Heckington Fen Wind Park

Non Technical Summary

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Ecotricity Group Ltd
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NON TECHNICAL SUMMARY OF THE PROPOSED HECKINGTON FEN WIND PARK

PREPARED FOR THE DEPARTMENT FOR ENERGY AND CLIMATE CHANGE

JULY 2011

PREFACE TO NON-TECHNICAL SUMMARY

As required under the EIA regulations the Non-Technical Summary provides a synopsis of the assessments contained within the Environmental Statement (ES) and presents the information in a non technical manner avoiding, wherever possible, the use of technical terminology. The ES has been compiled and project managed by Ecotricity, with individual chapters being prepared by leading independent experts in the relevant field. The key contributors have been:

Oxford Archaeological Associates: Cultural Heritage

Kevin Shepherd: Ornithology

Parsons Brinckerhoff: Hydrology

Hoare Lea: Noise

QinetiQ: Aviation

Neil Bostock: Ecology

A Planning Statement has also been prepared in support of the application. The Planning Statement summarises the National, Regional and Local Planning Policy and other material considerations which can be used to help determine the outcome of this application.

All of these documents have been submitted to Department of Energy and Climate Change for consideration against the application under section 36 of the Electricity Act 1989 for a generating station at Heckington Fen.

Further copies of the Environmental Statement can be obtained by contacting Ecotricity at the address below at a cost of £150 per hard copy and £35 on CD.

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

Planning Department
North Kesteven District Council,
Kesteven Street
Sleaford
Lincolnshire
NG34 7EF

This Non-Technical Summary and the Environmental Impact Assessment is available to download free of charge from www.ecotricity.co.uk where photomontages of the proposed scheme and more information about the project can be viewed via our online exhibition.

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OVERVIEW

1. As required under the EIA regulations the Non-Technical Summary (NTS) provides a synopsis of the assessments contained within this Environmental Statement (ES) and presents the information in a non technical manner avoiding, wherever possible, the use of technical terminology. The NTS is a simple summary of the main environmental effects likely to occur during construction, operation and the removal of the wind park.

2. This proposed development comprises the erection of up to 22 wind turbines and associated infrastructure including access tracks, electricity sub-station and underground cabling on land at Heckington Fen near East Heckington in the County of Lincolnshire.

3. The exact turbine manufacturer has not been chosen but any turbines would have the maximum dimensions of 80m hub height and 125m to blade tip. The total maximum installed wind capacity of the proposal would be 54MW.

4. It is estimated that the wind park would generate a maximum of 131.12GWh per annum[1], enough electricity to meet the annual electricity needs of approximately 39,700 typical UK households[2]. This is equivalent to 102% of the households within North Kesteven and 1 in 7 of the household in Lincolnshire[3]. In generating electricity from a renewable source it is expected that the proposed development would prevent the emission of 56,382 tonnes of CO_2 each year[4] as well as significant quantities of SO_2 and NOx.

5. The developer - Ecotricity - was the UK's first 'green' electricity company, and has been involved in developing wind energy projects across the UK since it was founded in 1996. It is also a registered electricity supplier, providing green electricity to homes and businesses in the UK.

6. Since its inception 14 years ago Ecotricity has been involved in pioneering wind energy projects across the UK, including building London's first wind turbines and the first multi-megawatt wind turbine in the UK. To date, Ecotricity has built 52 turbines, with a further 20 wind turbines consented and awaiting construction.

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

2. *[2] Based on 'medium' UK domestic electricity consumption of 3,300kWh/pa as used by OFGEM.*

3. *[3] Based on figures from Census (2001) where) where North Kesteven District has 38,870 households and Lincolnshire has 272,153 households*

4. *[4] This figure is derived using a carbon dioxide offset ratio of 430g carbon dioxide per kWh of wind generation. It should be noted that future changes in the power generating mix and fuel costs in the UK over the life of the wind park means this figure may change over time.*

THE PROPOSAL

Introduction

7. This NTS forms part of an ES for the proposal undertaken by Ecotricity to construct a wind park on agricultural land at Heckington Fen, near East Heckington.

8. The wind park will operate for 25 years, after which it will be removed. The maximum installed capacity of the project will be approximately 54 megawatts (MW).

9. Global climate change is widely recognised as being one of the greatest environmental challenges facing the world today. The Government has set a domestic goal of reducing carbon dioxide emissions. Ten years ago it launched the UK Climate Change Programme, as part of our commitment to meeting our obligations under the Kyoto Protocol. Today, the importance of taking immediate action to minimise the impact of climate change is more urgent than ever.

10. In November 2008, the UK introduced the Climate Change Act which set ambitious targets for the reduction in carbon dioxide emissions. As well as a legally binding target of at least an 80% reduction in CO_2 emissions by 2050, the Act also set a reduction target of 26% by 2020. [5]

11. Government policy is unambiguous: renewable energy capacity is essential in addressing climate change.

Environmental Statement (ES)

12. This ES has been prepared in accordance with Environmental Impact Assessment (England) Regulations 2000. It describes the wind park development itself, the nature of the site and its surroundings, the potential effects of the development on the local environment and the measurements proposed to lessen, or mitigate, any potential effects identified.

13. The proposed development is considered to be a 'Schedule 2 development', under the Regulations. This means that a planning application for the proposed development should include certain types of information and assessments within the ES.

14. Potential effects of the wind park can be assessed as direct, indirect, secondary or cumulative; short, medium or long term; permanent or temporary; and, positive or negative effects. Potential effects are also considered during the construction, operation and removal (decommissioning) phases of the wind park.

15. The ES text is bound in an A3 document. Accompanying the ES are figures, appendices, a Planning Statement, a Flood Risk Assessment and this Non-Technical Summary. These documents are bound separately but are submitted along with the ES to Department of Energy and Climate Change (DECC).

5. [5] *OPSI (2008), Climate Change Act (2020 CO_2 figure revised to 34% below 1990 baseline) http://www.opsi.gov.uk/acts/acts2008/ukpga_20080027_en_1*

Site Selection

16. Finding a suitable place to build wind turbines is a complex process dependent on many factors. Using advanced digital mapping computer software and extensive consultation with local, regional and national bodies and organisations, Ecotricity found that this was a suitable site because:

- there is sufficient wind resource;
- homes are far enough away from the turbines not to be significantly affected by noise or shadow effects;
- there will be no interference that cannot be resolved with televisions, radar, or mobile phone masts;
- the power can be taken from the turbines to the local electricity grid;
- construction and maintenance vehicles can access the site;
- the current farming practices can continue around the turbines;
- the turbines will not result in any significant habitat loss and the site is not protected for ecological or landscape reasons;
- the land can be leased from the owner.

Results from Internal Site Selection

17. Constraints on turbine development are mapped using a Geographical Information System (GIS). Combining constraint maps reveals the areas which are suitable for appropriate development.

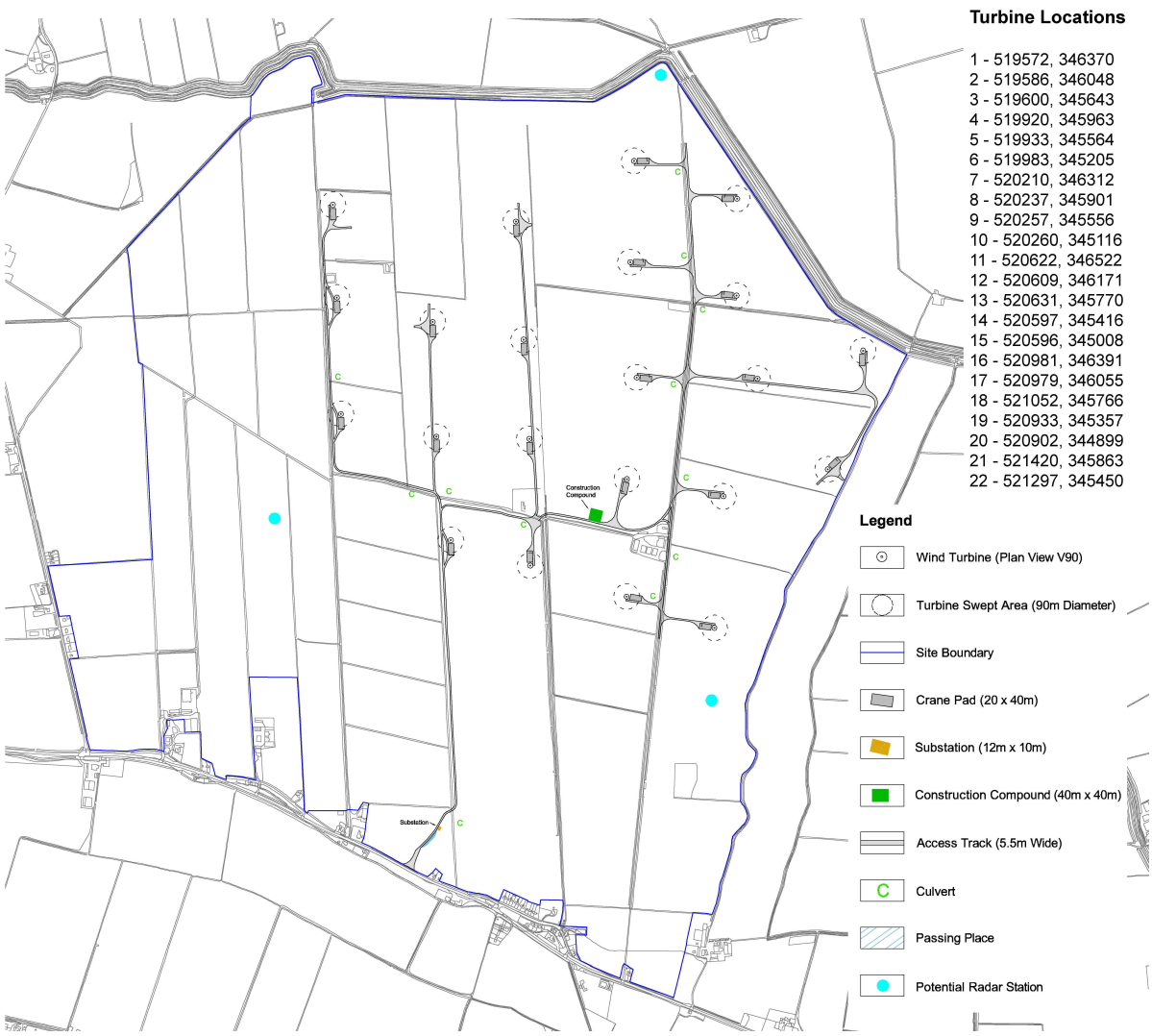
18. Despite generally good wind speed, a number of constraints to wind farm development exist within North Kesteven. These include proximity to residential housing and distance to the electrical grid network. Maps showing these constraints and the resulting suitable areas can be found in **Chapter 3: Site Selection & Design**.

Site Design

19. The final number of turbines and their locations has been influenced by various factors including radar and aviation studies, ecological habitats, landscape and built heritage considerations and feedback from the Council during pre-application discussions. Where possible, turbine locations were moved as far away as possible from residential properties.

20. The process of Environmental Impact Assessment (EIA) is an evolving, or iterative, one. This results in incremental changes to the proposed design to reach a final layout. Revisions of the layout of turbines at Heckington Fen Wind Park are usually a response to specific environmental impacts, identified throughout the EIA process. The final layout (see **Figure 1: Site Layout** overleaf) aims to mitigate against all of the identified environmental impacts where possible.

Figure 1: Site Layout



THE WIND PARK PROPOSAL

21. The proposed wind park comprises of the following:

- Up to 22 three bladed, horizontal axis wind turbines with a total maximum height to blade tip of 125m;
- Electrical substation;
- Access tracks between the turbines and crane pads;
- 33kV underground cabling to connect the turbines and sub-station; and,
- Temporary construction compound,
- Amended vehicular access.

Needs and Benefits

22. The Government's policy regarding renewable energy is to increase the supply of electricity from renewable sources of power such as wind, sun, tides and waves. The

objective is to reduce the UK's reliance on coal and gas, the use of which release pollutants into the atmosphere, such as carbon dioxide which is known to be causing the world's climate to warm up.

23. UK Government energy policy required 10% of all electricity produced to come from renewable sources by 2010, with the aim of rising to 40% by 2050. The need for new sources of renewable energy is urgent as currently only 6.7% (2009) of UK electricity is produced from renewables such as wind power.[6]

24. As set out in the East Midlands Regional Plan (EMRP) 2009, the region is required to install, 3671MW renewable electricity generation capacity by 2020, up from a baseline of 116MW in 2006.[7] For onshore wind power, the 2020 target is 175MW installed capacity, up from the 2006 existing installation of 54MW. Currently the region has 105.4MW of installed onshore wind power with 75MW approved but yet to become operational[8].

Community Consultation and Scoping

25. The consultation process Ecotricity carried out followed the requirements described by the Central Lincolnshire Statement of Community Involvement (July 2010)[9]. Under the terms of this document this project is considered a 'Major Application' requiring more community involvement and a greater variety of publication.

26. Before the submission of the planning application, Ecotricity undertook an extensive programme of consultation with all key stakeholders including The Secretary of State, North Kesteven and Boston Council, Natural England (NE), the Environment Agency (EA), Defence Estates (DE) and the Civil Aviation Authority (CAA). A full list of consultees (both statutory and non-statutory) is included in the ES within **Chapter 2: Environmental Impact Assessment**. The views and comments of these bodies influenced the final design of the wind park and the methodologies employed to assess environmental effects in the ES.

27. An enquiry for the submission of a formal scoping opinion was submitted to The Secretary of State in September 2010. However due to the pre submission under section 36 of our application the regulations did not allow for a formal scoping opinion to be made. In order to keep as much as possible with best practice and to inform the various potential environmental implications of the proposed development an informal scoping process was adopted. The informal scoping report was sent to all the statuary consultees and set out the proposed methodology for each of the technical assessments and requested comment on the suitability of the proposals.

28. Before the submission of the section 36 planning application and subsequent follow up submission of an ES to The Secretary of State a questions and answers session was held with Heckington Parish Council on the 7th September 2009 and local residents were invited to attend through the local parish newsletter. Around 10 parish councillors and 90

6. [6] *Digest of United Kingdom Energy Statistics 2010,* *http://www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx*

7. [7] *East Midlands Regional Plan (March 2009) Appendix 5*

8. [8] *Regional Renewables Update, Annual Monitoring Report, January 2010*

9. [9] *Central Lincolnshire Statement of Community Involvement* *http://www.n-kesteven.gov.uk/upload/public/attachments/1248/SCI_Final.pdf*

parishioners attended and raised questions and issues which were taken aboard during the process. Ecotricity staff were on hand to answer the questions as they arose.

29. Public exhibitions were also held on three consecutive days on the 6th, 7th and 8th of June 2011 at Heckington Village Hall, Swineshead Village Hall and South Kyme Coronation Hall respectively. This was manned by members of the Ecotricity team and the public were advised of the exhibition through 3,500 newsletters and invitation letters sent to properties up to 2km from the site and also including the population centres of Heckington, South Kyme, Swineshead and Great Hale. Members of the public were also invited by a newspaper advertisement in the Sleaford Standard and Sleaford Target and by email to local parish, ward and district councillors. Approximately 192 local residents attended the three day events.

30. A website has also been set up (http://www.ecotricity.co.uk/heckington-fen), which outlines the proposal and shows some of the exhibition information. A dedicated email address has also been established (heckington-fen@ecotricity.co.uk) which allows the general public to raise any queries with Ecotricity if they were unable to attend the public exhibition or they wish to discuss items further. A breakdown on the proposed public consultation process can be viewed in **Chapter 2: Environmental Impact Assessment.**

Public Opinion

31. With the increasing awareness of climate change issues and advances in wind energy technologies over recent years there have been a number of surveys carried out to gauge the public attitude to this progressing technology, dating back to the inception of the UK's first wind farm in 1992. The opinions on wind farms vary significantly with some strongly supporting the developments and others strongly opposing them.

32. The output of these surveys, carried out by, and on behalf of, several different bodies, shows that 8 in 10 people are in support of wind farm development, and nearly two-thirds of individuals surveyed are happy to live within 5km of a wind farm. The **Planning Statement** provides further details of these surveys.

ENVIRONMENTAL EFFECTS

33. As a result of the wide ranging series of consultation, the following areas have been identified as being of particular relevance to the proposed development of the Heckington Fen Wind Park and were subject to scrutiny during the Environmental Impact Assessment (EIA) process:

- Landscape and Visual;
- Cultural Heritage;
- Ecology;
- Ornithology;
- Hydrology;
- Noise;
- Traffic & Transport;
- Aviation;
- Shadow Flicker; and,
- Miscellaneous (Public Safety, Air Quality, Communications, TV & Radio reception; Agriculture; Tourism; Socio-economic).

Chapter 5: Landscape and Visual

34. The location of the turbines has been carefully selected in order to ensure that they cause as minimal visual impact as possible. The site layout has been designed to match the distinctive landscape characteristics of the Lincolnshire Fens.

35. The countryside within which the proposed wind turbines would be located is not identified as being of particular national landscape importance, for example, an Area of Outstanding Natural Beauty or a National Park.

36. Building 22 wind turbines will introduce a strong local landmark into the landscape, but will not remove the field pattern and agricultural land use that define the landscape character of the site.

37. The EIA determines that the Heckington Fen Wind Park would cause a limited number of significant effects to the landscape character and views within 2km of the application site. However, it is considered that effects on landscape character and views within the wider area would not be significant.

Chapter 6: Cultural Heritage

38. Assessments have been undertaken to see if this development could have an environmental impact on any historic features or buildings (assets) at, or near, the site. This study is explained in detail in **Chapter 6: Cultural Heritage.** No cultural heritage assets such as Listed Buildings or Scheduled Monuments are situated within or directly adjacent to the site boundary. Site investigations identified a duck decoy within the site boundary which was previously unknown to public bodies. The site design has been completed to mitigate any chance of interference to archaeological remains.

39. The primary impact of the proposed Heckington Fen Wind Park upon cultural heritage is the effect upon the setting of some historic features in the surrounding area including a nearby cemetery. The assessment concludes that the impacts on these historical buildings and areas would not be significant.

Chapter 7: Ecology

40. This assessment concerns the wildlife (excluding birds) which may be potentially affected by the proposed wind park development. The potential ecological effects of the development are assessed through the design, construction, operation and decommissioning phases. The findings of this assessment can be read in detail in **Chapter 7: Ecology**.

41. Historical records, and on-site fieldwork (Extended Phase 1 Habitat Survey & Protected Species Surveys) were undertaken to find out what animals and plants may be affected by the development. There are no national statutory designations, such as Sites of Special Scientific Interest (SSSIs) within, or close to, the development site.

42. The studies showed that there are few bats on the site and no significant effects are predicted to occur on bat species. The turbines have been located so as to maintain a minimum separation of 50m between the turbine blade tip and the tops of hedgerows.

    The local ecology with be improved via a number of schemes including nesting boxes for local bird species and beetle banks to support local insect populations. Local hedgerows, away from the wind park, will also be improved via adding whips of an appropriate mix of hedgerow species to any gaps, and cutting and laying appropriate sections.

Chapter 8: Ornithology

43. A twelve-month baseline ornithological survey was carried out. The results are the survey are covered in detail in **Chapter 8: Ornithology**. Though there may be minor impacts on locally wintering golden plover, skylarks and locally breeding barn owls as a result of birds colliding with rotating turbine blades the wind park design has been completed to minimizes any impacts and no effects of the development on birds are considered to be significant under the terms of the EIA regulations.

Chapter 9: Hydrology

44. The hydrology assessment looks at whether the development will affect surface water, ground water, private water supplies and any underlying aquifers. It was prepared following consultation with the Environment Agency, a Flood Risk Assessment (**Appendix 9.1)** and a review of published data on hydrology, soils and geology. The proposed wind park would not alter the existing land use of the site which is agricultural.

45. Prevention measures will be put in place to stop the generation of surface water runoff and to protect the watercourses throughout the site. These measures are described in **Chapter 9: Hydrology**. The site has no particular water issues, and the operating wind farm will have little hydrological influence over and above what is already occurring on the site. Hydrological impacts of the proposed wind park are not significant under the terms of the Environmental Impact Assessment Regulations.

Chapter 10: Noise

46. Potential noise and vibration effects during construction, operation and decommissioning of the proposed wind park have also been assessed. The current noise levels occurring around the site were measured at six of the closest residential locations to the site. Noise measurements were taken every 10 minutes for four weeks continuously during March 2011. These results were then compared to the predicted turbine noise levels which are based on guaranteed sound power level data for the candidate turbine.

47. This assessment was conducted in accordance with The Assessment & Rating of Noise from Wind Farms – The Working Group on Noise from Wind Turbines (Report ETSU-R-97) and guidance on noise and vibration from construction projects. This is the methodology that the Government's national planning guidance directs should be used. This methodology and the locations used to measure the background noise levels were agreed with by North Kesteven District Council.

48. The noise report (**Chapter 10: Noise**) concluded that noise from the operation of the proposed wind park would comply with the requirements of ESTU-R-97 at all residential locations. There will therefore be no significant noise impacts from the Heckington Fen Wind Park.

Chapter 11: Transport and Access

49. As an operating wind park does not generate traffic, the primary transport effect for a wind park is during the temporary construction period. The assessment looked at whether the construction vehicles would increase the level of traffic on the A17. It also looked at whether the vehicles - which include the movement of abnormal loads such as wind turbine blades – could get to the site easily.

50. The assessment showed that traffic would not be significantly increased and that access could be gained via a new access point directly onto site from the A17. The A17 will be carefully managed throughout the construction to mitigate any risk to A17 road users. Prior to any construction approval will be sought from the local Highways Authority and Police for the exact route and timing of the abnormal load movements.

Chapter 12: Aviation

51. Aviation operators have been consulted about the proposed Heckington Fen Wind Park to find out if there would be any impacts upon aviation. These operators include the Civil Aviation Authority (CAA), Defence Estates (DE) and National Air Traffic Service (NATS). As a result of consultation QinetiQ were involved in designing a radar mitigation solution which should allow any aviation operations in the area to be unaffected. As part of consultation the DE have requested that the turbines are fitted with a low level aviation light on the turbines.

52. It is predicted that the Heckington Fen Wind Park will have no effects considered significant under the terms of the EIA.

Chapter 14: Miscellaneous

53. This chapter addresses the following issues;

- Shadow Flicker
- Public Safety;
- Air Quality;
- Communications;
- TV and Radio Reception;
- Agriculture;
- Tourism; and,

54. Potential impacts from the proposed Heckington Fen Wind Park are investigated for each of these issues. All are found to have no significant impact.

MITIGATION MEASURES

55. Two main types of mitigation are employed by the project:

- Mitigation at the design stage influencing the layout of the site; and,
- Post-design measures to be followed during construction, operation and decommissioning.

56. The turbine selection and layout for this wind park has meant that many potential environmental impacts have been prevented or minimised through the design process. This has minimised or eliminated all or some of the potential aviation, ornithological, ecological, and cultural heritage impacts. It has also significantly reduced the visual effects from much of the surrounding area.

57. Remaining effects will be prevented or reduced by appropriate measures taken during construction and operation, wherever possible. Some examples of these measures are using pollution prevention devices during construction and improving hedgerows within the site.

CONCLUSIONS

58. The final section of each chapter within the ES summarises how important the environmental effects arising from the construction, operation and decommissioning the wind turbines are. This summary shows any environmental effects of this development which would remain significant under the Environmental Impact Assessment (EIA) Regulations (2000) once mitigation has been implemented.