlands RSS8 (March 2005)
- Northamptonshire Structure Plan (March 2001)
- Daventry Local Plan (June 1997)

3.1.1 Regional Spatial Strategy (RSS8 March 2005)

The RSS sets out targets for renewable energy generation, broken down by county and generation type. The indicative target for onshore wind in Northamptonshire was set out in Appendix 6 as 12MW of installed capacity by 2010.

Policy 41 – Regional Priorities for Renewable Energy, states that Development Plans and forthcoming Local Development Frameworks should “*include policies to promote the delivery of the indicative targets for renewable energy set out in Appendix 6.*” The policy states that new development policies should be “*supportive of renewable energy proposals in locations where environmental, economic and social impacts can be satisfactorily addressed.*” The policy goes on to state that in establishing criteria for onshore wind development, Development Plans and Frameworks should give consideration to:

- “*landscape and visual impacts, informed by Local Character Assessments;*
- “*the effect on the natural and cultural environment (including biodiversity and the setting of historic assets);*

- *the effect on the built environment (including noise and intrusion);*
- *the number and size of turbines proposed;*
- *the cumulative impact of wind generation projects, including intervisibility;*
- *the contribution of wind energy projects to the regional renewables target;*
and
- *the contribution of wind generation projects to national and international environmental objectives on climate change.”*

In section 4.3.57 of the RSS, it is stated that the targets set out in Appendix 6 are indicative, and that “it should not be inferred that once the targets have been met within an area, that efforts should not continue to deliver additional renewable schemes”.

3.1.2 Northamptonshire County Structure Plan (Adopted 2001)

The relevant renewable energy policy is **EN1 Renewable Energy**. This policy encourages renewable energy developments, provided they cause no harm to “interests of acknowledged importance”. It recognises that the resources must be accessed where they are found. Paragraph 18.3 encourages Local Authorities to take a positive attitude to renewable energy in the development of planning policy and in the determination of applications, with appropriate measures to minimise impacts on local environments and impact.

The policy also says that Local Authorities, in assessing proposals and taking into account the location where the resource occurs, should take regard of the following criteria:

- *“The immediate and wider impacts of the proposed development on the environment and local amenity;*
- *The measures that will be taken, both in and after construction, to minimise the impact on the environment and local amenity; and*
- *The local and wider benefits that the proposal will bring”.*

3.1.3 Daventry District Council Local Plan (June 1997)

The Local Plan has no specific policy on renewable energy, and no supplementary guidance has been produced relating to this subject.

Other relevant policies include EN1 which deals with development within a Special Landscape Area, EN2 (and following) deals with Conservation Areas, EN6 (and following) deals with Listed Buildings, EN15 (and following) deals with Archaeology and EN24 which deals with development affecting Historic Park and Gardens.

3.2 Emerging Policy

3.2.1 Daventry District Local Development Framework

The Draft Development Control Policies are in preparation, but no options have been published, nor scoping undertaken. The Core Strategy will be developed as a West Northamptonshire Strategy, in common with Northampton Borough Council and

South Northamptonshire Councils. None of the documents issued for consultation in 2005 make specific mention of renewable energy. Submission documents are not yet available.

3.2.2 Additional guidance and policy

There is no specific Supplementary Planning Guidance for wind farm development relevant to the application area.

“Energy Issues and the review of Regional Planning Guidance for the East Midlands” (January 2003, prepared for the East Midlands Regional Assembly Energy Task Group) has provided a diagram (Figure 7.1) highlighting what may be acceptable development zones for onshore windfarms. This suggests that the Leicestershire and Northamptonshire Vales and Uplands character areas, in which the Charwelton site is located, may be suitable landscapes for onshore wind energy developments.

4. LANDSCAPE AND VISUAL

Landscape and visual effects are one of the key environmental issues associated with windfarm development and their assessment forms a central component of the ES. Whilst utilising related information, the landscape assessment will be treated as two separate (but related) assessments for the purpose of the EIA, as recommended by the Landscape Institute. It is the combined assessment which is referred to as the Landscape and Visual Assessment (LVIA).

- Landscape effects relate to the effects of the proposal on the physical and other characteristics of the landscape and its resulting character and quality; and
- Visual effects relate to the effects of the proposal on views experienced by visual receptors (e.g. residents, footpath users, tourists etc.) and on the visual amenity experienced by those people.

A windfarm would add an additional visible landscape component within the general area. The significance of this will vary according to the distance from which it is observed and the character of the landscape.

The study area for the landscape and visual assessment will be taken to be 30km radius from the site in all directions unless otherwise agreed with the local planning authority during the consultation process. Research suggests that beyond 30km from a windfarm site the limit of the human eye’s ability to identify turbines is being reached.

The LVIA will follow an established procedure for determining impact significance. The sensitivity of the baseline landscape resource and visual amenity will be determined and cross-referenced against the magnitude of change caused by the development.

The site lies within a Special Landscape Area, and is part of the Northamptonshire Uplands Regional Character Area, which as indicated in the previous section, may be

a suitable area for onshore wind energy development. The eastern edge of the Cotswold AONB lies approximately 15 km to the south-west of the site, and parts will fall within the indicative Zone of Theoretical Visibility.

4.1 Landscape Methodology

The appointed LVIA specialists will examine baseline conditions of the landscape character without the windfarm, for present and likely future situations. Key characteristics of a landscape character are defined as those physical, ecological and aesthetic components that combine to make a distinct landscape type.

The assessment of effect entails the identification of:

- Landform and composition including type and rate of change;
- Landscape character areas which would experience change as a result of the proposed windfarm;
- Nature of these changes to landscape character areas;
- Extent to which identified key characteristics of the affected landscape character areas would be changed;
- Extent to which the overall landscape resource would be changed;
- Effect on local communities;
- Effect on transport routes; and
- Effect on landscape and historic designations.

4.2 Visual Methodology

Through the production and review of Zones of Theoretical Visibility (ZTV), the theoretical geographical extent of visibility will be established at hub and blade tip heights. This will help identify sensitive visual receptors in the surrounding area.

Due to the extent of the ZTV, a series of representative viewpoints will therefore be agreed with the appropriate local authorities and other relevant stakeholders. These viewpoints will represent different visual receptor types (e.g. observers from residential properties, footpaths, roads, tourist attractions etc.) and also at different distances and directions from the scheme.

The exact number of viewpoints that will be used will be determined in consultation with the local authority as part of the scoping process. Of these, a number will be selected to be developed into photomontages with the remainder depicted as wireline diagrams. Initial viewpoint suggestions are made in the following section.

4.3 Identification of Key Viewpoints

The following list identifies a number of suggested viewpoints (see Figure 2) to inform the assessment. These have been selected as locations where people live, transport corridors such as roads or public rights of way, or designated landscapes. The exact location and number of viewpoints will be agreed with Daventry District Council.

- | | | |
|---|--------------------------------|------------------------------------|
| 1 | Jurassic Way, Charwelton Lodge | Amenity Long distance Footpath |
| 2 | Canons Ashby Priory | SAM and Registered Historic Garden |

3	Fawsley Hall,	Registered Historic Garden
4	Edgehill, Ratley	Cotswold AONB
5	A361 Byfield	Transport Corridor
6	A5 Pattishall	Transport Corridor
7	A43 Siverstone	Transport Corridor
8	Arbury Hill	Landmark
9	Newnham	Nene Valley
10	Oxford Canal, Claydon	Amenity/Transport

4.4 Cumulative Assessment

The cumulative assessment will cover all windfarms within 30km of the site, which are built, consented, or in the planning process for which sufficient information including details of the size, location and number of turbine is publicly available. The windfarms and windfarm proposals to be considered during the assessment will be agreed during the Scoping process.

A series of cumulative visibility maps will be prepared to show the effect of the cumulative visibility of different windfarms in combination. The overlap of areas of cumulative visibility will highlight potential adverse effects on receptors. The effects will be further explored through viewpoint assessments which will be summarised and evaluated by receptor groups.

5. ECOLOGY

Wind farms can affect habitats and species directly, for example through habitat loss or indirectly, for example through disturbance. From a review of available published data (Natural England, Local Authority) there are none of the following land designations:

- National Nature Reserves within the site or its immediate vicinity; or
- Special Areas of Conservation or Special Protection areas either within the site or its immediate surroundings.

It is noted that there are four SSSI within 5km of the site.

Table 2: SSSI within 5km of Site Centre

SSSI Name	Approx. Distance & Direction
Everdon Stubbs	4.8km NE
Badby Wood	4.7km N
Mantles Heath	4km E
High Wood and Meadow	3km E

The ecological assessment will establish the effects of the proposals on ecological and nature conservation interests. It will take account of the Council Directive 97/62/EC on the conservation of natural habitats and of wild flora and fauna (the Habitats Directive) and the Protection of Badgers Act 1992. Reference will also be made to Local Biodiversity Action Plans.

An extended Phase 1 Habitat survey of the site will be carried out, augmented by detailed target notes of features of ecological importance, including any mammal field signs. Where appropriate any National Vegetation Classification (NVC) data supplied by Natural England will be used. If this is not available semi-natural communities of conservation importance will be mapped to NVC standard. The EIA will also take into account existing information relating to the ecological designations and protected species that may be found in the area, either year round or seasonally. Consultation will be carried out with Natural England to agree the methodology and report findings.

A series of site walkovers will establish the presence or absence of protected mammals using standard methodology agreed with Natural England and the effects assessed using the Institute of Ecology and Environmental Management's Guidelines for Ecological Impact Assessment, Final Draft published in February 2006.

The results of these baseline surveys will be used to inform an ecological constraints plan and the site design.

6. ORNITHOLOGY

The Royal Society for the Protection of Birds considers climate change to be the greatest threat to bird life and therefore supports the development of wind farms in appropriate locations. They state that the available evidence shows that appropriately located wind farms do not pose a significant hazard for birds (Wind farms and birds leaflet, RSPB 2005). Poorly sited wind farms can have adverse impacts on birds as a result of disturbance, habitat loss/damage or collision with the turbines and the potential for this is analysed through a rigorous programme of survey and assessment.

Ornithological surveys will commence in 2007. The methodology to be adopted and agreed comprises consultation, desk based study and on site survey work. The winter bird survey and the breeding bird survey will be carried out following the Common Bird Census techniques, involving the registration and territory mapping as per Bibby et al 2000 and site walkovers in accordance with the Brown and Shepherd method. In addition vantage point watches will be carried out for a minimum of six hours per months at two locations to ensure coverage over the site.

Collection of the baseline bird data will be undertaken in 2007, and data collected will be used to inform a constraints plan used in the design and layout of the development. The objective of this is to build in mitigation of ornithological effects into the layout of the windfarm.

Collision risk modelling will follow the method presented by Band et al in their work "*Developing field and analytical methods to assess avian collision risk at windfarms*". This information will allow an accurate and standardised assessment of the impacts of the development on ornithological interests.

7. HYDROLOGY AND HYDROGEOLOGY

A hydro-geological survey will be undertaken in order to establish the baseline conditions and assess the potential effects of the development, significance and the potential for mitigation.

One (ditched) stream runs across the site to feed into the River Cherwell which runs along the south-western boundary of the site. The headwaters of the Cherwell/Thames system (the Upper Thames Tributaries) are classified as an Environmentally Sensitive Area running south from Woodford Halse (approximately 2km from the site).

Surveys will include an appraisal of ground conditions at the site, a survey of downstream hydrological processes, a record search and a desktop study. They will cover geology, hydrogeology, aquifer classification and vulnerability, water quality, rivers and river classification and surface deposits.

Efforts will also be made to identify and assess the potential risk to any private water supplies and any known fisheries resources.

Appropriate maps and existing records will be referenced including for example the BGS website Geoscience Data Index, the Hydrogeological Map of England, and groundwater vulnerability maps. The Environment Agency, the local authority, and United Utilities will also be contacted to obtain further surface and groundwater data. If necessary, field surveys or flow measurements will be undertaken.

8. CULTURAL HERITAGE AND ARCHAEOLOGY

Initial information relating to cultural heritage and archaeology has been gathered through a preliminary desktop search to identify potential features of interest. No part of the site lies within or contains, either in whole or in part, any Scheduled Ancient Monuments, listed buildings or Registered Historic Parks and Gardens.

For the purposes of the assessment cultural heritage interests are deemed to include both above ground (the built heritage) and below ground remains. The assessment will consider both direct and indirect (largely visual) effects upon the following cultural heritage receptors:

- Archaeology – above and below ground, designated or not. Consideration will be given to the potential for currently unknown (buried) archaeological remains to exist within the site; and
- Listed buildings, Conservation Areas, Historic Parks and Gardens, Registered Battlefields and hedgerows that may qualify as historically important under the Hedgerow Regulations.

Data will be gathered from the following sources:

- The County Sites and Monuments Record;
- Aerial records of known sites and monuments;
- OS 1st Edition 6" map coverage;
- Aerial photographs and other cartographic information on pre-recent land uses;
- National Monuments Record;
- County Record Office; and
- Local Studies libraries and other archives as appropriate.

The study area will extend to 15km around the site (to ensure potential visual effects are adequately considered). There are 51 Scheduled Ancient Monument records within 15km, representing all periods.

Table 3: Scheduled Ancient Monuments Within 5km of Site Centre

Scheduled Ancient Monuments	Approx. Distance & Direction	Monument No.
Preston Capes Motte and Bailey Castle	1.5km ENE	13635
Canons Ashby Monastery, Castle and settlement etc.	3.5km SW	13643
Charwelton Bridge	2.5km WNW	NN6
Dower House, Fawsley Park	3.5km N	NN66
Moated Monastic Retreat, Manorial Courthouse, Badby	5km N	17152
Byfield Market Cross	2.5km SW	29702

In addition there are two Registered Historic Parks and Gardens within 5km of the site. These are Fawsley Hall and Canons Ashby, both registered at Grade II*. There is one Registered Battlefield, Cropredy Bridge (1644), approximately 11km to the south-west of the site.

The desktop survey will be augmented by a walkover survey to provide information on the archaeological potential of the area, and to validate the documentary evidence. This fieldwork will be conducted to:

- Assess and validate documentary data collected;
- Identify the extent and condition of any visible archaeological monuments; and
- Determine whether previously unrecorded historic features are visible.

Any indirect effects are likely to consist of changes to the setting of historic features. This assessment will be made against a Zone of Theoretical Visibility.

The assessment will be supported by presentation of the data in assessment tables, with a gazetteer and location plan. The detailed data gathering and walkover survey

results will be the subject of a Technical Report in the form of Desk Based Assessment and will be provided as an appendix to the ES.

9. NOISE

Sources of noise during operation of a wind turbine are mechanical (from machinery housed within the turbine nacelle) and aerodynamic (the swish of the blades through the air). Modern turbines are designed to minimise mechanical and aerodynamic noise.

Noise will be assessed in consultation with Daventry District Council's Environmental Health Department. The assessment methodology for operational noise is described in ETSU-R-97 "*The Assessment and Rating of Noise from Windfarms*". Relevant guidelines will be reviewed in the ES but, in summary, these provide recommendations for noise limits relating to the existing levels of background noise for quiet daytime and night-time periods.

A baseline noise survey will be carried out at properties situated close to the site. Suitable locations will be selected by identifying those that are likely to be subject to a noise level in excess of the minimum limit specified in ETSU-R-97, 35 dB(A) ($LA_{90,10min}$), and in consultation with Daventry District Council's Environmental Health Department. The following list of noise monitoring is suggested:

- Hollingwood House;
- Foxhill Farm;
- Rectory Farm,
- Redhouse farm; and
- Preston Fields Farm.

An assessment methodology for noise from construction work is described in BS5288. Principal noise sources during construction include track laying, excavation works and turbine foundation works.

The proposed windfarm design will be modelled to ensure that predicted sound pressure levels are within statutory limits.

Noise during construction can be managed through specifying working hours and equipment, defining (and minimising) access routes and as far as possible minimising traffic levels.

No assessment of operational traffic noise is anticipated given the low number of journeys to and on the site for routine maintenance.

10. EXISTING INFRASTRUCTURE

Windfarms have the potential to interfere with electro-magnetic signals passing above ground or existing infrastructure below ground. Consultation with relevant infrastructure providers is therefore a routine part of windfarm development. The

potential for effects at Coventry Airport will be examined. No other aviation (and MOD) issues are anticipated. In addition, there is potential for a number of microwave and other communication links to be affected by the proposal.

Consultees include:

- Civil Aviation Authority;
- Ministry of Defence;
- Television and telecommunications providers; and
- Water, gas and electricity utilities.

A list of all those who are included are provided in Appendix B.

11. SHADOW FLICKER AND REFLECTIVITY

Reflectivity is simply the potential for the sun to 'glint' off structures, which in the case of wind turbines can be an intermittent glint when the turbines are rotating.

Guidance presented within the Companion Guide to PPS22 describes shadow flicker as an effect that 'under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off. It only occurs inside buildings where the flicker appears through a narrow window opening'.

In line with government guidance any potential shadow flicker effects will be quantified using a computer model during the EIA process and mitigated accordingly.

12. SOCIO-ECONOMICS

A socio-economic assessment will address both direct and indirect effects. Baseline information will be used to determine socio-economic and visitor profiles, land-use and ownership and public attitudes. This baseline can then be compared against published information into the perception of wind turbines.

In respect of recreation and access, consultations will take place to assess the effects on users of the public rights of way. This will include consultations with organisations such as the British Horse Society, the Ramblers Association, and relevant local groups. It is noted that the Jurassic Way long distance path runs approximately 1km to the west of the site.

13. TRAFFIC AND TRANSPORT

Access to the site is somewhat dependent on the point of origin of the turbine components. It is likely that access to site will be from the A361, and along the unclassified Charwelton to Preston Capes road.

The EIA will include consultation with the Highways Agency and the Highways Departments of the appropriate local authority to ensure that there are no low bridges or weight restrictions on this route. Pinch point analysis will also be carried out during the Environmental Impact Assessment (EIA) process.

Methodology will follow the Institute of Environmental Assessment's (IEA) Guidelines for the Environmental Impact of Road Traffic. Site visits will be undertaken to inspect existing access and the local road network subject to a screening process outlined by the rules in the IEA guidelines:

- Include highway links where traffic will increase by more than 30% (or where the number of Heavy Goods Vehicles will increase more than 30%); and
- Include any other specifically sensitive areas where traffic flows have increased by 10% or more.

Peak traffic flows will be identified to establish a worst case scenario. Subject to the completion of this assessment, further consultation will be carried out with the Highways Authority and other relevant bodies.

Traffic during the operational phase of a windfarm is usually limited to routine maintenance. Numbers of journeys are expected to be very low, and no further assessment for this will be undertaken.

Assessment of effects will be based on collection of baseline data, the proposed access routes and calculation of increased road traffic whilst identifying receptors and their sensitivity.

14. AIR AND CLIMATE

Recent policy changes have brought the issue of climate change to the forefront of the political agenda. A windfarm has the potential to make savings on greenhouse gas emissions. The Environmental Impact Assessment will consider the current electricity generation mix and assess the level of savings that could be made.

It is estimated that a windfarm of the size proposed (based on 5 turbines and a 10MW output) would result in emission savings (compared to fossil-fuel generation) of approximately 22,600 tonnes of carbon dioxide, 263 tonnes of sulphur dioxide and 79 tonnes of nitrogen oxides for each year of the windfarm's operational life.

Potential impacts on air quality from dust etc. during construction and decommissioning will be addressed through standard mitigation techniques, to be agreed as part of a construction environmental management plan. No further specific assessment is proposed. No adverse air quality impacts are anticipated from the operation of the windfarm.

15. PUBLIC CONSULTATION

The Request for Scoping Opinion is the first formal part of the public consultation exercise. It is focussed on framing the scope and extent of studies needed as part of an Environmental Impact Assessment. The results of which will be presented in an Environmental Statement in support of any application that may be made. As part of this process Nuon welcomes comment on the content of the Scoping Report, the assessment methodologies proposed, whether additional data sources should be accessed, and whether additional bodies or organisations should be consulted during the EIA process.

Nuon is committed to working with the local communities and aims to ensure that they are consulted and informed of developments during the EIA process, through public exhibitions, meetings and circulars. Public consultation will be incorporated into appropriate sections of the ES.

Nuon welcomes comments from the community and other stakeholders on ways that they would prefer to be consulted.

All responses should be addressed to:

Arcus Renewable Energy Consulting Ltd
Prospect Park
Thirsk Road
Easingwold
YO61 3HL

If you wish to discuss matters in this report in more detail please do not hesitate to contact Mark Turner at the above address.

APPENDIX A - FIGURES

APPENDIX B - LIST OF CONSULTEES

- BBC Research and Development
- British Horse Society
- British Telecommunications
- Cable and Wireless
- Charwelton Parish Meeting
- Civil Aviation Authority
- CNS Systems
- Crown Castle
- Daventry District Council
- English Heritage
- Environment Agency
- Garden History Society
- Highways Agency
- Hutchison 3G UK Ltd
- ITC Office of Communications (OFCOM)
- Joint Radio Company
- Ministry of Defence
- MLL Telecom
- National Grid Transco
- National Trust
- Natural England
- Northamptonshire County Council
- Northamptonshire Wildlife Trust
- ntl
- O2
- Orange PCS Ltd
- Ramblers Association
- Royal Society for the Protection of Birds (RSPB)
- Sustrans
- T Mobile
- United Utilities
- Vodafone, Technology Operations

The above list shows the bodies and organisations to be consulted, or from whom data will be sought, during the preparation of the Environmental Statement. The list is not definitive, should you be aware of any other organisations that would like to be included please advise the project team.