

<b>APPLICATION NO</b>	<b>WF/2008/0900</b>
<b>APPLICANT</b>	Grange Wind Farm Ltd
<b>DEVELOPMENT</b>	Planning permission to site 7 wind turbines and associated hardstandings, tracks, anemometry mast, switchgear house and underground cables
<b>LOCATION</b>	Land adjacent to Flixborough Grange Farmhouse, Burton-upon-Stather
<b>PARISH</b>	<b>FLIXBOROUGH</b>
<b>WARD</b>	Burton Stather and Winterton
<b>SUMMARY RECOMMENDATION</b>	<b>Grant permission subject to conditions</b>
<b>REASONS FOR REFERENCE TO COMMITTEE</b>	Officer discretion  Objections by Burton-upon-Stather and Flixborough Parish Councils  Significant public interest
<b>BACKGROUND</b>	This application was received as valid during June 2008 and proposes the construction of seven wind turbines with associated foundations, crane hardstandings, site entrance, internal access tracks, underground cable network, temporary construction compound, switchgear house and wind monitoring mast on a site located to the north of Flixborough Stather industrial estate on land that is currently in agricultural use and is approximately 6 kilometres north-west of the centre of Scunthorpe, 1.5 kilometres north-west of Flixborough village and 1.5 kilometres south-west of the village of Burton-upon-Stather. The village of Amcotts is to the south-west of the application site approximately 1.5-2 kilometres away and is on the western bank of the River Trent. The site itself has one property within it – Flixborough Grange – that is owned by the owner of the land upon which the wind turbine development is proposed to be located. Each turbine would have a rated capacity of 2 megawatts and therefore the installed capacity of the array is 14 megawatts. Each turbine would have a maximum height of up to 126 metres to the blade tip with a maximum tower height of approximately 80 metres giving a blade diameter of approximately 92 metres.

At 14 megawatts installed capacity the development is well below that required by BERR (the department for Business Enterprise and Regulatory Reform) to determine the application and therefore the decision in respect of whether this development is acceptable or not lies with the local planning authority.

The Government has set targets to generate 10% of the UK's electricity from renewable energy sources by 2010 followed by 15% in 2015 and 20% by 2020. This is in addition to cutting carbon dioxide emissions by 60% by 2050. To achieve this Planning Policy Statement (PPS) 22 (Renewable Energy) has been published which requires the planning system to actively promote renewable energy development. PPS 22 also provides detailed guidance for the consideration of renewable energy planning applications. Since the publication of PPS 22 regional planning guidance for Yorkshire and the Humber has set challenging renewable energy targets for the Humber and other sub-regions. The 2010 target for the Humber is set at 146 megawatts.

The design life of the development is 25 years from when it first produces electricity at which time a decision to refurbish, remove or replace the turbines will be taken. If the turbines are to be removed the land will be reinstated to agricultural use.

In order to appraise the Planning Committee of all relevant facts, a significant number of consultations have been carried out, receipt of the application has been advertised in the local press and site notices posted, and a number of individual letters have been sent out to those properties which are closest to the application site. This methodology of public consultation is in line with the council's policy on such matters and is considered to be appropriate and adequate. It must be noted at this time that many residents, particularly of Burton-upon-Stather feel that the whole village should have been sent individual letters but, because of the cost and logistical problems of such an exercise, this has been considered unnecessary. During the consultation exercise a significant number of responses have been received, some from those consultees that the council would normally consult on an application of this type, some of which are statutory and others which are not, and also about 650 letters of representation have been received. These letters of representation are made up of individual letters, emails and indeed a petition from a pressure group set up locally known as Burton Against Turbines

(BATs) and from interrogating these letters, emails and the petition, it appears that a significant number of the signatories are duplication. Nevertheless the consultation exercise has received a large response.

Because of the length of this report and the complex assessments that need to be made, the report takes a slightly different approach and format from normal Planning Committee reports.

The application is accompanied by a full environmental impact assessment and this has been available for people to view both in the Planning office and also on the council's website since the application was received.

All responses need to be considered against and in the light of national, regional and local policies, guidance and advice.

**NATIONAL,  
REGIONAL AND  
LOCAL POLICY  
GUIDANCE AND  
ADVICE**

**PPS 1 (Planning and Climate Change), Supplement to PPS 1:** PPSs set out the Government's national policies on different aspects of spatial planning in England. PPS 1 sets out the overarching planning policies on the delivery of sustainable development through the planning system.

The PPS on climate change supplements PPS 1 by setting out how planning should contribute to reducing emissions and stabilising climate change and take into account the unavoidable consequences. It does not seek to assemble all national planning policy relevant or applicable to climate change and should be read alongside the national PPS series. Where there is any difference in emphasis on climate change between the policies in this PPS and others in the national series, this is intentional and this PPS takes precedence.

Section 19 refers to the preparation of local development documents (LDDs), and councillors will be aware of the status of the council's Local Development Framework (LDF) at the present time, which is that it is not a material planning consideration, yet nevertheless Members need to be aware that in respect of renewable and low-carbon energy generation, of which wind energy is clearly one, the PPS says, 'In developing their core strategy and supporting local development documents, planning authorities should provide a framework that promotes and encourages renewable and low-carbon energy generation. Policies should be designed to promote and not restrict renewable and low-carbon energy and supporting infrastructure. In particular, planning authorities should:

- not require applicants for energy development to demonstrate either the overall need for renewable energy and its distribution nor question the energy justification for why a proposal for such development must be sited in a particular location;
- ensure any local approach to protecting landscape and townscape is consistent with PPS 22 and does not preclude the supply of any type of renewable energy other than in the most exceptional circumstances;
- alongside any criteria-based policy developed in line with PPS 22, consider identifying areas suitable for renewable and low-carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources, but in doing so take care to avoid stifling innovation including by rejecting proposals solely because they are outside areas identified for energy generation;
- expect a proportion of the energy supply of new development to be secured from decentralised and renewable or low-carbon energy sources.

As has been said earlier in this particular paragraph, North Lincolnshire Council's LDF at the moment is not a material consideration but PPS 1, particularly this Supplement to PPS 1 on Planning and Climate Change, is a material change and clearly, in those few paragraphs detailed above, emphasises the Government's intention for encouraging renewable energy generation sources.

**PPS 22 (Renewable Energy – 2004):** The Government published a revised PPS on renewable energy in 2004, together with a companion guide which sets out practical advice on how policies for renewable energy can be implemented. These documents reinforce the overall regional role for renewable energy in helping to deliver national energy targets for energy generation and reductions in greenhouse gas emissions.

**Renewable Energy Assessment Study:** In 2002 the Government Office for Yorkshire and the Humber (GOYH) appointed consultants to undertake an assessment of the region's capacity to generate electricity from renewable sources and to set regional and sub-regional targets for renewable energy generation to 2010 and 2021.

This two volume report, setting out targets of 674 megawatts by 2010 and 850 megawatts by 2021 was published in the summer of 2002. The report formed a major part of the review of regional planning guidance, which was subsequently published as the Regional Spatial Strategy (RSS) in December 2004.

**Sub-regional Renewable Energy Assessment Study:**

Following general agreement within the region on the need for further work to develop those renewable energy targets, GOYH appointed consultants in late 2003. In discussion with local authorities they would review and develop those regional and sub-regional targets down to individual authority level, together with assessments of the possible broad composition of those targets. The study outputs were intended to help the next review of RSS, help local authorities preparing local plans, and assist in determining future planning applications. The study was completed in late 2004. It reaffirms the targets identified within the original study and sets possible individual authority contributions for the delivery of those regional targets for both 2010 and 2021.

**Guidance for local authorities on taking forward renewable energy development:**

This guidance covers a broad range of forms of renewable energy sources and issues relevant to local planning and the development decision-making process. The issues discussed relate to:

- background to renewable energy
- renewable energy in practice, including local impacts, site selection factors, good practice for consultation in case studies
- planning for key technologies and approaches to consultations in local plans and applications

The Government's energy policy, including its policy on renewable energy, is set out in the Energy White Paper<sup>1</sup>. Through various iterations this White Paper and its principles have been enshrined by, in November 2008, the Energy Act being given Royal Assent.

Government policy aims to put the UK on a path to cut its carbon dioxide emissions by some 60% by 2050, with real progress by 2020, and to maintain reliable and competitive energy supplies.

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<sup>1</sup> 'Our energy future – creating a low-carbon economy', CM5761, February 2003

Increased development of renewable energy sources is vital to facilitate the development of the Government's commitments to both climate change and renewable energy. Positive planning which facilitates renewable energy developments can contribute to all four elements of the Government's sustainable development strategy:

- social progress which recognises the needs of everyone – by contributing to the nation's energy needs, ensuring all homes are adequately and affordably heated, and providing new sources of energy in remote areas
- effective protection of the environment – by reductions in emissions of greenhouse gases and thereby reducing the potential for the environment to be affected by climate change
- prudent use of natural resources – by reducing the nation's reliance on ever diminishing supplies of fossil fuels and
- maintenance of high and stable levels of economic growth and employment – through the creation of jobs directly related to renewable energy developments, but also in the development of new technologies. In rural areas renewable energy projects have the potential to play an increasingly important role in the diversification of rural economies

Regional planning bodies and local planning authorities should adhere to the following key principles in their approach to planning for renewable energy:

- Renewable energy developments should be capable of being accommodated throughout England in locations where the technology is viable and environmentally economic and social impacts can be addressed satisfactorily.
- Regional spatial strategies and local development documents should contain policies designed to promote and encourage, rather than restrict, the development of renewable energy sources. Regional planning bodies and local planning authorities should recognise the full range of renewable energy sources, their differing characteristics, locational requirements and the potential for exploiting them to appropriate environmental safeguards.

- At local level planning authorities should set out the criteria that will be applied for assessing applications for planning permission for renewable energy projects. Planning policies that rule out or place constraints on the development of all or specific types of renewable energy technologies should not be included in regional spatial strategies or local development documents without sufficient reasoned justification. The Government may intervene in the plan-making process where it considers that the constraints being proposed by local authorities are too great or have been poorly justified.
- The wider environmental and economic benefits of all proposals for renewable energy projects, whatever their scale, are material considerations which should be given significant weight in determining whether proposals should be granted planning permission.
- Regional planning bodies and local planning authorities should not make assumptions about the technical and commercial feasibility of renewable energy projects (eg identifying generalised locations for development based on mean wind speeds). Technological change can mean that sites currently excluded as locations for particular types of renewable energy development may in future be suitable.
- Small-scale projects can provide a limited but valuable contribution to overall outputs of renewable energy and to meeting energy needs, both locally and nationally. Planning authorities should not therefore reject planning applications simply because the level of output is small. Local planning authorities, regional stakeholders and local strategic partnerships should foster community involvement in renewable energy projects and seek to promote knowledge of and greater acceptance by the public of prospective renewable energy developments that are appropriately located. Developers of renewable energy projects should engage in active consultation and discussion with local communities at an early stage in the planning process, and before any planning application is formally submitted.
- Development proposals should demonstrate any environmental, economic and social benefits as well as how any environmental and social impacts have been minimised through careful consideration of location, scale, design and other measures.

Continuing, PPS 22 sets out the principles for regional targets, policies in regional spatial strategies and local development documents, locational considerations and a range of other considerations relating to scale, landscape and visual effects, noise, odour and types of renewable energy, eg biomass and energy crops, and wind turbines.

**The Yorkshire and Humber Plan – Regional Spatial Strategy to 2026:** As mentioned above, the Government has set a renewable energy target for Yorkshire and the Humber region. The GOYH commissioned AEA Technology and Terence O'Rourke in 2004 to undertake an assessment of renewable energy potential, targets for renewable energy across Yorkshire and the Humber and an action plan for implementation. The study took into account local constraints while developing targets. This will provide the framework for local authorities in the region to promote renewable energy policies to meet targets and develop robust development control policies that also take account of local opportunities and constraints. Further work has set indicative targets at the local authority level and the council will adopt those targets as its contribution towards wind energy development within the region.

Should North Lincolnshire meet its 2010 renewable energy target early, the council will review the need for increasing this target in further guidance. This takes account of the provisions in PPS 22 which say that when targets are reached revisions should be made to them of an upwards nature and just because a target has been reached this should not, in itself, be a reason for withholding permission.

At the moment, with the granting by the Secretary of State of the wind farm west of Keadby between Keadby and Crowle for 34 turbines, together with the three turbines within the Tween Bridge approval close to Thorne which lie within North Lincolnshire, taken together with the under-construction wind farm at Bagmoor north-east of Scunthorpe, North Lincolnshire Council, in terms of permissions granted, has already exceeded its 2010 and 2020 target.

Any future targets will take account of the most appropriate and suitable forms of renewable energy available and have regard to the progress that other local authorities have made in reaching their targets within the region. Relevant policies in the RSS are as follows. In Section 2 (Spatial vision and core approach), in Table 2.1 (Spatial vision and headline outcomes), at outcome 7 it

says, 'Environmental quality has been raised, resource demands from development minimised, and the region is responding proactively to the global and local effects of climate change' and the headline indicators for this statement quote the installed renewable energy capacity as being crucial.

Policy YH3 (Working together) states that plans, strategies, investment decisions and programmes should be based on:

- (a) effective collaboration between areas within the region, particularly to, at point 6, 'achieve effective environmental management and enhancement and address climate change'.

Table 2.2 (Delivering the core approach over 15-20 years) – this section of the strategy deals with early, mid and later year strategies for the overall strategy of the plan, housing, economy, and the environment together with transport. In the environment section, in the early years of this 15-20 year scale, it is quoted as a bullet point that increased generation of renewable energy, but mostly from wind turbines, will be a major player in delivering the core approach of the plan in its early years. In mid and later years additional contributions from biomass and photovoltaics will supplement and help the wind generation facilities.

ENV5 (Energy) – 'The region will maximise improvements to energy efficiency by increases in renewable energy capacity. Plans, strategies, investments, decisions and programmes should:

- (a) reduce greenhouse gas emissions, improve energy efficiency and maximise the efficient use of power sources by:
  - (i) requiring the orientation and layout of development to maximise passive solar heating;
  - (ii) ensuring that publicly funded housing and Yorkshire Forward supported developments meet high energy efficiency standards;
  - (iii) maximising the use of combined heat and power, particularly for developments within energy demands over 2 megawatts, and incorporating renewable sources of energy where possible;

- (iv) ensuring that development takes advantage of community heating opportunities wherever they arise in the region, including at Immingham and near Selby;
  - (v) providing for new efficient energy generation and transmission infrastructure in keeping with local amenity and areas of demand;
  - (vi) supporting the use of clean coal technologies and abatement measures;
- (b) maximise renewable energy capacity by:
- (i) delivering at least the following regional and sub-regional targets for installed grid connected renewable energy capacity;

	2010	2021
Humber	124 megawatts	350 megawatts
North Yorkshire	209 megawatts	428 megawatts
South Yorkshire	47 megawatts	160 megawatts
West Yorkshire	88 megawatts	295 megawatts
Offshore	240 megawatts	630 megawatts
Total	708 megawatts	1862 megawatts

- (ii) monitoring annually planning permissions and developments against the indicative local authority targets for 2010 and 2021 set out in Table 10.2 and taking action accordingly to ensure the regional and sub-regional targets are exceeded;
- (iii) promoting and securing greater use of decentralised and renewable or low-carbon energy in new development, including through development plan documents (DPDs) setting ambitious but viable proportions of the energy supply for new developments to be required to come from such sources. In advance of local targets being set in DPDs, new developments of more than 10 dwellings or 1,000 square metres of non-residential floor space should

secure at least 10% of their energy from decentralised and renewable or low-carbon sources unless, having regard to the type of development involved and its design, this is not feasible or viable.

Policy ENV9 (Historic environment) states that the region will safeguard and enhance the historic environment and ensure that historical context informs decisions about development and regeneration. Whilst this policy mentions those specific elements of the historic environment likely to be of concern in respect of the planning application before the Planning Committee, one of the policy targets is that no planning applications are granted which are subject to sustained objections from English Heritage due to impact on the historic environment.

Policy ENV10 (Landscape) states that the region will safeguard and enhance landscapes that contribute to the distinctive character of Yorkshire and the Humber. Plans, strategies, investment decisions and programmes should safeguard and enhance the following landscapes and related assets of regional, sub-regional and local importance: and at bullet point (d) mentions degraded rural landscapes, especially in parts of the Vale of York and Humber Head Levels.

It must be noted that the Humber Head Levels region is the region immediately to the west of the application site. This issue will be discussed later in the report when reference is made to the landscape character assessment of the consideration of this application.

**North Lincolnshire Local Plan (adopted May 2003):** Policy DS21 applies and states that proposals for the generation of energy from renewable resources will be permitted provided that:

- (i) any detrimental effect on features and interests of acknowledged importance, including local character and amenity, is outweighed by environmental benefits; and
- (ii) proposals include details of associated developments including access roads and other ancillary buildings and their likely impact upon the environment.

Where appropriate, conditions will be imposed requiring the restoration of the site to its original condition or the

implementation of an agreed scheme of after-use and restoration.

Policy DS1 is applied to all development proposals. It requires a high standard of design in all developments irrespective of location. Proposals for poorly designed development will be refused. In the case of this proposal criteria (i), (ii), (iii), (xi), (xii) and (xiii) apply.

Policy LC5 covers the impact of development on badgers or species protected under Schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981 (as amended).

Policy LC7 is supported by the Landscape Assessment and Guidelines and Countryside Design Summary, which is adopted Supplementary Planning Guidance to the North Lincolnshire Local Plan. The policy requires proposed developments in the open countryside to give special attention to the protection of the scenic quality and distinctive local character of the landscape.

Policy LC12 requires all new development proposals, where possible, to ensure the retention of trees, woodland and hedgerows.

To complement and expand policies in the North Lincolnshire Local Plan, supplementary guidance has been produced in the form of:

**Supplementary Planning Guidance 13, Wind Energy Development – March 2005:** As well as outlining national and regional policies and guidance, the guidance sets out local policies against which North Lincolnshire Council will set proposals for electricity production by wind power in North Lincolnshire.

This modern, up-to-date guidance will provide North Lincolnshire with a clear, precise policy framework which will be relevant for both planning applications and consultations with the DTI.

There are 9 main policies – Wind 1 through to Wind 9 and also a clarification of impacts that cannot be considered:

**WIND 1:** The target for energy to be generated from renewable resources for the Humber sub-region is at least 146 megawatts for 2010. North Lincolnshire's target to meet its contribution from wind energy development is 40 megawatts for 2010 and a further 100 megawatts for 2021. Proposals for wind energy development to meet these targets must:

- (i) minimise the visual and physical impacts of wind energy developments on the surrounding area;
- (ii) minimise the cumulative impact on the area of other existing, and permitted wind developments as well as those which are the subject of submitted planning applications;
- (iii) minimise the impact of the proposed development on the landscape;
- (iv) minimise the ecological impact of any development.

The council will review its 2010 target when met whilst having regard to progress elsewhere in Yorkshire and the Humber.

**WIND 2:** The key issues that North Lincolnshire Council will assess in relation to planning applications for wind energy developments are:

- visual effects
- cumulative impact
- noise
- amenity impacts
- landscape impact
- nature conservation and
- ecology interests
- archaeology & the built
- environment

**WIND 3:** North Lincolnshire Council will consider the following matters when assessing the visual impact of wind energy proposals:

- distance from which it can be seen
- landscape characteristics
- siting and layout
- design of the turbine

- impact of ancillary elements
- potential after use of wind farm site.

**WIND 4:** North Lincolnshire Council will consider the following matters when assessing the cumulative impact of wind energy proposals:

- the proximity of existing, and permitted wind energy developments which are the subject of submitted planning applications
- the impact on the surrounding zone of visibility • the impact of development ancillary to the development
- the nature, character and landscape of the location in which the proposal is sited
- the impact on nature conservation and ecology interests
- the impact of noise

**WIND 5:** In assessing the implications of noise from wind energy development, developers and the council should have regard to:

- proximity of settlements and buildings
- the framework for assessing noise set out in the ETSU report
- the topography and local environmental conditions surrounding the proposed development

**WIND 6:** In siting wind energy developments, developers should consider the following:

- minimising disturbance to residential amenity by means of noise, shadow flicker, visual and cumulative impacts
- how the proposed development will be accessed for construction, servicing and maintenance purposes and how any disturbance can be mitigated
- the impact on informal recreation sites and public rights of way and
- liaising closely with local communities regarding the impact of the development

**WIND 7:** In assessing the landscape impacts of wind energy development, the council will consider the following matters:

- ability of the landscape to accommodate the development
- impact of areas of landscape protection and enhancement, and nature conservation importance

Developers should also provide an assessment of their proposals against the council's approved Supplementary Planning Guidance on Landscape Character Assessment and Guidelines, and Countryside Design Summary.

Proposals for wind energy development must also comply with relevant landscape and conservation policies in the North Lincolnshire Local Plan.

**WIND 8:** In assessing the implications for ecology and nature conservation for wind energy development North Lincolnshire Council will assess the following issues:

- effect on designated sites for nature conservation
- effect on protected species of plants and animals
- effect on cited bird species from designated sites feeding or roosting in areas adjacent or inland
- effect on migratory routes for birds especially large, less manoeuvrable birds such as swans and geese
- assessment of cumulative effects in relation to other wind farms and other developments
- effects on nesting birds especially during construction
- adequacy of mitigation measures

**WIND 9:** Developers should consider the impact of their proposals for wind energy development, both during and after construction, on archaeology and cultural heritage, and the historic landscape, including designated conservation areas, scheduled ancient monuments and listed buildings, and other non-designated sites and remains.

Developers will need to demonstrate that the objectives of the designation of the area will not be compromised by the development, and that any significant adverse effects

on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits.

Making particular reference to policies WIND 3 and 5, North Lincolnshire Council will take account of the following documents:

**North Lincolnshire Landscape Assessment and Guidelines** (Estell Warren Landscape Architects with North Lincolnshire Council, 1999); and

**The Assessment and Rating of Noise from Wind Farms** (ETSU for the DTI, 1996)

Although identified as an impact that is not for the local planning authority to take into account when considering wind energy projects, aircraft, radar and airport operations are an issue that raises concern. It would therefore be remiss of the council not to identify the existence of interim guidelines in the form of 'Wind Energy and Aviation Interests', 2002 which is a document to be read by the main stakeholder communities, the wind energy industry and those responsible for aviation interests.

## CONSULTATIONS

**Health and Safety Executive (HSE):** Confirm that environmental impact assessments are concerned with projects which are likely to have significant effects on the environment, whereas HSE's principal concerns are the health and safety of people affected by work activities. As such, the HSE cannot usefully comment on what information could be included in the statement of the proposed development.

**North Lincolnshire NHS Trust:** No comment.

**Government Office for Yorkshire and the Humber:** Acknowledge receipt of three copies of the environmental statement and request that when a decision is made a copy should be sent to their office for information.

**Highways:** No objection in principle but request that a condition be imposed relating to the submission of a construction method statement being agreed before any work commences on site.

**Campaign to Protect Rural England (CPRE):** Object to the proposed development on the grounds of cumulative impact of this proposal together with two approved developments (Keadby and Tween Bridge). This impact is

quite apparent from the accompanying map (Windfarms within cumulative assessment, Figure 23) which clearly shows how, if all the current proposals are developed, 93 wind turbines will be located within a very small area. While appreciating three of the sites (Tween Bridge, Goole Fields and Twin Rivers) are outside North Lincolnshire, we believe the overall cost to the countryside in visual and amenity terms is more than one area and its communities should be asked to bear.

We also believe that, when viewed from west of the River Trent, this proposal will have a significant impact on the Lincoln Edge Cliff Area of High Landscape Value. Given that the turbines will be sited at the foot of the escarpment, it is difficult to see how they can fail to have a visual impact upon it.

**Yorkshire Forward:** The regional economic strategy (RES) supports the target of reducing the region's greenhouse gas emissions by 20-25% by 2016, which will help to meet the Government's aspirations to cut them by 60% by 2050 with real progress by 2020. Yorkshire Forward welcomes the development of appropriately located renewable energy technologies which help to make the region less reliant on fossil fuels and help to promote a low carbon economy. The agency therefore welcomes the proposed saving of 13,613 to 32,745 tonnes of carbon dioxide per year.

Yorkshire Forward considers it particularly important that the developers undertake an in-depth public consultation into the proposed location of this wind farm, which addresses the overall principle of the development and the site specifics of the proposed renewable energy scheme. Although the increase in local employment suggested is aligned with objective 4 of the RES, in line with Section 10 of the Environmental Statement, Yorkshire Forward would like to see real community benefits from the proposed developments.

**Humberside Fire Brigade:** Make a general comment that both access for the Fire Brigade and water supplies for fire-fighting should be made available for every development proposal. No specific reference is made to this application being for a wind farm.

**Yorkshire and Humber Assembly:** This development is supported in principle by the Assembly as being to implement the RSS by providing renewable energy generation. However, this support is conditional upon the local authority having sufficient information to carry out an

appropriate assessment and that this appropriate assessment determines that the development can be accommodated without affecting the integrity of the Humber SPA. Local landscape and flood risk assessments will have to be taken into account by the local authority in reaching its decision.

**Lincolnshire Wildlife Trust:** Request further survey work be carried out and information received in respect of bats on or close to the site and also in respect of collision risk modelling for bird strikes.

**NATS Enroute plc (NERL):** This company is responsible for the safe and expeditious movement in the en route phase of flight for aircraft operating in controlled airspace in the UK. To undertake this responsibility NERL has a comprehensive infrastructure of radars, communication systems and navigational aids throughout the UK, all of which could be compromised by the establishment of a wind farm. In this respect NERL is responsible for safeguarding this infrastructure to ensure its integrity to provide the required services to air traffic control (ATC). In order to discharge this responsibility NERL assesses the potential impact of every proposed wind farm development in the UK.

NERL has no safeguarding objection to this proposal.

**Natural England:** 'Our advice to North Lincolnshire Council is that this application would not be likely to have a significant effect, either alone or in combination with other plans or projects, on the interest features of the Humber Estuary SPA, cSAC or Ramsar site, or on features of special interest of the Humber Estuary SSSI.

Natural England supports the proposal by the applicant to carry out survey and monitoring work during construction and post-construction of the wind turbines. A well-designed survey and monitoring package will add to our understanding of bird usage of the area and help decision-takers and applicants with regard to future proposals. We look forward to discussing the details of such a package and associated planning conditions in due course.'

**English Heritage:** When originally consulted on this application English Heritage responded with a list of questions and further work needed by the applicants. This further work consisted of photomontage work and an assessment of the impact of the development on listed buildings and scheduled ancient monuments.

This work has now been completed and English Heritage have confirmed that their previous issues, as raised in their letter of 19 August, have been answered to their satisfaction. In the light of this, English Heritage recommends that this application should be determined in accordance with national and local policy guidance and on the basis of North Lincolnshire Council's specialist conservation advice where required.

In their response they confirm no further consultation with English Heritage is required in respect of this proposal.

**British Horse Society:** 'We object strongly to this application on the grounds of safety of horses, riders and other users of highway insofar as the minimum safe margin is considered to be three times the maximum height of the turbine blade from any route used by horses and in this instance the blades, noise and vibrations can be considered to be a danger even at that distance given the height of the bridleway above the river. The nature of the land and the route of this very well used right of way could lead to potentially disastrous consequences if a horse were to bolt or take fright as there is no margin for escape for walkers and cyclists, let alone other horses.'

## PARISH COUNCILS

**Burton-upon-Stather Parish Council:** Over 100 residents attended the parish council meeting held on 14 July 2008 voicing the following concerns. Burton-upon-Stather Parish Council recognise the public opposition to the proposals and resolve to object to this proposal on the following grounds:

- It was felt that this application is premature, since an application for a wind monitoring mast, sent to Flixborough Parish Council, but not Burton-upon-Stather Parish Council, has only just been submitted. Councillors also believed that this application should be delayed until the full effects of the Bagmoor cluster are known, as there are no wind turbines of this type near to this area. It was generally agreed that the application appears to be being rushed through without adequate time for public consultation. Indeed, many residents who would be directly affected by the turbines complained bitterly that they had not received any notification but had only been alerted by members of an action group (Burton Against Turbines) who delivered notices.

It was alleged that North Lincolnshire Council did not intend to post any objections on the council's planning web site because of data protection issues which

caused considerable alarm. How will North Lincolnshire Council demonstrate transparency in the planning process if objectors' letters and emails are not made public.

- The turbines will be too close to residential property and to bridleway 304, contrary to planning guidance, and will be detrimental to residential amenity. There is significant evidence that the turbines are noisy with annoying 'whooshing' and drumming sounds and a hum generated by the turbines during operation. A paper was submitted to councillors written by Dr Amanda Harry MBChB PGDip ENT (enclosed) linking the low frequency noise of wind turbines to a complex disease known as vibroacoustic disease.
- The height of the turbines at 126 metres to the blade tip would dominate the landscape and the structures would have a detrimental impact on the character and appearance of the surrounding open countryside, contrary to North Lincolnshire Council's Special Planning Guidance 13 of November 2004 and policy RD2 (Development in the Open Countryside) of the North Lincolnshire Local Plan. The turbines would be too prominent a feature on the surrounding landscape in terms of siting and scale.
- Residents have calculated that the blades will be in line with Burton village and fear the visual impact of light flickering through the turbine blades, creating a strobe effect. There are also fears that ice could be shed from the blade tips.
- There is great concern about the environmental impact of the turbines, particularly on bats and birds such as skylarks and marsh harriers. According to Councillor Bernard Regan, a similar project in Ireland resulted in 3,000 bird kills in the first year and the site had to be dismantled. The wind farm cluster would therefore be contrary to SPG 13.
- Local horse riders fear for the safety of horses, concerned that the animals might be spooked by the turbines.
- Many residents expressed the fear that their properties would be devalued if the turbines are built which would have a significant effect on the local economy. There appear to be approximately 112 wind turbines planned in and around this area resulting in

over-concentration. It would be fairer if the raft of applications for wind turbines were considered in total so that no single area was saturated.

- Flixborough Grange flats have been earmarked by the Environment Agency as a possible future site to allow the Trent to flood. Residents question whether or not the proposed wind turbines would compromise possible flood alleviation.

**Flixborough Parish Council:** The parish council wishes to object in the strongest possible terms to the application. Members observed that the proposed turbines are far too close to dwellings and are aware of documented evidence of harmful consequences to human health from turbines and obvious dangers to wildlife. The parish council would have no objections to offshore wind farms, but there is no place for turbines near to settlements.

**Amcotts Parish Council:** No objections.

**Garthorpe and Fockerby Parish Council:** Wish to express their opposition to the proposed seven wind turbines at Flixborough Grange Farmhouse, Burton-upon-Stather. Councillors reported that the 100 plus wind turbines already passed are more than enough for North Lincolnshire.

## **PUBLICITY**

Receipt of the application has been advertised in the press and a number of site notices have been posted around the application site and in Burton-upon-Stather and Flixborough, with a notice also being posted at Amcotts across the river. Nearby residential properties have been consulted by individual letter and as a result the council has received a considerable number of representations, the majority of which are raising objections to the proposal. Each letter has been read individually and following these opening paragraphs is a résumé of the broad headings under which the objections have been made.

In total about 650 pieces of correspondence have been received. Some of these are pro-forma style letters with a signature attached and some are letters and emails that emanate from the same people at the same address, so in this number there is an element of duplication. It has not been possible to itemise or quantify the amount of duplication.

In addition to these letters the group that has been formed entitled 'Burton Against Turbines' (BATs) has carried out a comprehensive survey around Burton-upon-Stather residents on the proposed wind farm. I will deal with this petition first.

The total number of residents surveyed, according to BATs' survey information, was 869. Those with no strong views or undecided numbered 37 and 31 registered in favour of development. 801 residents signed the petition saying that they were against the wind farm development. With the petition a covering letter has been provided outlining the objections to the wind farm. Primarily BATs suggest that further information is required by the developer on the following matters:

- A full response from English Heritage is required.
- It is necessary to obtain photos during the winter months to ascertain the effectiveness of screening from deciduous trees.
- Comparisons with other turbine developments that have been submitted have not yet been proven to be comparable in topography and geology with this site. This element requires a thorough and comprehensive investigation.
- Adlingfleet church has no proposed barrier to screening or noise.
- North Lincolnshire Council's conservation officer should be consulted in respect of issues over local listed buildings and conservation areas.
- The ecology of the area needs to be correctly and carefully analysed.
- The statistics are commonly misrepresented and it is requested that full details be made available for public scrutiny to ascertain their validity and therefore relevance in decision-making.
- A common error is that 12 months' routine surveying has not been done in the area and this should be done to ascertain the full extent of the use by protected species which include marsh harrier, barn owls, skylarks, bats and badgers.
- A specific site survey must be carried out before any permission for development is granted.

- The petitioners strongly demand that an independent survey needs to be commissioned by North Lincolnshire Council for a 12 month period and for a period greater than the 90 hours in any 5 month period that has already been carried out.
- An independent bat flight/feeding survey commissioned by North Lincolnshire is essential in the area.
- A suggestion is made that the relevance of the bats' activity data is not comparable and should be rejected and new data which is relevant should be submitted in its place and the proposed development rejected until satisfactory evidence is submitted.
- No assessment has been made against the issue of noise against the provisions of the ETSU-R-97 document. Due to the nature of the site this issue is very serious and needs to be carefully evaluated taking all the unique aspects of the site into consideration, ie the noise conducting along the river, semi-valley, and height of the blades and motor towards the settlement of Burton-upon-Stather with the prevailing south-westerly wind. If planning permission is granted a condition should be attached to any such approval to cease turbine operation if, upon investigation, any complaints that noise from the turbines is causing pollution and health problems. A copy of a technical paper written by Dr Amanda Harry is provided with the petition in respect of noise from wind farms.
- The information submitted with the application in respect of shadow flicker needs to be evaluated in relation to the diameter of the blades and the effect of tree screening.
- Blade colour and surface finish should be selected to reduce as much shadow flicker potential as new technology and materials permit.
- It seems wholly unreasonable to BATs that a planning application for the turbines is being considered, seemingly at a hurried pace, when insufficient time has been allowed to collate results from the test mast, which we understand was to record wind speeds at the proposed site for a period of two years.

Turning now to the points of objection that have been made in individual letters of concern that the local

planning authority have received pursuant to this planning proposal:

- proximity of turbines to residential property
- The site chosen is highly visible and any development on it, as proposed, will dominate the local and wider landscape.
- The development will destroy the appearance and be out of character with an historic village such as Burton-upon-Stather.
- The development will spoil views of the open countryside.
- The timing of the application is deliberate because it is when the trees are full of leaf. The opinion has been expressed that this is so RidgeWind can claim views of the turbines are hidden and screened by trees.
- RidgeWind are aiming to profit from 'half-baked' Government targets based on little scientific evidence.
- Construction techniques, transport and workers' vehicles will detract from the overall carbon saving of the scheme.
- Noise from the turbines will disturb local residents.
- Due to the close proximity of the turbines to public footpaths and bridleways, those local facilities will be harmed and people's enjoyment of these adversely affected.
- Turbines are proven to kill birds and bats.
- Little consideration has been given to the noise created by the turbines and the noise during the construction phase.
- It is nonsense to suggest turbines are quiet.
- The site is in a high flood risk area – how will the site be decommissioned when it will be under water in 25 years?
- The development will result in a devaluation of residential properties in the area.

- The negative factors of wind farm developments far outweigh the modest reduction in CO<sub>2</sub> emissions and relatively small amount of electricity produced.
- adverse impact on historic landscape by the introduction of massive, intrusive, industrial forms that are out of scale and not in keeping with historic buildings, local field patterns and wider views
- The development, if approved, will set a precedent for further wind farms in the area.
- The development is financially motivated.
- The environmental advantages of wind farms may be overstated.
- health and safety risks if turbines collapse
- adverse effect on wildlife, TV reception, radio and mobile phones
- effects of shadow flicker on local residencies
- no significant benefit to the local economy
- The development is unwanted, undesirable and unnecessary.
- There is no long-term economic benefit.
- There are better sites available further away from settlements.
- The hubs of the turbines, due to their siting, will be level with properties in Burton-upon-Stather. Low frequency noise/vibration will therefore travel directly to the properties on the top of the escarpment. (Nesting birds will be disturbed, particularly species that nest on the ground such as skylarks.)
- Foraging birds will be adversely affected, for example harriers.
- Wind farms should all be offshore.
- The development will exhibit adverse effects which will result in poor health. This low frequency noise will be particularly damaging to those people that suffer autism, epilepsy or cancer – who knows what?

- The development will spoil the quiet enjoyment of village life.
- Noise and disturbance from the operation of the wind turbines will disturb sleep patterns.
- ETSU-R-97 needs updating to cater for modern large turbines.
- It is not just the level of noise, it is its character, ie low frequency and repetitive.
- The effects of amplitude modulation have not been assessed.
- The development will result in the loss of panoramic views of the local landscape and therefore have an adverse impact on the quality of life of local people.
- There will be an increase in local traffic to build and service the site.
- RAF jets use the area. The turbines will create an impact on their movements and make the situation dangerous.
- The hillside at this point at Burton-upon-Stather and Flixborough acts as an amphitheatre and magnifies the sound waves in the area. This is particularly noticeable on calm evenings when barge engines and other river traffic can be heard clearly within the village.
- The whole of the village should have been consulted by letter, not just parts of it.
- The application should not be determined until the Bagmoor site is up and running and the impact of that can be seen for ourselves.
- Why has the application for the wind farm followed so quickly after the met mast was approved? Ice thrown from blades injures people, animals and wildlife.
- There will be a negative impact on tourism in the area.
- The Planning Committee structure should be clearly looked at before this application is determined with any declarations of interest resulting in non-voting.

- The development will have an adverse impact on the conservation area.
- The council's own policies contained in SPG 13 should be fully adhered to, particularly that policy that mentions North Lincolnshire Council only having its fair share of turbines.
- There should be a more strategic approach to wind farm site selection.
- Wind farms are inefficient.
- The turbines are too close to the bridleway and at variance with the British Horse Society's guidance. The distance should be three or four times the height of a turbine.
- The turbines are proposed to be built too close to Burton-upon-Stather school. This will result in health issues being experienced by pupils and teachers at the school.
- Wind turbine sites have huge set-up and manufacturing costs. This cost is never likely to be recovered.
- There is no local benefit from the development.
- Vibration from the turbines will adversely impact on the foundations of local houses.
- The site is too close to Blacktoft Sands nature reserve.
- The development proposal conflicts with elements of the Human Rights Act.
- The development will cause significant disruption to the local area during the construction phase.
- The separation distances between the turbines is inadequate and does not follow guidance.

In addition to these objections, letters of support have been received. At the time of preparing this agenda five letters have been received supporting the development and mentioning the following issues in that regard:

- If a straw poll was taken of the Stather it would be found that most residents are ambivalent to wind farms.
- At the public meeting held to discuss the wind farm most people parked their cars, which included 4x4s, on a protected verge opposite Lindsey Terrace. Because of the impact of the credit crunch and the rise in energy prices, do not people realise that we need alternative sources of energy? Local and national politicians recognise this and commute by cycles.
- Maybe another pressure group should be started in Burton – Burton Excited About Renewables (BEARs).
- The objections that have been made may be just a case of NIMBYism – that the more affluent people up the hill won't be affected quite yet by larger bills.
- Might it be that they are worried by the possibility of noise and visual pollution?
- Have they forgotten about the pylons and Keadby power station, the noise from the wharf at 6.30 in the morning, the noise from the bottom pub, caravan park and bike nights, or is this 'the inconvenient truth' (sorry for the quote, Al Gore).
- Where were all these protesters when the locals of the Stather were protesting against the expansion of the caravan site and wharf?
- Objectors are quoting a 400 feet high mast – the mast itself is only about half this height with the tip of the blades being at the 400 feet, or thereabouts, level.
- Weren't windmills a traditional sort of turbine and quite aesthetic with it?
- Please don't presume that all Burton-upon-Stather are against the turbines.
- It is imperative that we diversify the energy mix of the country.
- Fossil fuels are finite and therefore wind farms offer a long-term sustainable solution to the energy crisis.

- Wind power is non-polluting, unlike fossil fuels and nuclear power, so it does not have the adverse effect on the environment.
- Wind farms will add to the aesthetic appeal of the countryside, unlike the ugly electricity pylons which already exist in the Trent floodplain.
- As a modern-thinking individual the wind farm is a perfectly reasonable solution to the ongoing problem regarding environmentally friendly generation of electricity.
- It is understood that there are many negative issues concerning local people, however the positives must outweigh the negatives.
- It's about time we were able to do our bit for the environment rather than just be glad of a breeze to dry out our washing.

## **ASSESSMENT**

In this first section of the Assessment internal consultations are to be reported. These consultations relate to archaeology, environmental protection matters (noise), ecology and footpaths.

As Members are aware this application is accompanied by a full environmental impact assessment, a copy of which has been provided for or made available to all those people that have been consulted, whether they are statutory, non-statutory, third parties or members of the public. The environmental assessment is available in hard copy at the council's offices at Church Square House and also on the council's web site.

### **Archaeology**

A considerable amount of information has been provided to the Sites and Monuments Records Officer and dialogue has taken place between the applicants' archaeological consultants and the council's officers and this has resulted in a request that conditions be applied to any planning permission granted relating to a programme of archaeological work being undertaken before development commences in accordance with a document entitled 'The written scheme of investigation for archaeological mitigation' which is dated March 2009. Backup conditions are then requested should any archaeological finds be made.

## **Environmental protection (noise)**

Again, a section of the environmental impact assessment deals with noise and in particular assesses the noise potential of the wind farm against 'The assessment and rating of noise from wind farms' 1996 published by ETSU on behalf of the DTI. This document is the industry standard document that is used against which all wind farms in the United Kingdom are assessed in respect of potential nuisance from noise.

In the light of this document assessments have been made by the council's experts on noise matters and whilst no objections are raised it is suggested a number of conditions be imposed, should planning permission be granted, relating to the make, model and proposed sound power levels of the wind turbines, the fact that the wind turbines should be subject to regular inspection and maintenance to ensure that sound power levels are no greater than those approved by the planning authority, or those specified by the manufacturers, and that within three months of the turbines becoming operational a full noise assessment is carried out by a suitably qualified acoustic consultant to ensure that the turbines are operating within their design parameters and in accordance with ETSU guidelines.

## **Ecology**

In a similar manner to the previous two consultees, ongoing discussions have been taken place with the applicants and their consultants on ecological matters in order to assess the potential for the development to have an impact on habitat and species of mammals, birds and other wildlife within and close to the application site.

This work has been a joint piece of work carried out by the council in association and in communication with Natural England.

Members will be aware that the Humber SPA and international site has been extended some length down the River Trent in a southerly direction and therefore the River Trent closest to the application site does have international importance.

In association with Natural England it has been concluded that the wind farm development can be categorised as having no significant effect on the international protected sites close by and in response to that decision made

jointly by the council and Natural England no appropriate assessment under the Habitat Regulations is required.

However, there are some conditions required relating to individual items of importance and they relate to protected mammals, the timing of operation to protect birds, habitat enhancement and future work on birds and bats.

### **Environment Team (footpaths)**

A public footpath is proposed to be used as an access road to service the erection of the turbines. This may result in conflict between pedestrian users and traffic and accordingly a condition has been requested by the council's Public Rights of Way Officer to ensure that no work starts until either a temporary closure order or a temporary diversion order has been agreed in writing with the local planning authority for this affected length of public footpath.

#### **The determining issues in this case are:**

- **whether the development fits national, regional and local policy;**
- **whether its impact on the landscape is acceptable;**
- **whether the visual impact of the development is acceptable;**
- **whether the noise produced by the turbines is within acceptable limits according to the ETSU – 1996 guidance or can be mitigated by conditions; and**
- **whether any other issues, such as ecology, cultural heritage or other issues of accepted importance, are harmed.**

Additionally, the objections that have been raised by third parties have to be given due consideration and apportioned weight when necessary.

Attached as an appendix to this report is a copy of the non-technical summary of the environmental impact assessment that was submitted with the planning application and Members should be aware that in October last year the applicants, following a request from this council, submitted supplementary environmental

information relating to archaeology, English Heritage issues, ecology, noise, and shadow flicker and reflected light. Receipt of this supplementary information was advertised with both site and press notices and as a result a number of representations were received which reaffirmed earlier objections and comments made to the original submission.

The details of the application in terms of numbers, location and height of turbines has not changed since it was originally submitted.

In order for Members to fully consider the relevant issues the following paragraphs headed individually endeavour to explain and debate those material planning issues.

### **Policy**

By making reference to the Policy section of this report it is clear that it is a primary concern of the Government to tackle climate change and reduce carbon emission levels to levels that will slow down the impacts of climate change.

This national policy framework cascades down into regional policy which sets clear targets for regions to produce energy by renewable sources within strict time parameters. In the latest Regional Spatial Strategy, which runs until 2026, the Yorkshire and Humber Plan sets challenging targets for the Humber region to achieve 124 megawatts by 2010 and 350 megawatts by 2021.

Additional policies interact with the principal policy thrust of national and regional government and these are reported again in the Policy section of this report.

At local level the North Lincolnshire Local Plan has supplementary planning guidance in the form of SPG 13 which includes a raft of policies against which wind turbine development needs to be considered. In terms of targets this document splits the targets into individual local authority targets and at Table 3 indicates that North Lincolnshire's target is 40 megawatts by 2010 and 100 megawatts by 2021.

In this regard it is important for Members to note that with the granting by the Secretary of State of the wind turbine development between Keadby and Crowle, together with the three turbines at Tween Bridge (which form part of a larger array of turbines in the adjoining Doncaster Metropolitan Council area), and taking account of the

under-construction Bagmoor wind farm to the north-east of Scunthorpe, North Lincolnshire has approved within its boundaries the capacity to generate by wind energy considerably more than that 40 megawatt target. Indeed the 2021 target is achieved also. In policy Wind 1 in SPG 13 it is stated that the council will review its 2010 targets when met whilst having regard to progress elsewhere in Yorkshire and the Humber.

The two issues of importance to note are that this local guidance has to be read in conjunction with national and regional guidance and in PPS 22, in respect of regional targets, at point 3, it says, 'Targets should be reviewed on a regular basis and revised upwards (if they are met) subject to the region's renewable energy resource potential and the capacity of the environment in the region for further renewable energy developments. The fact that a target has been reached should not be used in itself as a reason for refusing planning permission for further renewable energy projects.' Considering this statement of national policy, in the light of this local policy in SPG 13, and calling on experience gained dealing with the public inquiry for the Keadby wind farm, it was quite clear from speaking with the inspector and the council's own barrister that this element of SPG 13 was exceedingly weak and the provisions of PPS 22 as detailed above within the quotation marks is the correct procedure to adopt. Accordingly, later in this assessment, the capacity of the region and the specific area to which this application relates will have to be assessed in terms of its capacity for further renewable energy developments such as the one that is proposed by the application before you.

Continuing with this local policy framework, included in the Policy section is a copy of the policies contained in SPG 13 and each of those policies has to be considered against the proposal.

The environmental assessment does this and in considering the findings of the environmental assessment, together with the consultation responses that have been received, it has been concluded that the proposal meets the requirements of SPG 13. Nevertheless the issues of landscape and noise particularly need further examination and the issues of ecology and cultural heritage need some explanation. In conclusion, therefore, on the broad national policy there certainly is encouragement for the production of energy from renewable sources in order to reduce the harmful

consequences of fossil fuel usage and to meet future demand for energy using diverse and secure supplies. This is encapsulated in modern national policies, some of which only received Royal Assent in late 2008 in the form of the Energy Act and the Climate Change Act. These provisions and initiatives have been passed down through the regional tier of government in regional spatial strategies developed for Yorkshire and the Humber, and local policies in the form of the SPG, although prepared some years ago, are still very relevant considerations with the notes that have been attached to this section relating to PPS 22 and its specific provision in relation to targets being reviewed.

### **Landscape**

In the environmental assessment a brief description of the method of the assessment has been quoted. The assessment process has been based on the current published guidelines for landscape and visual assessment provided in the Guidelines for Landscape and Visual Assessment (2002) and the current published guidelines for character assessment provided in Landscape Character Assessment: Guidance for England and Scotland (2002). The assessment has been carried out in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 and takes into account advice in PPS 22 and its companion guide.

Furthermore the assessment has drawn on information provided within the local plans covering the study area which encompasses the North Lincolnshire Local Plan, the Beverley Borough Plan, the West Lindsey Local Plan First Review, the Boothferry Borough Local Plan and the Doncaster Urban District Plan. North Lincolnshire's SPG 13 relating to wind energy development and various landscape character assessments covering the study area have also been used including the North Lincolnshire Landscape Character Assessment and Guidelines (1999). The study area is based on a 15 kilometre radius area from the outermost turbines of the proposal in all directions. This is why plans and guidance from neighbouring authorities has been interrogated.

In the environmental statement the three phases of the development are considered, that is the constructional phase, the operational phase and the decommissioning phase and the impacts on the landscape of each has been given due consideration.

The site itself is located on flat, low-lying arable land at an approximate level of 4 metres above Ordnance Datum. The River Trent runs immediately to the west of the site and a low ridge of land rises sharply immediately to the east of the site forming part of what is known locally as The Cliff. This low ridge begins to the east of the site and continues north in a gentle curve rising to heights of approximately 67 metres above Ordnance Datum and eventually dissipating just north of Alkborough. The deciduous Burton Wood covers the ridge east of the site with Burton-upon-Stather village overlooking the ridge approximately 0.6 kilometre north-east of the site. Flixborough village is located approximately 0.9 kilometre south-east of the site.

### **Landscape designations**

There are no national landscape designations within the 15 kilometre radius study area. However, there are areas where the landscape has protection policy, the most relevant one being the policy within the North Lincolnshire Local Plan at LC7. This policy does not have a specific designated area within the district but covers the entire district as a whole outside the large settlements. The general purpose of this designation is to protect the scenic quality and distinctive local character of rural settlements in the open countryside from development proposals which would not respect the character of the local landscape.

The woodland known as Burton Wood mentioned earlier has a specific designation in the North Lincolnshire Local Plan as an Area of High Landscape Value and also, in that same plan at LC3, part of that wood is proposed to be designated as a Local Nature Reserve. None of the application site falls within any of these designations, although, from earlier descriptions, Members will see that the site lies immediately adjacent to this area of woodland which is afforded some protection due to the provisions of the North Lincolnshire Local Plan locally.

Turning now to the landscape character, the North Lincolnshire Landscape Character Assessment and Guidelines (1999) indicates that the area closest to the site is divided into two specific character areas: the Trent Levels (Humber Head Levels) and the Lincolnshire Edge (North Lincolnshire Edge with Coversands).

As a further layer of detail, each of these landscape character areas is then divided into a number of character types and described in more detail in that character

assessment document. The environmental assessment goes on to consider the development and its impacts upon these character areas and character types as part of both a desk study and by carrying out field work assessing views into the application site from many viewpoints. The planning authority considers that the methodology adopted by the applicants in assessing landscape character is the correct method and satisfactorily assesses impacts.

Linked to and part of the landscape assessment is the visual analysis that has to be carried out of the turbines.

Indicative zones of visibility have been ascertained by using a computer-based intervisibility package to create a zone of theoretical visibility (ZTV).

Actual zones of visibility are not determined by topography alone, and the ZTV is based on topographical information only. No account in its preparation has been taken of the minor topographical features such as roads and rail embankments or the screening effects of vegetation and built structures. In reality the screening effects of local topographic and landscape features would fragment and reduce the extent of most of these zones of visibility and may also reduce the number of wind turbines visible from any one location. Therefore it must be appreciated that the ZTV tends to overemphasise visibility and the actual visibility from any one point is most accurately reflected in the viewpoint analysis. Accordingly a viewpoint analysis has been carried out on a selection of representative viewpoints to assess the likely magnitude of the effects of the seven turbines on the local landscape and visual amenity. Thirty viewpoints have been assessed.

The very nature of the viewpoint analysis selects viewpoints which illustrate some of the most open and potentially significant views from within the study area. The viewpoints are also chosen to recognise locations of local and/or national value such as scenic viewpoints, residential areas and major tourist routes and do not represent such locations where the proposed turbines will not be visible. Of the thirty viewpoints assessed, ten were selected and considered representative of the main views and receptors in the study area and the applicants, in consultation with North Lincolnshire Council, agreed on these locations to be used in the volume of the environmental assessment that illustrates the photographs of existing and created photomontages and wireframes illustrating the predicted views. At Table 5.2 in

the environmental statement a summary of this assessment is tabulated. This summary determines the sensitivity of the location, the magnitude of change and the overall significance to a number of receptors ranging through residents, road users, walkers and national byway users.

It is clear from the information contained within the environmental statement that the seven wind turbines and the anemometry mast proposed on the site will become one of the defining characteristics of the local landscape. The turbines are large and will be visible from both near and far views and will have a large impact on visual amenity, particularly in the closer views of the wind farm. The view of the public to wind farms is mixed, with a large vocal proportion being against them on visual grounds alone. Other elements of society are ambivalent towards them and indeed a small percentage are prepared to put pen to paper to actively support their construction. The assessment that needs to be made and the balance that has to be struck is do these structures, either as a single site or cumulatively, exhibit significant harm to both the visual amenity of the area or its landscape character.

The photomontages that have been produced from the agreed locations clearly show that visibility within the study area of 15 kilometres radius of the application site will be different when viewed from the west or east.

This is due to the fact that to the east of the site lies the rising ground of Burton Hills and Burton Wood and to the west of the site lies the flat open farmland of the Trent Levels. The magnitude of change that the wind farm exhibits ranges from substantial to slight with the overall level of significance of this change ranging from major to minor. What has to be concluded is whether or not, because of the magnitude of change and the overall significance, the character of the landscape or the visual amenity of the area would be so adversely impacted upon that it makes this development unacceptable for this reason alone. The area to the west of the site, which is predominantly flat in character, exhibits significant linear features within it constructed of the pylons and overhead transmission lines. Indeed the local power station at Keadby forms a significant feature in this open landscape. This area is in fact the area where the Secretary of State, in early 2008, confirmed the decision to grant permission for the construction of 34 wind turbines not dissimilar in size or appearance to those the subject of this

application. The character of the landscape to the east of the application site is somewhat different. It consists of the urban area of Scunthorpe and then the rolling landscape running away east to the Lincoln Edge and further afield the Ancholme Valley. Viewed from the west, therefore, the wind farm will be visible against the backdrop of the deciduous woodland known as Burton Wood with the nacelle and blades visible above this woodland against the backdrop of mainly sky.

At this point it may be worth reiterating to Members that the maximum tower height of the turbines is 80 metres with, on top of that, the nacelle and the blade of about 46 metres giving a total height of 126 metres to tip at maximum. The maximum height of the ridge at the top of Burton Wood at this point is about 67 metres. The woodland on top of this ridge is mainly deciduous and, whilst affording some screening of the turbine site from the village of Burton-upon-Stather, its effect would be less obvious in the autumn, winter and early spring.

From a purely visual perspective the most significant views of the turbines will be from the south and north of the site where the views from the north will be generally unobstructed but from the south will be with the tall structures and buildings of the Flixborough industrial estate in the foreground. Additionally, the cumulative impacts of the development considered against other approved developments need to be considered taking into account their location and scale. Not necessarily visible at the same time, depending on the choice of viewpoint, the large 34 turbine site at Keadby can be viewed at the same time as the proposed development and similarly, but probably from a changed viewpoint, parts of the Bagmoor site, which is currently under-construction, will be able to be viewed in the same view as the proposed site here at Flixborough Grange, particularly from the open farmland to the west of the application site.

In terms of the effects on landscape character, as has been said before, the wind turbines and met mast will become one of the defining characteristics of the site's landscape. None of the existing key characteristics of the landscape will be lost but the turbines will introduce tall moving structures which are not a characteristic of the current site landscape and as a result a significant change will occur. Therefore part of the Trent Levels character area will be changed to a limited extent significantly as a result of the proposal. Outside the site

the landscape character of the local landscape will also be significantly changed. However, none of these significant changes to character would be limited to one particular character area and therefore their impact could be considered to be diluted. There are no formal landscape designations in the area other than the local designation of Burton Wood as an Area of High Landscape Value and therefore the effect on landscape designations is minimal. In terms of visual amenity the potential to affect the visual amenity of the receptors of the study area is high. Some residents within the north-west edges of Scunthorpe, with clear views of the turbines with the Flixborough industrial estate in the foreground, would experience a significant change. There would similarly be significant changes in the view for residents within parts of Flixborough, Burton-upon-Stather and Burton Stather with open clear views of the turbines and similarly residents within parts of Gunness, Luddington, Garthorpe, Adlingfleet and Amcotts on the western side of the application site would have significant changes in their views as a result of the proposed turbines.

Whilst the proposal would become a defining characteristic of the landscape of the site and immediate locality, wind turbines are a relatively recent addition to our environment and there is no consensus of opinion on the most appropriate types of landscape in which to site the various scales of wind energy development.

Landscape character is not a static picture but is ever evolving as a result of both man's influence and natural forces. There have been progressive changes to the character of this landscape over the last century as a result of changes in agricultural practices and other built developments such as housing and industrial developments. Indeed, we may see quite dramatic changes over the coming century as a result of climate change. Wind turbine developments are an open form of development, that is to say that whilst they are accepted as being highly visual structures they are open in that observers can see the landscape through the array of turbines and this is particularly relevant to small arrays of turbines such as are proposed here at Flixborough Grange. So, whilst the impact on the landscape and on the visual appearance and amenity of the area may be significant from many viewpoints, it is not considered to be unacceptably adverse and therefore on landscape and visual grounds, taking into account all relevant issues, survey work that has been carried out, photomontage

work and analysis of alternatives and options, there is no substantive reason to withhold permission for this wind farm development on landscape and visual grounds alone.

From a cumulative perspective, the additional impact on the landscape character and visual amenity of the area compared to that which the nearby approved Keadby wind farm will exhibit is considered to be additionally minimal and because of the limited number of turbines at the Bagmoor site that can be seen at the same time as the proposed turbines here at Flixborough Grange, the additional impact on the landscape and on visual amenity is considered also to be low. Therefore the additional changes to landscape character and views from a visual perspective that would cumulatively arise in considering the closest approved wind turbine sites are considered again not of such a significant nature to warrant resisting this proposal.

In conclusion, with regard to landscape, both on its own and cumulatively, all relevant information that has been submitted, both in the environmental statement and in supplementary information submitted giving more details in relation to the relationship of the turbines to the local topography, and particularly in relation to the settlement of Burton-upon-Stather, together with all other relevant information, facts and opinions that have been expressed, there are no reasons to substantiate a refusal of planning permission for this development on landscape or visual amenity grounds.

Much has been written for many years in relation to noise and noise nuisance attributed to wind turbine development from all corners of the world. Much that has been written in the form of scientific papers and personal opinions is now published on the world-wide web and indeed during the receipt of consultations from third parties in the local community much has been copied to and quoted in letters and emails to the local planning authority.

The assessment criteria for dealing with noise and attendant issues for wind turbine developments in the UK are specific. They are from PPS 22 (Renewable Energy) and particular attention is paid to the ETSU-R-97 report, 'The assessment and rating of noise from wind farms' and cognisance must also be taken from the latest onshore wind energy planning conditions guidance note created by the Renewals Advisory Board and BERR (the Department for Business Enterprise and Regulatory

Reform). The environmental assessment submitted with the application includes much information in the form of surveys that have been carried out locally at identified locations to assess background noise levels over the period of time advised by the ETSU guidance. Indeed, the whole assessment of noise contained within the environmental statement is based upon that guidance and the contents of PPS 22 and its companion guide.

The noise working group that produced the ETSU report considered that absolute noise limits, regardless of wind speeds, were not suited to wind energy schemes in the UK, and that it was more appropriate in the majority of cases to set noise limits relative to background noise. The background noise levels are to be measured over a range of wind speeds so the impact of turbine noise, which is also wind speed dependent, can be evaluated.

A methodology is provided for the measurement of background noise levels under various wind conditions. The report (ETSU) recommends that data which may be corrupted by extraneous noise sources, including periods when rain falls or when water courses have abnormally high flows, should be discarded. At all times the noise levels measured in the environment are to be correlated with wind speed measurements at the site at a reference height of 10 metres above ground. The exercise is carried out for 'quiet' daytime periods and night-time periods which are defined as follows:

- quiet daytime is from 6pm to 11pm on weekdays, 1pm to 11pm on Saturdays, and all day on Sundays;
- night-time is between 11pm and 7am daily;
- all other periods (weekdays and Saturday mornings) are defined as normal daytime when it would be expected that ambient noise levels must be somewhat elevated because of human activity, distant road traffic and natural noise sources.

The practice of controlling wind turbine noise by means of noise limits at the nearest noise sensitive properties is considered appropriate. Noise limits should be applied to external locations and should apply only to those areas frequently used for relaxation or activities for which a quiet environment is highly desirable. Noise limits should be set relative to the background noise at the nearest noise sensitive properties thus the limits reflect the variation in both turbine source noise and background noise with wind speed. According to ETSU and the

Renewables Advisory Board of the department for Business Enterprise and Regulatory Reform, separate noise limits should apply for daytime and night-time because during the night the emphasis should be on preventing sleep disturbance rather than protecting external amenity. Absolute noise limits and margins above background should relate to the cumulative effect of all wind turbines in the area contributing to the noise received at the properties in question. Noise from the wind turbine or combination of turbines should be limited to 5 decibels above background for daytime and night-time remembering that the background level of each period may be different. The two nearest proposed wind farms at Keadby and Bagmoor (under construction) are both several kilometres distant and would have no cumulative impact with the subject site.

Providing the applicants, in preparing the environmental statement, accord with the provisions of ETSU and other relevant guidance in Government policy and guidance publications, there is no reason to expect that the Flixborough Grange proposal needs to be treated any differently to that of any other wind farm and that appropriate planning conditions can deal with noise issues adequately.

The bottom line in this is that if a turbine or a group of turbines singly or together exceed the noise limits as laid down by ETSU the local planning authority has the right, which is fully accepted by the applicants, to require the turbines to be turned off until such measures are taken that a remedy is sought. This remedy may be the removal of individual turbines from the site. In this case the applicants are prepared to accept conditions which require such action if nuisance from noise to nearby receptors is ever proven.

The peculiar topography of Burton-upon-Stather in relation to the River Trent has been mentioned together with the fact that the hubs of the turbines, at 80 metres above ground level, will be more or less level with the settlement of Burton-upon-Stather itself. This has given rise to fears that the ETSU guidance is not appropriate and is an inadequate mechanism and methodology against which to assess the impact of noise from the proposed development on the residents of Burton-upon-Stather. This matter has been taken up with the applicants and they have further researched this particular issue. In their response they contacted acoustic

consultants and submitted this information in their supplementary documentation.

The noise consultants have confirmed that in the environmental statement the noise predictions are based on the worst case scenario and confirms that the relevant ETSU guidelines can be achieved for all residential properties in the vicinity of the site.

The applicants have therefore reaffirmed their acceptance of planning conditions in respect of noise and are also happy to accept conditions which require turbines to be turned off or removed from the site if such problems become evident and are recurring over time.

Similarly, as a result of consultation responses, low frequency noise and vibration have been mentioned as significant objections to wind farm development. In 2004 the DTI commissioned Hayes McKenzie to report on claims that infrasound or low frequency noise emitted by wind turbine generators were causing health effects. Hayes McKenzie reported to the DTI in May 2006. The report concluded that there is no evidence of health effects arising from infrasound or low frequency noise generated by wind turbines.

Following this report the Department for Communities and Local Government has written to all local planning authorities and the Planning Inspectorate to confirm that the advice in PPS 22 and its companion guide that ETSU-R-97 should be used for the assessment and rating of noise from wind farms should continue to be followed. In respect of vibration, the report 'Low frequency noise and vibration measurements at a modern wind farm' (ETSUW/13/00392/REP-1997) was produced to assess measured noise and vibration levels in relation to existing criteria and published data. At 100 metres from the nearest turbine a comparison with criteria for human exposure within buildings showed that measured vibration was a factor of ten less than recommended. A similar comparison with recognised limits for avoiding structural damage showed that the measured velocities were a factor of 100 below recommended guidelines.

The report mentioned that Hayes McKenzie carried out and the DTI published in 2006 relating to low frequency noise went on to note that a phenomenon known as aerodynamic modulation (AM) was, in some isolated circumstances, occurring in ways not anticipated by ETSU.

Having taken the view that more work was required to determine whether or not AM is an issue that may require attention in the context of the assessment and rating advice in ETSU, the Government commissioned Salford University to conduct further work. The objectives of this study were:

- to establish the levels and nature of the reported noise complaints received across the UK relating to noise issues from wind farms, both historic and current, and to determine whether AM is a significant effect; and
- to review and understand the level of knowledge/understanding that exists throughout the world on AM, and whether AM can be predicted.

The Salford University study has now been published and the study concludes that although AM cannot be fully predicted, the incidence of it occurring in the UK is low.

Based on the findings of the report, the Government does not consider there to be a compelling case for further work into AM and will not carry out any further research at this time. However, it will continue to keep the issue under review. The Government continues to support the approach set out in PPS 22 and that this approach is for local planning authorities to ensure that renewable energy developments have been located and designed in such a way to minimise increases in ambient noise levels through the use of the 1997 report by ETSU to assess and rate noise from wind energy developments.

In conclusion therefore, the issue of noise, because it has been assessed using the correct methodology as spelled out in the ETSU guidance, together with other Government policy and guidance statements, is considered to be appropriate and because its results show that the guidance can be complied with and that the applicants are agreeable to accepting appropriate conditions which give the local planning authority an element of control thereby protecting the amenities of local residents and other receptors, there is no reason to withhold permission on the issue of noise alone.

Furthermore, considering the information that has been submitted by the applicants in respect of low frequency noise, vibration and amplitude modulation, together with Government position statements on such matters, there are similarly no reasons to withhold permission on the grounds of any of those noise-related issues.

## **Ecology**

In many of the representations that have been received from third parties much reference has been made to the ecology, habitat and species protected and otherwise of interest within the area the subject of this application. The council's own Environment Team have been in close liaison with the applicants during the survey stage of the preparation of the environmental impact assessment and also during the processing of the planning application insomuch as requiring clarification and further information about certain elements of the data. Similarly, Natural England have also been involved with the applicants and the planning authority in the same regard. As is mentioned in the Consultation section of this report, the council, advised by its own ecologist, who in turn has been in full negotiation and consultation with Natural England, has concluded that the development, in terms of the Habitat Regulations, is not significant and therefore an appropriate assessment under those same regulations is not necessary.

However, in doing so specific conditions have been advised which protect not only the species on the site but also their habitat where appropriate and require additional work to be carried out in order to achieve these objectives. Accordingly, whilst appreciating the information that has been submitted to us by objectors to this scheme, Natural England and the council's own ecologist have found no reason to recommend that permission for this wind farm should be withheld on any ecological grounds.

## **Cultural heritage**

The submitted environmental impact assessment fully addresses issues of cultural heritage and the aim of the section is to establish any significant cultural heritage constraints within the study area, identify any predicted significant impacts of the proposed wind farm on the historic environment and propose mitigation where necessary.

The historic environment is considered to include conservation areas, listed buildings, registered parks and gardens, scheduled monuments, registered battle fields, local historic landscape designation, all other recorded archaeological sites, important paleoenvironmental deposits and hedgerows of historic importance. Particular regard has been taken of the local conservation area at Burton-upon-Stather and the local important archaeologi-

cal resource that from time to time has shown up in and around Flixborough. Close negotiation and liaison has been held with the North Lincolnshire Sites and Monuments Record Officer and English Heritage regarding the scale and scope of the assessment study and this negotiation has continued during consideration of the planning application.

English Heritage, in their first response to the application, requested further information and this was submitted by the applicants in the previously mentioned supplementary information, receipt of which has been advertised by site and press notices. Following consideration of this further information, English Heritage have confirmed that they have no objection to the wind farm being constructed at the proposed site and similarly the council's own archaeologist, following the submission of further information, has also confirmed that subject to a written scheme of investigation being submitted (which has now been done), no objections remain from that area of interest that cannot be dealt with by an appropriately worded planning condition.

With regard to the Burton-upon-Stather conservation area, it is considered that there will be some limited views of the wind farm from the conservation area and therefore limited effects on its character, appearance and setting would occur. However, these effects would not result in any significant impacts on the conservation area and there are no objections to the proposal from the council's conservation officer in this regard.

Accordingly, in conclusion, there are no reasons with withhold permission for this development as no adverse impact on the local or wider area's cultural heritage can be substantiated.

A number of remaining issues need to be satisfactorily addressed before considering the application in total. The first one of those is in relation to the siting of the wind turbines, both one to another and in relation to the nearest residential properties. Firstly, dealing with the relationship of the turbines to residential properties, other than the residential property that is within the site and owned by the landowner, the nearest residential property, at the corner of Ridgewood Drive with Flixborough Road, is about 700 metres from the nearest turbine.

Considering the guidance contained in the Companion Guide to PPS 22 where such issues are discussed, guidance is given on minimum separation distances to

residential property in order to avoid disturbance from noise, visual amenity, shadow flicker and reflection.

With regard to the spacing of turbines one to another, again reference has to be made to the Companion Guide to PPS 22 which, at paragraph 17, says that turbines need to be positioned between 3 and 10 rotor diameters apart. This spacing represents a compromise between compactness, which minimises capital cost, and the need for adequate separation to lessen energy loss through wind shadowing from upstream machines. The required spacing will often be dependent upon the prevailing wind direction. The turbines are spaced at between 350 and 450 metres apart or thereabouts so, with the blades being described as having a diameter of 90 metres, one can see that the array of turbines in this proposal comply with Government guidance.

In discussing the siting of the turbines inasmuch as they are sited in accordance with available guidance, linked to this choice of siting and distance from residential property is the need to minimise the potential for shadow flicker.

The potential for shadow flicker can be calculated and at paragraph 73 of the Companion Guide to PPS 22 this issue of shadow flicker and reflected light is addressed. 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. The effect is known as shadow flicker. It only occurs inside buildings where the flicker appears through a narrow window opening. The seasonal duration of this effect can be calculated from the geometry of the machine and the latitude of the site. Although problems caused by shadow flicker are rare for sites where existing development may be subject to this problem, applicants for planning permission for wind turbine installations should provide an analysis to quantify the effect. A single window in a single building is likely to be affected for a few minutes at certain times of the day during short periods of the year. The likelihood of this occurring, the duration and effect depends upon:

- the direction of the residence relative to the turbines
- the distance from the turbines
- the turbine hub height and the rotor diameter
- the time of year

- the proportion of daylight hours in which the turbines operate
- the frequency of bright sunshine and cloudless skies
- the prevailing wind direction

Only properties within 130 degrees either side of north relative to the turbines can be affected at these latitudes in the UK. Turbines do not cast long shadows on their southern side.

The further the observer is from the turbine, the less pronounced the effect will be. There are several reasons for this:

- there are fewer times when the sun is low enough to cast a long shadow;
- when the sun is low it is more likely to be obscured by either cloud on the horizon or intervening buildings and vegetation; and
- the centre of the rotor's shadow passes more quickly over the land reducing the duration of the effect.

At distance the blades do not cover the sun but only partly mask it, substantially weakening the shadow. This effect occurs first with the shadow from the blade tip, the tips being thinner in section than the rest of the blade. The shadows from the tips extend the furthest and so only a very weak effect is observed at distance from the turbines.

Shadow flicker can be mitigated by siting wind turbines at sufficient distance from residences likely to be affected. Flicker effects have been proven to occur only within 10 rotor diameters of a turbine. Therefore, if a turbine has 90 metre diameter blades, the potential shadow flicker effect could be felt up to 800 metres from a turbine.

Around 0.5 per cent of the population are epileptic and of these around 5 per cent are photosensitive. Of photosensitive epileptics, less than 5 per cent are sensitive to lowest frequencies of 2.5-3 hertz, the remainder are sensitive only to higher frequencies. The flicker caused by wind turbines is equal to the blade passing frequency. A fast-moving three-bladed machine will give rise to the highest levels of flicker frequency. These levels are well below 2 hertz. The new generation of wind turbines is known to operate at levels below 1 hertz.

Turbines can also cause flashes of reflective light which can be visible for some distance. It is possible to ameliorate the flashing but it is not possible to eliminate it. Careful choice of blade colour and surface finish can help reduce the effect. Light grey, semi-matt finishes are often used for this.

It can be seen from the above description when shadow flicker is likely to occur and when reflection of reflected light is likely to be an issue. Both of these phenomena at this site are felt to be minimal, because of the distance of the turbines from the nearest residential property coupled with the fact that those nearest properties are shielded by Burton Wood and the escarpment and also the fact that the finished colour of the turbines is an off-white semi-matt grey finish.

Further information in respect of shadow flicker was requested from the applicants and this was submitted with the supplementary information received which was advertised by site and press notices and the further information supplied is in accordance with the guidance in the Companion Guide to PPS 22 which is quoted above in this section of the report.

During the consultation process many of the objectors have mentioned the fact that the carbon saving figures quoted in the environmental assessment are incorrect and that wind farms are inefficient producers of electricity. This requires a degree of explanation.

The CO<sub>2</sub> savings cannot be particularly specific as the range of power-producing options have different emission levels. Therefore, if wind power is compared to generation of electricity by coal, a higher saving is being made than if it is compared to power being produced by gas. If the comparison is made to nuclear or hydro-generated power the saving will be even smaller. Nevertheless, as outlined in the national policy section of this report, it is the Government's prerogative to encourage the production of electricity from renewable sources. Wind is one of those sources and therefore the savings made are incidental to the debate because it is the Government's intention to reduce our emissions to levels of former generations to slow down the process of global warming. Similarly, the level of electricity produced, whilst being small, looking at individual turbines, compared to the large fossil fuel fed power stations, a start has to be made somewhere and wind energy is seen as being a major player in making that start of

reducing CO<sub>2</sub> to slow down the process of global warming on an international scale.

It is not the purpose or intention of this report nor, may it be suggested, the duty of this committee to question national policy. It is for this Planning Committee to determine and assess the merits of this proposal on this site.

A number of the letters of representation, and indeed a formal consultation response from the British Horse Society, claim that the bridleway close to the site is too close to the turbines to be safe.

Referring again to the Companion Guide to PPS 22, where such matters are debated, at paragraph 56 it says, 'the British Horse Society, following internal consultations, has suggested a 200 metre exclusion zone around bridlepaths to avoid wind turbines frightening horses.' Whilst this could be deemed desirable, it is not a statutory requirement, and some negotiation could be undertaken if it is difficult to achieve this.

In the individual consultation response from the British Horse Society they suggest three times the maximum height of the turbine blade for any route used by horses as the minimum requirement.

The bridleway runs generally in a north-south direction at the foot of Burton Wood on land which is almost at the same level as the turbines. The four turbines closest to this bridleway are between 400 and 450 metres away. Taking the guidance in PPS 22 of 200 metres being the minimum distance it is well exceeded but considering the British Horse Society's consultation response, which is given without reference to any guidance, there is a marginal shortfall of between 50 and 80 metres.

Under the circumstances it has not been considered necessary to require the turbines to be located further away from the bridleway as the distance of the current design is considered acceptable.

Although the environmental statement deals with certain issues, there are issues which cannot be considered within the planning consideration. These relate to aircraft, radar and airport operations, separation distances from power lines, roads and railways, and electromagnetic and interference with telecommunications. These matters are dealt with within the environmental statement and the planning authority is satisfied that the applicants have

made every endeavour to resolve these issues, some of which, particularly relating to electromagnetic interference and telecommunication interference, will be dealt with by conditions.

In conclusion, the applicants, in considering accessibility to the site, have identified that the sharp bend at Neap House on the B1216 could prove problematical for the delivery of large turbine components to the site. Accordingly, it is envisaged that turbine component delivery vehicles would be transported directly to Flixborough Wharf via the River Trent and delivered to site via a new access road through the northern boundary of the wharf adjacent to the mineral rail track.

In conclusion, there are no objections of such a significant nature, either from statutory consultees or from third party representations that suggest that this site is an unacceptable one. In assessing the impact on the landscape, it is assessed and concluded that the landscape has sufficient capacity to accommodate this small wind turbine development on the eastern bank of the River Trent without exhibiting significant harm and adverse impact on landscape and visual issues to such a degree that warrant the application's refusal. Similarly, the issues of noise, because of the way the assessment has been carried out and the safeguards that have been built into the operational requirements of the turbines, can be adequately dealt with by the imposition of appropriate planning conditions which will be enforceable and if a nuisance is created will remedy the situation by additional work being carried out to the affected turbine or its removal from the site. Cultural and ecological matters have been satisfactorily agreed with both Natural England and English Heritage and detailed issues that have been raised in objections such as siting, shadow flicker, carbon saving efficiency and the use of the public bridleway have all been satisfactorily addressed.

There are no substantive reasons to withhold consent for this development. It is in line with national, regional and local policy and is an appropriate site for a development of this type and of its proposed scale. It will not harm residential amenity and those objections that have been made on non-planning grounds relating to loss of view and devaluation cannot be considered within the remit of this planning application.

## **RECOMMENDATION**

**Grant permission subject to the following conditions**

1.

The development must be begun before the expiration of three years from the date of this permission.

Reason

To comply with section 91 of the Town and Country Planning Act 1990.

2.

This permission is for a period not exceeding 25 years from the date the development is first connected to the electricity grid, such date to be notified to the local planning authority not later than one month from the making of such connection.

Reason

Application has only been made for a 'life span' of 25 operational years.

3.

Within 12 months of the end of the 25-year period pursuant to condition 2 above, all wind turbines, ancillary equipment and buildings shall be dismantled to below ground level (or as otherwise agreed in writing with the local planning authority) and removed from the site, and the land shall be restored in accordance with a decommissioning, restoration and aftercare scheme to be submitted for the approval of the local planning authority no later than 12 months prior to the expiry of the 25-year period referred to in condition 2 above. The decommissioning process shall proceed in accordance with the approved scheme unless the local planning authority gives its written consent to any variation.

Reason

Application has only been made for a 'life span' of 25 operational years.

4.

No development shall take place until details of the design and external appearance (including colour finishes) of all turbines and all other buildings and structures have been submitted to and approved in writing by the local planning authority. The development shall be carried out in accordance with the approved details and the colour finishes of the wind turbines shall not be changed without the consent in writing of the local planning authority.

Reason

In the interests of visual amenity in accordance with policy DS1 of the North Lincolnshire Local Plan.

5.

Notwithstanding the details submitted with the application, the centre of the tower of each wind turbine shall be sited within 50 metres of the location as shown in Figure 3 (rev e) in the Environmental Assessment (Volume 3) unless the local planning authority gives written consent to any variation.

Reason

In order to allow some flexibility in foundation design/location.

6.

If any turbine ceases to be operational for a continuous period of 12 months, it shall be dismantled and removed from the site, and that part of the site shall be restored in accordance with details approved in writing in a scheme to be submitted to the local planning authority no later than 2 months after the expiration of the said period of 12

months.

Reason

In the interests of visual amenity.

7.

The wind turbines shall not be illuminated.

Reason

In the interests of visual amenity.

8.

The blades of all wind turbines shall rotate in the same direction.

Reason

In the interests of visual amenity.

9.

Prior to the commencement of the development, a scheme of investigation and alleviation of any electromagnetic interference to TV and radio reception, which may reasonably be attributable to the operation of the turbines hereby permitted, shall be submitted to and approved in writing by the local planning authority. The procedure in the approved scheme shall thereafter be implemented unless the local planning authority gives its written consent to any variation.

Reason

In order to ensure adequate mitigation of any impacts due to electromagnetic interference resulting from the turbines or their operation.

10.

Prior to the commencement of the development, a construction method statement shall be submitted to and approved in writing by the local planning authority. Such a scheme shall include details of all on-site construction, drainage, ecology mitigation, restoration/reinstatement work and timetables for all stages of the development. Specifically this method statement shall address the following works:

- public road works (widening/junction improvements/-entrance works)
- site tracks
- watercourse crossings
- construction compounds
- crane hardstandings
- cable trenches
- foundation works
- substation and control building (including screening of substation with indigenous mix planting)
- anemometry masts
- pollution prevention and control plan
- cleaning of site entrances and the adjacent public highway
- post-construction restoration/reinstatement of the working area
- the presence of an archaeological watching brief during soil stripping in the construction period
- site drainage plan
- use of box culverts and sediment control measures
- soil erosion control measures
- wheel-washing facilities.

Reason

To ensure best practices throughout the constructional

phase of the development are used.

11.

Prior to the commencement of the development, a traffic management plan shall be prepared in consultation with the local highway authority and shall be submitted to and approved in writing by the local planning authority. Such plan shall include details of access routes for all vehicles carrying turbine parts and any alterations or improvements which may be required to the highway network along these routes, including advisory signs. During construction work all deliveries shall be undertaken in accordance with the approved traffic management plan unless the local planning authority gives its written consent to any variation.

Reason

In the interests of highway safety.

12.

No development shall take place until the applicants, or their agents or successors in title, have secured the implementation of the programme of archaeological work in accordance with the document 'Grange Wind Farm, North Lincolnshire, Written Scheme of Investigation for Archaeological Mitigation' prepared by Peter Cardwell, dated March 2009 (ref: Report 28/4).

Reason

To comply with policy HE9 of the North Lincolnshire Local Plan because the site contains features of recognised archaeological importance.

13.

The archaeological mitigation strategies shall be carried out in accordance with the approved details and timings, subject to any variations agreed in writing by the local

planning authority.

Reason

To comply with policy HE9 of the North Lincolnshire Local Plan because the site contains features of recognised archaeological importance.

14.

A copy of any analysis, reporting, publication or archiving required as part of the mitigation strategies shall be deposited at the North Lincolnshire Sites and Monuments Record within one year of the date of completion of the development hereby approved by this permission or such other period as may be agreed in writing by the local planning authority.

Reason

To comply with policy HE9 of the North Lincolnshire Local Plan because the site contains features of recognised archaeological importance.

15.

Prior to the commencement of the development hereby permitted, details of the make, model and sound power levels of the wind turbines to be erected shall be provided to and approved in writing by the local planning authority. The information provided shall be of adequate detail to allow proper comparison with the contents of Section 8 of the Environmental Statement (2008).

Reason

To ensure that the turbines operate in accordance with the parameters set out in the Environmental Assessment and in accordance with ETSU-R-97.

16.

Within three months of the proposed development becoming operational, the applicants shall employ a suitably qualified acoustic consultant to undertake a comprehensive noise assessment to determine the actual noise levels at the noise sensitive receptors, identified as R1-R7 in the submitted noise assessment; Chapter 8 of the Environmental Statement, during both daytime and night-time periods arising from the operation of the development. A tonal assessment of the noise produced by the development shall be undertaken as part of this assessment and penalties added to derived noise levels where required.

The assessment as a whole shall be undertaken in accordance with the requirements of the ETSU document 'The assessment and rating of noise from wind farms' (1997).

The report submitted shall include a comparison of the actual noise level produced by the development to the wind dependent background noise level during both daytime and night-time periods at each of the noise sensitive receptors (identified as R1-R7 in the submitted noise assessment; Chapter 8 of the Environmental Statement 2008).

A report detailing the findings of this assessment shall be submitted to the local planning authority within one month of completion of the noise assessment. This report shall include details of remedial works to be undertaken in respect of noise to bring actual noise levels within the absolute levels of 35 decibels for daytime periods and 43 decibels for night-time periods and at any rate within 5 decibels of the wind dependent background noise levels where any of these levels are exceeded at any of the receptors R1-R7 (as per the submitted noise assessment; Chapter 8 of the Environmental Statement 2008). These works and the timescale for their implementation shall be agreed with the local planning authority prior to their commencement.

Reason

To ensure that the turbines operate in accordance with the parameters set out in the Environmental Assessment and in accordance with ETSU-R-97.

17.

Should the council receive complaints regarding noise from the development subsequent to it becoming operational, the applicant shall, at the request of the council, undertake a noise assessment in accordance with the requirements of condition 1 at, or within a reasonable distance from, the complainant's premises.

Reason

To ensure that the turbines operate in accordance with the parameters set out in the Environmental Assessment and in accordance with ETSU-R-97.

18.

All cabling on the application site between the wind turbines and the site substation shall be installed underground.

Reason

In the interests of visual amenity.

19.

No development shall take place until a written scheme has been submitted to and approved in writing by the local planning authority setting out the protocol for the assessment of shadow flicker in the event of any complaint, including remedial measures. Operation of the turbines shall take place in accordance with the agreed protocol unless the local planning authority gives prior written consent to any variations.

#### Reason

In order to provide mitigation of the effects of shadow flicker, should they be evident to an unacceptable level.

20.

No development shall commence until appropriate survey and working methods have been agreed in writing with the local planning authority which will safeguard badgers, water voles and breeding birds prior to and during construction. The surveys will establish the breeding status of animals or birds at the time of the proposed construction and work may be delayed or re-scheduled in order that animals or breeding birds are not disturbed. Site works shall be carried out in accordance with the working methods agreed. A designated member of the developer's staff shall be responsible to meet the requirements of this condition and carry them out as agreed.

#### Reason

To meet the requirements of policies LC5 and DS1 of the North Lincolnshire Local Plan and Planning Policy Statement 9.

21.

Appropriate surveys of protected species and appropriate protection of same shall be agreed in writing with the local planning authority prior to any works of decommissioning being commenced. The decommissioning shall be carried out in accordance with that agreement. The persons or body responsible for the decommissioning works shall designate a person or persons to ensure that all decommissioning work is undertaken in accordance with the terms of that agreement.

#### Reason

To meet the requirements of policies LC5 and DS1 of the North Lincolnshire Local Plan and Planning Policy Statement 9.

22.

Details of habitat enhancement, including the establishment of grassland strips, bird seed areas and restoration of hedgerows of suitable species, shall be submitted to and approved by the local planning authority in advance of the development. The work should be completed at the first available planting season after the development has commenced. Suitable establishment and maintenance methods should be included in the agreement and work should be carried out as agreed.

Reason

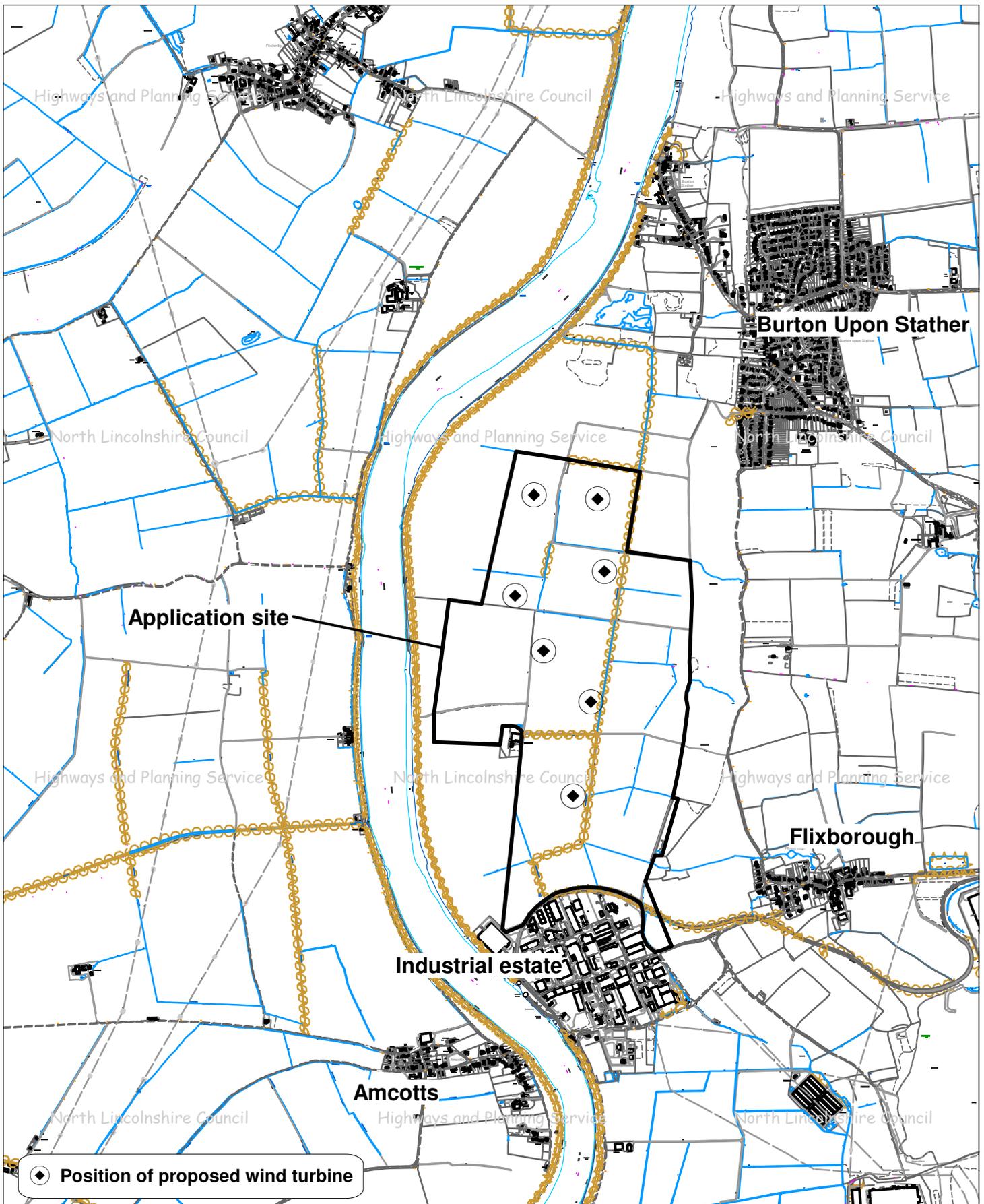
To further knowledge about the potential impact of wind farms upon nature conservation and to comply with Planning Policy Guidance Note 9.

23.

A monitoring programme for two years after construction of effects upon birds and bats shall be agreed in writing with the local planning authority. This survey shall be carried out as agreed and the information provided to the local planning authority.

Reason

To further knowledge about the potential impact of wind farms upon nature conservation and to comply with Planning Policy Guidance Note 9.



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**Highways and Planning Service**

Service Director,  
G Pople

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# Grange Wind Farm



## ENVIRONMENTAL STATEMENT

June 2008

### VOLUME I: NON-TECHINCAL SUMMARY



WIND PROSPECT DEVELOPMENTS LTD  
7, BERKELEY SQUARE  
CLIFTON  
BRISTOL BS8 1HG

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## I. INTRODUCTION

- 1.1. This Non Technical Summary (NTS) is part of the Environmental Statement (ES) prepared by Wind Prospect Ltd (Wind Prospect) acting as agents for Grange Wind Farm Ltd, a joint venture between Wind Prospect Developments Ltd and RidgeWind Ltd.
- 1.2. The purpose of this NTS is to provide a summary of the significance of effects that would result from the construction of the proposed Grange Wind Farm.
- 1.3. Grange Wind Farm Ltd proposes to erect seven wind turbines and ancillary structures on land near Burton upon Stather and Flixborough village, for the purpose of generating electricity from wind energy. **Figure 1** within this volume shows the site location and regional context of the proposals.
- 1.4. The full ES has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999. Its content has been sub-divided into four volumes and is described in **Table 1.1** below:

**Table 1.1 Environmental Statement structure and content**

<b>Volume 1 Non-Technical Summary (This volume)</b>	The Non-Technical Summary contains, in non-technical language, a summary of the Environmental Statement Main Text (Volume 2). It provides a brief description of the development and outlines the conclusions from the Environmental Impacts Assessments (EIAs) undertaken
<b>Volume 2 ES Main Text</b>	The Main Text contains a detailed description of the proposal. It evaluates the existing environment, identifies and assesses the predicted environmental impacts that could occur as a result of the development. It provides a detailed analysis of the design procedure and how mitigation measures have been incorporated into the design, where possible, to prevent, reduce or offset any environmental impacts identified.
<b>Volume 3 Figures</b>	The Figures volume contains all the illustrative material referred to in the Main Text (Volume 2) of the ES, including regional and local maps, site design details, photomontages (simulated views of the wind farm) and technical diagrams.
<b>Volume 4 Appendices</b>	The Appendices volume holds details of assessment methodologies, assessment data, technical details and background information.

## 2. GRANGE WIND FARM PROPOSAL

- 2.1. The site works would include seven wind turbines and foundations, crane hardstandings, a site entrance, internal access tracks, underground cable network, temporary construction compound, switchgear house and wind monitoring mast and would be located on a combination of Grade 1 and Grade 2 arable land approximately 6km northwest of the centre of Scunthorpe, 1.5km northwest of Flixborough, 1.5Km southwest of Burton upon Stather and 1km north of Flixborough Stather Industrial Estate.
- 2.2. The wind farm construction would be completed over a period of approximately 9-12 months and all construction works would comply with the requirements of a Construction Method Statement, to be agreed in advance with the Environment Agency and the local and/or county council.
- 2.3. Once the turbines were in operation, they would be monitored remotely and not staffed. Maintenance personnel would make routine visits by car approximately once a month, with intermediate visits as and when necessary.
- 2.4. **Table 2.1** summarises the windfarm components and associated information:

**Table 2.1 Wind Farm Components**

<b>Turbines</b>	The exact model of turbine to be used at the site would be decided following a future tendering process. It is however anticipated that a REpower MM92 turbine or similar would be used on site. Each turbine would have a rated capacity of 2 MW, thereby providing a maximum collective installed capacity of 14 MW. Each installed turbine would have a maximum height of up to 126m to blade tip, with a maximum tower height of approximately 80m and a blade rotor diameter of approximately 92m.
<b>Turbine Foundations</b>	A detailed geotechnical investigation would be undertaken to establish the nature of the sub soil at each given turbine location, upon which the most appropriate foundation detail would be applied. The turbine foundation would be either a gravity foundation or a piled foundation design.
<b>Crane Hardstandings</b>	<p>An area of hardstanding of approximately 50m x 25m would be required adjacent to each turbine position in order to accommodate the cranes required for turbine installation and maintenance.</p> <p>A smaller crane hardstanding of 30m x 15m would be required adjacent to the permanent anemometry mast.</p> <p>The crane hardstandings would be retained throughout the operational life of the wind farm to allow for any periodic turbine maintenance required.</p>

<p><b>Internal Access Tracks</b></p>	<p>A total of 4.6Km of internal access tracks would be required to access the seven turbines. Each access track would be approximately 5m wide and would lead into the areas of hardstanding adjacent to each turbine.</p> <p>As far as possible, the wind farm infrastructure would utilise existing farm tracks with new tracks constructed only where necessary.</p> <p>All access tracks would be retained throughout the operational life of the wind farm to allow periodic access for maintenance of the turbines.</p>
<p><b>Switchgear House, Electrical System and Grid Connection</b></p>	<p>A single storey electrical switchgear house approximately 10m x 7.5m, with a maximum height of 6m and foundations to a depth of at least 1m, will be constructed on the site.</p> <p>The electricity produced from the turbines would be transformed up to the appropriate voltage by a small transformer located within each turbine structure and then conducted to the switchgear house via underground distribution cables.</p> <p>Electricity generated by the turbines would be conducted from the switchgear building, underground, along public road and highway verges from the site to the (proposed) substation at Flixborough Industrial Estate, or to an alternative location determined by the local distribution operator.</p>
<p><b>Temporary Construction Compound</b></p>	<p>A temporary construction compound approximately 50m x 25m would be constructed to the same standards as the crane hardstandings and access tracks. The compound would be used for the storage of materials, plant and equipment as well as providing welfare and office facilities for the staff engaged in constructing the wind farm. Once the construction of the wind farm was completed, the construction compound would be removed and the land returned to its former use.</p>
<p><b>Anemometry Mast</b></p>	<p>An 80m permanent wind anemometry mast would be erected. This would provide necessary information for the control and monitoring of the site and would be retained throughout the operating life of the development. The wind anemometry mast selected for the site would be of lattice form.</p>

### Site Access Route and Vehicle Types and Movements

- 2.5. Various vehicle types would be required during the construction stage of the wind farm. Of these, the majority would be standard road vehicles of similar type to those using local roads on a daily basis.
- 2.6. However, the delivery of the main wind farm components would require vehicles and transport configurations that are longer and/or wider and/or heavier than standard road vehicles.
- 2.7. The proposed access route to the site consists of the M181, A1077, B1216 and Stather Road. This route has been built to serve Flixborough Wharf and regularly carries articulated lorries and other HGVs. Turbine components would be transported directly to Flixborough Wharf via the River Trent and delivered to site via a new access road through the northern boundary of the Wharf adjacent to the mineral railtrack. The assessment of this route has shown the access to be feasible.
- 2.8. The route would continue to the site access point as shown in **Figure 2**.

- 2.9. The anticipated vehicle movements would average to approximately 4 return trips per day over the 9 months the construction period would take.
- 2.10. The 3.4 hectares of land required for the proposal would be restricted to the duration of the project lifespan, following which the development would be decommissioned and the land would once again be available for agricultural use.

### 3. THE NEED FOR THE DEVELOPMENT

- 3.1. There is broad consensus amongst scientists worldwide that greenhouse gas emissions resulting from the burning of fossil fuels causes climate change and that a reduction in these emissions is needed urgently to minimise the environmental consequences of global warming<sup>1</sup>. The need to produce electricity from renewable sources stems from the acknowledged need to combat global climate change. A recent study examining over 900 peer-reviewed papers on global climate change, stretching back several years, found that no single paper disagreed with the theory that humans cause planetary warming.<sup>2</sup>
- 3.2. It is estimated that carbon dioxide emissions from power stations accounted for 32% of the UK's total carbon dioxide emissions in 2006.<sup>3</sup> Wind energy has been recognised as being the most technologically advanced, cost effective direct and readily available means of cutting down such emissions.
- 3.3. Strong and effective policies to encourage the development of renewables have been introduced at European and national levels, cascading down through the planning system to the local level. Examples of this are:
  - Climate Change Levy (CCL) (2001)
  - Renewables Obligation (RO), and the Renewables Obligation Scotland (ROS) (2002)
  - Energy White Paper, "Our Energy Future – Creating a Low Carbon Economy" (2003)
  - The Energy White Paper review, "The Energy Challenge – Energy Review Report" (2006)
  - Energy White Paper, "Meeting the Energy Challenge" (2007)
- 3.4. The introduction of a Renewables Statement of Need<sup>4</sup> makes it clear that renewable energy, including onshore wind, is central to reducing emissions and maintaining the

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<sup>1</sup> United Nations Inter-Governmental Panel on Climate Change (IPCC): "The Physical Science Basis of Climate Change" February 2007.

<sup>2</sup> Oreskes, N. (2004). 'The Scientific Consensus on Climate Change' Science 3 December 2004 306: 1686.

<sup>3</sup> Digest of United Kingdom Energy Statistics (2007), <http://stats.berr.gov.uk/energystats/dukes07.pdf>

<sup>4</sup> Annex D of the DTI (2006c) 'The Energy Challenge – Energy Review Report.' URN No: 06/1576x

<http://www.berr.gov.uk/energy/review/page31995.html>

reliability of our energy supplies and the benefits of renewables should be given significant weight in the planning decision making process. Small renewable energy developments are of national importance.

- 3.5. In this context, the need for the proposed Grange Wind Farm to contribute to a reduction in greenhouse gas emissions is evident. It would, on average, generate as much electricity as is used by approximately 8,300<sup>5</sup> households in the area and would avoid the emission of approximately between 13,613 – 32,745 <sup>6</sup>tonnes of carbon dioxide, 370 tonnes of SO<sub>2</sub> and 110 tonnes of NO<sub>x</sub> <sup>7</sup>annually.
- 3.6. The UK has the best and most geographically diverse wind resource in Europe and more than enough to meet current renewable energy targets.<sup>8</sup>

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<sup>5</sup> This number is calculated with the following equation: **predicted site output/average electricity consumption per household in the area**

<sup>6</sup> The range of CO<sub>2</sub> displaced will be between 370 grams per kWh when wind displaces gas emissions and 890 grams per kWh when wind displaces coal emissions

<sup>7</sup> SO<sub>2</sub>: 10 grams per kWh and NO<sub>x</sub>: 3 grams per kWh. These figures have been provided by BWEA.

<sup>8</sup> Sustainable Development Commission “Wind Power in the UK” (<http://www.sd-commission.org.uk/publications.php?id=234>)

## 4. PLANNING THE DEVELOPMENT

- 4.1. The design of The Grange Wind Farm has been an evolving process and reflects the assessments conducted as part of the Environmental Impact Assessment (EIA).
- 4.2. The strategic site selection and site reassessment process determined the location of the proposal to be a viable site for a wind energy development.
- 4.3. All information and consultation responses were analysed in relation to the operational, environmental and safety requirements of each element of the potential wind farm development. This led to a process of detailed design development as the relevant factors were taken fully into account, as detailed knowledge of the site was accumulated and as the results of public consultation became clear.
- 4.4. Following the public consultation and after carrying out a feasibility study, an alternative access route for turbine components has been proposed. This route was discussed in **Chapter 2** of this volume and can be seen in **Figure 2**.

### CONCLUSION

- 4.5. The development, as far as technologically possible, has been designed to minimise the impact on local communities and the local environment. The submitted design is the most suitable configuration for the landscape and ecological setting in which the development will take place.
- 4.6. The final design is presented in **Figure 3**.

## 5. LANDSCAPE AND VISUAL

- 5.1. The location of the turbines has been carefully selected in order to ensure they cause as minimal visual impact as possible.
- 5.2. Whilst the proposal would become a defining characteristic of the landscape of the site and immediate locality, wind turbines are a relatively recent addition to our environment and there is no consensus of opinion on the most appropriate types of landscape in which to site the various scales of wind energy development.
- 5.3. Landscape character is not a static “picture” but is ever evolving as a result of both man’s influence and natural forces. There have been progressive changes to the character of this landscape over the last century as a result of changes in agricultural practices and we may see quite dramatic changes over the coming century as a result of climate change. Topic Paper 9 (Swanwick 2004) produced by Scottish Natural Heritage and The Countryside Agency examines possible landscape change over the next century and notes that climate change could have marked effects on landscape character and could compromise the characteristic features of some of our more valued landscapes (Swanwick 2004, paras 75 and 76).
- 5.4. The seven proposed wind turbines will become a defining characteristic of the landscape on the site and local area within approximately 5km of the nearest turbine. This area is not within any national landscape designations and the proposed wind turbines will not compromise the purposes of any local landscape designations. There will also not be any significant effects on landscape fabric.
- 5.5. At present there is not a consensus of opinion regarding the extent to which any significant adverse effects on visual amenity should be considered acceptable. The acceptability of such significant effects depends on the geographical extent of the significant effects, the proportion of the time when these significant effects will be evident, the number of people who will be exposed to the effects and the proportion of receptors who are likely to consider the effects acceptable prior to and post construction (public perception).
- 5.6. The geographical extent of the significant effects on visual amenity will be limited to within approximately 5km of the nearest turbine (for high sensitivity receptors such as residents with views to the turbines), to within approximately 4km of the nearest turbine (for high/medium sensitivity receptors such as cyclist along the National Byway cycle route) and to within approximately 3km of the nearest turbine (for medium sensitivity receptors such as motorist along the A1077), but this assumes excellent visibility and that the receptors will be exposed to the change for the first time.
- 5.7. In reality, the prominence of the wind turbines and, therefore, the potential for significant effects on visual amenity will vary with the time of day and year, different weather, lighting and visibility conditions and different wind directions (eg the turbines are much less noticeable when the rotors are side on to the observer). Also, receptors tend to become accustomed to change over time.

- 5.8. Opinions on wind farms vary from person to person. People who consider wind turbines to be aesthetically pleasing, symbols of clean energy that represent a real move towards combating the effects of climate change, may see the addition of turbines to the landscape and their views as positive/beneficial, whilst those who consider them to be inefficient and an industrialisation of the countryside are likely to see them as a negative/adverse addition to their local area.
- 5.9. For an individual, this threshold of acceptability can be different depending on the location and size of the installation, and can also vary over time as the result of changes in their understanding of the technology or their increasing familiarity with a particular scene. The recent DTI commissioned research on Renewable Energy Awareness and Attitudes (GfK 2006) has noted a strong correlation between awareness and attitudes to renewable energy, in that those respondents who were more aware of renewable energy technologies were more likely to be in support. For example, it noted that support for renewable energy and the use of wind power was strongest amongst respondents who cited that living near a renewable energy development influenced their opinion.
- 5.10. There is not a consensus of opinion on the threshold above which significant changes in the view would have an unacceptable effect on visual amenity. This would vary from person to person, with those in favour of wind energy more likely to accept a further wind energy development and the associated changes to their visual amenity than those who do not find wind turbines aesthetically pleasing.
- 5.11. A public attitude survey, carried out amongst residents living within a two mile radius of the Taff Ely Wind Farm, South Wales, concluded that:

*“More than three in five local people support Taff Ely Wind Farm in Wales, a pattern of support which is repeated in opinion polls carried out among people living near to the wind farm. Furthermore, the 20 turbine project can be seen by more than 70% of the people questioned, yet more thought it made the scenery more interesting than spoilt the scenery.”*

- 5.12. The turbines will result in significant changes to views from a number of residential properties, minor roads, local footpaths and bridleways in the locality, but these visual effects will be limited and the turbines will not be overbearing in any of these views. **Figure 4** illustrates the predicted view from the A1077, Scunthorpe.
- 5.13. The Landscape and Visual Impact study concluded that the extent of the significant effects is limited, the proposal would have an obvious and directly functional relationship with the nature of the local landscape and, in landscape and visual terms the proposal would be acceptable in this location.

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<sup>9</sup> Robertson Bell Associates, 1997, Taff Ely Residents Survey

## **CUMULATIVE IMPACT**

- 5.14. The addition of the permitted Bagmoor, Keadby and Tween Bridge turbines to the baseline would result in only slight changes to landscape character and views such that the additional effects of the proposed Grange Wind Farm would be similar, but slightly less than that predicted in the non cumulative assessment. There would not be any further significant additional effects as a result of the proposed Grange Wind Farm.
- 5.15. The additional effects resulting from the potential introduction of the proposed Twin Rivers, Goole Fields and Sixpenny Wood would be greater than those predicted for the non cumulative assessment and would result in some significant cumulative effects to landscape character and views.

## 6. ECOLOGY

- 6.1. For the ecological assessment, the following surveys were then carried out:
- Breeding birds
  - Wintering birds
  - Bats
  - Badgers
  - Otters
  - Water Voles
- 6.2. The key mitigation measure undertaken with regard to nature conservation interests has been to select an area for the wind farm that:
- Is sufficiently distant from any statutory or non-statutory protected sites to ensure that none are directly affected;
  - Is located on arable farmland - no important ecological habitats will be lost;
  - Avoids any bird concentrations and main areas used by important species that may be particularly sensitive to a wind farm development; and
  - Avoids water courses as much as possible.

### CONCLUSION

- 6.3. As a result of the design mitigation, avoiding the more important areas of ecological interest, and mitigation measures, there would be no significant residual effects of the proposed wind farm on any ornithological or habitat interest features, during any phase of the development. There would be no significant primary or residual effects in terms of the Environmental Impact Assessment (EIA) Regulations. There would also not be any likely significant effect on any European Protected Sites as defined under the Habitats Regulations.

## **7. CULTURAL HERITAGE**

### **CONSERVATION AREAS**

- 7.1. As a result of detailed assessment of the four Conservation Areas within the study area, some limited effects on the character, appearance, setting and views into and out of Burton upon Stather Conservation Area would occur as a result of the proposed Grange turbines. However, these effects would not result in any significant impacts on the Conservation Area. Additionally, fieldwork found that no significant cumulative effects would occur on Burton upon Stather Conservation Area as a result of the combination of the proposed Grange turbines with any of the consented or proposed wind farms within 15km of the Grange site.
- 7.2. There would be no significant effects or significant cumulative effects on Normanby, Alkborough or Old Crosby Conservation Areas.

### **LISTED BUILDINGS**

- 7.3. The settings of thirty-two Listed Buildings were assessed. Of these three Listed Buildings were predicted to view the proposed turbines from within their setting. However, in each case, the visibility of the proposed Grange turbines was considered not to result in a significant effect on the setting of any of the Listed Buildings.
- 7.4. Taking into account other wind farms, the setting of each of these three Listed Buildings was then assessed to determine any potential cumulative impacts as a result of the combination of the proposed Grange turbines with any of the consented or proposed wind farms within 15km of the Grange site. Only the setting of one Listed Building, The Old Vicarage in Luddington, is predicted to see the proposed Grange turbines as well as another wind farm (in this case Bagmoor wind farm) within the setting of the building. However, this combined visibility is not considered to result in any significant cumulative effects.
- 7.5. Therefore, there would not be any significant effects, or significant cumulative effects on the setting of any of the Listed Buildings within 5km of the Grange site.

### **ARCHAEOLOGY**

- 7.6. The archaeological assessment study identified a number of recorded sites within the footprint of the proposed Grange Wind Farm and the immediate vicinity. A few of these sites include stray finds of both prehistoric and Romano-British date, as well as cropmarks of possibly contemporaneous ditches or enclosures, along the eastern edge of the proposed area of development. The majority of these features and finds are restricted to an area of exposed windblown sand deposits along the base of the escarpment below the Lincoln Edge, and no sites or finds of similar date are recorded in the vicinity of the proposed turbines.

### **SCHEDULED MONUMENTS**

- 7.7. Eight Scheduled Monuments and a further nationally important (but unscheduled) site are located within 6km of the proposed wind farm, including the site of the Flixborough Saxon nunnery and All Saints medieval church some 1.7km to the south-

east. All of the other Scheduled Monuments are 4.2km or more from the nearest proposed turbines.

- 7.8. The predicted physical impacts of the construction of the proposed wind farm are limited to those of the turbines and adjacent hardstandings, and the associated access roads, upon any surviving subsurface remains of a number of former field boundaries, areas of ridge and furrow and a trackway. In each case the effect would be upon a small component of a more extensive site of low sensitivity and therefore of minor significance. The proposed switchgear building compound and construction compound will not affect any recorded archaeological remains, but being located on the exposed sand deposits at the base of the escarpment are considered to be within an area of relatively greater archaeological potential.
- 7.9. In order to establish an appropriate strategy to mitigate any potential adverse effects of the construction of the proposed wind farm upon subsurface archaeological remains or deposits it is proposed that further evaluation should be undertaken. The results would be used to establish the need for further evaluation (such as targeted trial trenching) or a final scheme of mitigation. The scale, scope and methodology for all phases of evaluation and the final mitigation proposals would be agreed with North Lincolnshire Council and English Heritage.
- 7.10. The operational effect of the proposed wind farm upon the setting of Scheduled Monuments in the vicinity, both individually and cumulatively with other consented and proposed wind farms, is restricted to an impact of minor significance upon the setting of the visible remains of All Saints medieval church to the south of Flixborough and the nationally important moated site at North Conesby. No effects upon any other Scheduled Monuments are predicted.

#### **ISLE OF AXHOLME**

- 7.11. Within the Isle of Axholme zones that are located within the study area no significant effects as a result of the proposed Grange turbines are predicted.

#### **CONCLUSION**

- 7.12. The proposed Grange Wind farm would not therefore have any significant effects upon the historic environment.

## **8. NOISE**

- 8.1. An independent noise consultant was appointed to complete a survey of ambient noise in the vicinity of the proposed Grange Wind Farm. The levels of noise likely to occur at local residential properties as a result of the operation of the turbines could then be calculated, and the environmental implications considered.
- 8.2. The results were assessed against the guidelines available for wind energy developments, including PPG24 "Planning and Noise" and PPS22 "Renewable Energy". Particular attention is paid to the ETSU-R-97 report "The Assessment and Rating of Noise from Wind Farms" and the latest onshore wind energy planning conditions guidance note (RAB, the Renewables Advisory Board and BERR, the Department for Business Enterprise and Regulatory Reform).
- 8.3. The wind speed dependent noise levels predicted at the properties nearest the proposed wind turbines are lower than, or exceptionally, the same as, the current daytime background levels at the same wind speed. In some cases the aggregate noise from the turbines will exceed the background, but will always remain within the margin of 5dB above the background levels as permitted within ETSU-R-97.
- 8.4. The wind speed dependent noise levels predicted at the properties nearest the proposed wind turbines are generally lower than the current night-time background levels at the same wind speed. In some cases the noise from the turbines will exceed the background, but will always remain within the requirements specified within ETSU-R-97.

### **CONCLUSION**

- 8.5. The proposed daytime and night-time planning limits described above can be met by the site design, and the noise from the operational turbines will not be detrimental to the amenity of local residents.
- 8.6. Construction activities will not adversely affect the amenity of local residents.

## 9. HYDROLOGY, GEOLOGY AND HYDROGEOLOGY

- 9.1. This chapter is a summary of the report that assesses the potential effects of the proposed wind farm on geological, hydrogeological and hydrological conditions. Potential impacts were identified and assessed based on available data and literature reviewed. The significance of the impacts was subsequently determined based on the magnitude and the sensitivity of the site, and the type and the scale of mitigation needed. This included management and monitoring measures required to minimise the risk of residual impacts. The following key issues were considered:
- Modifications to natural and existing drainage patterns
  - Impacts on water quality
  - Impacts on groundwater
  - Impacts on flows in natural water courses
  - Disturbances and pollution of agricultural soils and ditches
- 9.2. From a hydrological perspective the site was designed to avoid sensitive areas and the site chosen is thus sufficiently distant from any statutory or non-statutory protected sites to ensure that none are directly affected. It is located on arable farmland with alluvial soils with limited risk of erosion. Furthermore there are no minor or major groundwater aquifer systems and no water supply nearby. Finally, the site avoids watercourses as much as possible.
- 9.3. Further mitigation identified in the assessment includes the installation of appropriate drainage to avoid adverse effect on the existing drainage system in terms of flow and water quality. Measures relating to drainage/hydrological conditions include:
- Installation of piped culverts where some of the access tracks will be crossing existing drains;
  - Establishment of grassland strips (4-8m wide) along arable field/track boundaries between access tracks and field/drain edges, where suitable opportunities exist;
  - Appropriate measures to prevent discharge of silt or other suspended solids from the site into any controlled water course;
  - Adoption of proven ecologically sensitive construction methods adhering to Pollution Prevention Guidelines (PPGs) set out by the Environment Agency to minimise the possibility of any adverse effects from construction;
  - Prevention of runoff from construction into the existing sewage system via a separate drain, passing through a sand filter, filter strip or other best practice control features.

### CONCLUSION

- 9.4. As a result of the design mitigation, avoiding the more important areas of hydrological and hydrogeological interest, and of the mitigation measures discussed above, there would be no significant residual effects of the proposed wind farm on the hydrological and hydrogeological conditions, during any phase of the development. There would be no significant primary or residual effects in terms of the EIA Regulations.

## 10. SOCIO-ECONOMIC ISSUES

- 10.1. The local economy in the district of North Lincolnshire has relied heavily on power generation. The area is home to five power stations, two major oil refineries and a steel works.
- 10.2. This section examines the contribution that the proposed Grange Wind Farm could make, both directly and indirectly, towards the economic and social well-being of the local community.
- 10.3. The development of the proposed wind farm would result in a number of socio-economic effects on the local economy, which would be largely beneficial. These include:
  - Enhanced agricultural viability of farms through rental income from the wind farm.
  - Where possible, local employment and contracts in both the construction of the wind farm and in its subsequent maintenance could be placed. These works could be to the value of approximately £2,800,000.
  - Diversification in power generation and more security of supply
  - Several studies suggest tourism would not be adversely affected.

## **11. ELECTRO-MAGNETIC SIGNALS AND AVIATION**

- 11.1. Microwave and other electromagnetic signals are transmitted throughout the country by a wide range of operators, including both statutory agencies and commercial companies. There is potential for interference to the transmission of these signals from any large structure, including wind turbines, which may be developed close to the signal path. In addition to microwave and other electromagnetic signals, turbines may have a limited effect on aviation radar in the UK. This section describes the potential interference effects and possible mitigation measures relating to the Grange Wind Farm site.
- 11.2. The Ministry of Defence raised no objections when they were first consulted. Current re-consultations are on going. There should be no impact on military air safety.
- 11.3. At present, consultations with NATS, the East Midlands and Robin Hood Airports are still ongoing.
- 11.4. There is a possibility of degradation of TV signals in the immediate vicinity of the site. In view of this potential risk, Grange Wind Farm Ltd would be prepared to resolve any such problems should they arise as a result of construction of the wind farm.
- 11.5. The request by BT to keep turbines from within 76m of their link has been incorporated into the design of the proposal. As a result, the turbines should not cause any interference.
- 11.6. Should planning consent be received, the required surveys will be conducted and mitigation measures will be agreed as requested by JRC and YEDL.

### **CONCLUSION**

- 11.7. As a result of the mitigation measures to be adopted by the developer the development would not result in any foreseeable significant impact on electromagnetic signals or aviation activities.

## 12. FIGURES