

DEPARTMENT OF ENERGY AND CLIMATE CHANGE  
CONSTRUCTION AND OPERATION OF A WIND TURBINE GENERATING  
STATION AT SIX HUNDRED FARM, SIX HUNDRED DROVE, EAST  
HECKINGTON, LINCOLNSHIRE

CONSENT UNDER SECTION 36 OF THE ELECTRICITY ACT 1989

1. Pursuant to section 36 of the Electricity Act 1989, the Secretary of State for Energy and Climate Change (“the Secretary of State”) hereby consents to the construction, on the area of land delineated by a solid red line on the drawing number 4038\_A0085\_03, attached hereto, of a wind turbine generating station on land at Six Hundred Farm, Six Hundred Drove, East Heckington, Lincolnshire (“the Development”) and to the operation of that generating station. This consent is granted to Ecotricity (Next Generation) Limited (“the Company”), its assigns and successors.
2. Subject to paragraph 3, the Development shall be over 50MW rated capacity and up to 66MW rated capacity and comprise:
  - (a) up to 22 wind turbine generators each with a height of no greater than 125 metres to the tip of the blades when the turbine is in the vertical position as measured from natural ground conditions immediately adjacent to the turbine base;
  - (b) access tracks;
  - (c) an electricity substation building and underground electrical cabling connections within the site;
  - (d) enabling works for the delivery of turbine components and for the erection of turbines, namely crane pads adjacent to each turbine position and a temporary construction compound to house machinery and materials;
  - (e) an amended vehicular access to the site from the A17.
3. Subject to any minor changes which may be approved by the Local Planning Authority (as defined in the conditions of the deemed planning permission (“the Planning Conditions”) set out in paragraph 8 below), the Development shall be constructed and operated in accordance with the details contained in the Environmental Statement insofar as these do not conflict with any provision of the Planning Conditions or paragraphs 4, 5, 6 and 7 of this consent, or with the requirements of the Planning Conditions or the terms of any scheme, programme, statement, plan, details, or report to be approved by the Local Planning Authority under the Planning Conditions.

4. The Development shall be commenced before the expiration of five years from the date of this consent, or such longer period as the Secretary of State may hereafter direct in writing.
5. No development shall commence unless and until a Radar Mitigation Scheme has been submitted to and approved in writing by the Secretary of State, having consulted with the Ministry of Defence and NATS (En Route) plc, to address the impact of the wind farm upon air safety.

In this condition, "Radar Mitigation Scheme" means arrangements designed to mitigate the impact of the Development upon:

- (a) the operation of the Watchman Primary Surveillance Radars at RAF Coningsby, RAF Cranwell and RAF Waddington and the air traffic control operations of the Ministry of Defence which are reliant upon those radars; and,
- (b) the operation of the Primary Radar Installation at Claxby and the air traffic management operations operated by NATS (En Route) plc whose effectiveness might otherwise be affected by the Development.

The Radar Mitigation Scheme shall set out the appropriate measures to be implemented to mitigate the impact of the Development on the radar installations and air traffic control and management operations referred to above and shall be in place for the operational life of the Development provided the radar installations remain in operation.

6. No turbines shall become operational unless and until all measures required by the approved Radar Mitigation Scheme to be implemented prior to the operation of the turbines have been implemented and the Secretary of State, having consulted with the Ministry of Defence and NATS (En Route) plc, has confirmed this in writing. The Development shall thereafter be operated fully in accordance with the approved Radar Mitigation Scheme.
7. 200 candela aviation lighting shall be installed on the nacelles of Turbine 1, Turbine 11, Turbine 20 and Turbine 21 as shown on Figure 4.1 [drawing No 4038\_T0237\_06] of the Environmental Statement or on such other turbines as the Secretary of State, having consulted the Ministry of Defence, agrees will provide equally effective illumination for air navigation purposes. Ministry of Defence accredited 25 candela omni-directional aviation lighting OR infra-red aviation lighting shall be installed on the nacelles of the remaining turbines shown on Figure 4.1. The turbines shall be erected with this lighting installed and the lighting shall remain operational until such time as the wind turbines are decommissioned and removed from the site.

DIRECTION TO DEEM PLANNING PERMISSION TO BE GRANTED UNDER  
SECTION 90 OF THE TOWN AND COUNTRY PLANNING ACT 1990

CONSTRUCTION AND OPERATION OF A 66MW WIND TURBINE GENERATING  
STATION ON LAND AT SIX HUNDRED FARM, SIX HUNDRED DROVE, EAST  
HECKINGTON, LINCOLNSHIRE

**Deemed planning permission**

8. The Secretary of State in exercise of the powers conferred on him by section 90(2) of the Town and Country Planning Act 1990 hereby directs that planning permission for the Development be deemed to be granted subject to the following conditions:

(1) In these conditions, unless the context otherwise requires:

“Dwelling” means a building within Use Class C3 or C4 of the Town and Country Planning (Use Classes) Order 1987 (as amended) which lawfully exists or had planning permission at the date of this consent;

“First Export Date” means the date upon which electricity is first exported from any of the wind turbines to the electricity grid;

“Company” means Ecotricity (Next Generation) Limited and its successors in titles and assigns;

“Development” means the onshore wind turbine generating station on land at Six Hundred Farm, Six Hundred Drove, East Heckington, Lincolnshire and associated infrastructure and ancillary development as outlined in paragraph 2 above;

“Environmental Statement” means the document titled ‘Heckington Fen Wind Park’ Environmental Statement’ dated 20 July 2011 and supplemented by a document titled “Heckington Fen Wind Park Further Environmental Information Landscape Clarification” submitted on 9 December 2011;

“Local Planning Authority” means North Kesteven District Council and their successors as local planning authority for the area in which the Site is located;

“Public Holiday” means a day that is, or is to be observed as a public holiday;

“Site” means the area of land delineated by a solid red line on drawing Number 4038\_A0085\_03;

References in these Planning Conditions to any scheme, programme, statement, plan, details or report to be approved by the Local Planning Authority or to doing of anything in accordance with any approved document shall be construed as including references to such amendments,

modifications or substitutions of an approved document as shall have been agreed in writing by the Local Planning Authority.

References in these Planning Conditions to the commencement of the Development shall be taken to refer to the date upon which the Development shall begin by the carrying out of a material operation as defined in section 56 of the Town and Country Planning Act 1990.

#### Commencement of Development and Duration of Permission

- (2) The Development hereby permitted shall be commenced before the expiration of 5 years from the date of this permission. The Company shall provide written confirmation of the commencement of development to the Local Planning Authority no later than one week after the event.

Reason: To strike a balance between the time it may take to put in place the necessary pre-construction measures required – for example, tendering, obtaining the necessary funding, micro-siting of the turbines – and minimising the impact of any period of uncertainty for those who may be affected pending the decision to begin construction works.

- (3) This permission is for a period of 25 years from the First Export Date. At the end of the 25 year period the Development shall be decommissioned and the Site reinstated in accordance with the approved decommissioning and site restoration scheme referred to in condition 4 below. The Company shall provide written confirmation of the First Export Date to the Local Planning Authority no later than 14 days after the event.

Reason: In recognition of the expected lifespan of the wind farm and in order to restore any loss of amenity occasioned by the development.

#### Decommissioning and Site Restoration

- (4) Not later than 24 months before the expiry of this permission, a decommissioning and site restoration scheme shall be submitted for the written approval of the Local Planning Authority. The scheme shall make provision for the removal of the wind turbines and associated above ground works approved under this permission and for the removal of the turbine foundation to a depth of at least 1 metre below the ground. The scheme shall also include the management and timing of any works and a traffic management plan to address likely traffic impact issues during the decommissioning period, location of material laydown areas, an environmental management plan to include details of measures to be taken during the decommissioning period to protect wildlife and habitats and details of site restoration measures. The approved scheme shall be fully implemented within 18 months of the expiry of this permission.

Reason: To ensure that the development is decommissioned and the site restored at the end of the permission.

- (5) If any wind turbine generator hereby permitted ceases to export electricity to the grid for a continuous period of 9 months, unless otherwise agreed in writing with the Local Planning Authority, then a scheme shall be submitted to the Local Planning Authority for its written approval within 3 months of the end of that 9 month period for the repair, removal or removal and replacement of that turbine. The scheme shall include either a programme of remedial works where repairs to the relevant turbine are required, or a programme for removal of the relevant turbine and associated above ground works approved under this permission and the removal of the turbine foundation to a depth of at least 1 metre below ground and for site restoration measures following the removal of the relevant turbine. The scheme shall thereafter be implemented in accordance with the approved details and timetable.

Reason: To ensure appropriate provision is made for a turbine or turbines requiring repair or for a turbine or turbines which require decommissioning.

#### Construction Traffic, Site Access and Construction Method Statement

- (6) No development shall take place until a Construction Traffic Management Plan has been submitted to and approved in writing by the Local Planning Authority. The Construction Traffic Management Plan shall include proposals for the routing of construction traffic, scheduling and timing of movements, a management plan for the duration of the construction of the new access from the A17 onto the Site including signage and temporary traffic management measures, the management of junctions to and crossings of the public highway and other public rights of way, details of escorts for abnormal loads, temporary warning signs, temporary removal and replacement of highway infrastructure/street furniture, reinstatement of any signs, verges or other items displaced by construction traffic, and banksman/escort details. The approved Construction Traffic Management Plan including any agreed improvements or works to accommodate construction traffic where required along the route, shall be carried out as approved in writing by the Local Planning Authority.

Reason: In the interests of highway safety.

- (7) No development shall take place until details of the new access from the A17 to the Site have been submitted to and approved in writing by the Local Planning Authority. The details shall include the gradient of the access, the details of the surface treatment and construction of the first 50m of the access track leading into the Site from the new access point, the details for the new culvert to be constructed as part of the new access and the details of the visibility splays to be created in conjunction with the new vehicular access. The construction of the new access, visibility splays, and culvert shall thereafter be carried out in accordance with the approved details.

Reason: To ensure a satisfactory means of access is provided in the interests of highway safety.

- (8) No development shall take place until a Construction Method Statement has been submitted to and approved in writing by the Local Planning Authority. The Construction Method Statement shall be adhered to throughout the construction and post-construction restoration period, subject to any variations approved in writing by the Local Planning Authority. The Construction Method Statement shall include:
- (a) Details of the temporary site compound including temporary structures/buildings, fencing, parking and storage provision to be used in connection with the construction of the development;
  - (b) Details of the proposed storage of materials and disposal of surplus materials;
  - (c) Dust management details;
  - (d) Pollution control: protection of the water environment, bunding of fuel storage areas, surface water drainage, sewage disposal and discharge of foul drainage;
  - (e) Temporary site illumination during the construction period including proposed lighting levels together with the specification of any lighting;
  - (f) Details of the phasing of construction works;
  - (g) Details of surface treatments and the construction of all hard surfaces and tracks;
  - (h) Details of emergency procedures and pollution response plans;
  - (i) Siting and details of wheel washing facilities;
  - (j) Details of cleaning of site entrances, site tracks and the adjacent public highway and the sheeting of all HGVs taking spoil or construction materials to/from the site to prevent spillage or deposit of any materials on the highway;
  - (k) A site environmental management plan to include details of measures to be taken during the construction period to protect wildlife and habitats;
  - (l) Areas on the Site designated for the storage, loading, off-loading, parking and manoeuvring of heavy duty plant, equipment and vehicles;
  - (m) Details of the measures to be taken to ensure that the visibility splays remain free of obstacles exceeding 0.6m in height throughout the construction and post construction restoration period;
  - (n) Details and a timetable for post construction restoration/reinstatement of the temporary working areas and the construction compound;
  - (o) Details of coordination with any approved scheme of archaeological works;
  - (p) Details of temporary noise barriers to be used to control noise levels during the construction of the access to the site;
  - (q) Working practices for protecting nearby residential dwellings, including measures to control noise and vibration arising from on-site activities, to be adopted as set out in British Standard 5228 Part 1: 2009.

Reason: To ensure a satisfactory level of environmental protection and to minimise disturbance to local residents during the construction process.

### Construction Hours

- (9) Construction work shall only take place between the hours of 0800 - 1800 hours Monday to Friday inclusive and 0800 - 1300 hours on Saturdays with no such work on a Sunday or Public Holiday. Exceptions for work outside these hours including turbine erection because of weather dependence may be carried out with the prior written approval of the Local Planning Authority. In the event that emergency works are required, such works may be carried out at any time provided that the Company retrospectively notifies the Local Planning Authority in writing of the emergency and works undertaken within 24 hours of the commencement of the emergency works.

Reason: In the interests of amenity to restrict noise impact and to minimise disturbance to local residents during the construction process.

- (10) The delivery of any construction materials or equipment for the construction of the Development, other than turbine blades, nacelles and towers, shall be restricted to the hours of 0800 – 1800 on Monday to Friday inclusive, 0800 to 1300 on Saturdays with no such deliveries on a Sunday or Public Holiday.

Reason: In the interests of minimising disturbance to local residents during the construction process.

### Appearance

- (11) All of the wind turbines shall have three blades, and the blades of all wind turbines shall rotate in the same direction.

Reason: In the interests of visual amenity.

- (12) Prior to the erection of any wind turbine, details of the colour and finish of the towers, nacelles and blades and any external transformer units shall be submitted to and approved in writing by the Local Planning Authority. No name, sign, or logo shall be displayed on any external surfaces of the turbines or any external transformer units other than those required to meet statutory health and safety requirements. The approved colour and finish of the wind turbines and any external transformer units shall not be changed without the prior consent in writing of the Local Planning Authority. The development shall be carried out in accordance with the approved details.

Reason: In the interests of visual amenity

- (13) All transformer units shall be set a minimum of 3 metres above ground level.

Reason: To reduce the impact of potential flooding.

- (14) Prior to the commencement of the construction of the electricity substation, details of the design and the external appearance, dimensions and materials for the substation building and any associated compound or parking area and details of surface and foul water drainage from the substation building shall be submitted to and approved in writing by the Local Planning

Authority. The development of the substation building and any associated compound or parking area shall be carried out in accordance with the approved details.

Reason: In the interests of visual amenity.

- (15) All electrical cabling between the individual turbines and between the turbines and the electricity substation on site shall be installed underground.

Reason: In the interests of visual amenity.

### Ecology

- (16) Prior to the commencement of development a scheme for protected species surveys shall be submitted to and approved in writing by the Local Planning Authority. The survey results and a programme of any mitigation required as a consequence shall be submitted to and approved in writing by the Local Planning Authority prior to any works associated with the development taking place. The surveys shall be undertaken by a suitably-qualified ecologist in the last suitable season prior to site preparation and construction work commencing, and the programme of mitigation work shall be implemented as approved for the duration of construction activities.

Reason: In the interests of nature conservation.

- (17) Prior to the commencement of development, a survey specification for checking nests of breeding birds on the development site to be carried out by a suitably qualified independent ecologist shall be submitted to and approved in writing by the Local Planning Authority. The specification shall include the methodology for the surveys, and a timetable for the checking of nests and submission of a report detailing the results of the survey. The report shall also identify any mitigation measures required as a result of the survey for any construction works or clearance of vegetation between 1 March and 31 August. The specification and mitigation measures shall be implemented as approved.

Reason: In the interests of nature conservation.

- (18) Prior to the commencement of development an Ecological Enhancement Plan shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall include a programme and details of new hedgerow planting, the enhancement of existing hedgerows, the provision of nesting boxes for sparrows and starlings and barn owls, planting and management protocols for set-aside land, ditches and field boundaries to improve breeding bird habitat and to encourage invertebrates which are a food source for birds, the provision of cultivation headlands and uncultivated margins and the creation of skylark scrapes and beetle banks. The Plan shall include details of replacement planting for plants which become diseased or are destroyed or die within five years of the date of planting and shall also include details of management responsibilities and maintenance

schedules for the operational life of the development. The scheme shall be implemented as approved in writing by the Local Planning Authority.

Reason: In the interests of nature conservation.

#### Shadow Flicker

- (19) Prior to the construction of the first turbine, a written scheme shall be submitted to and approved in writing by the Local Planning Authority setting out a protocol for the assessment of shadow flicker in the event of any complaint to the Local Planning Authority from the owner or occupier of a Dwelling. The written scheme shall include remedial measures to alleviate any shadow flicker attributable to the development. The turbines shall be operated in accordance with the approved protocol unless the Local Planning Authority gives its prior written consent to any variations.

Reason: In the interests of local amenity for nearby residents.

#### Electro-magnetic Interference

- (20) Prior to the First Export Date a scheme providing for a baseline survey and the investigation and alleviation of any electro-magnetic interference to terrestrial television caused by the operation of the turbines shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall provide for the investigation by a qualified independent television engineer of any complaint of interference with television reception at a lawfully occupied Dwelling, where such complaint is notified to the developer by the Local Planning Authority within 12 months of the First Export Date. Where impairment is determined by the qualified television engineer to be attributable to the wind farm, mitigation works shall be carried out in accordance with the scheme which has been approved in writing by the Local Planning Authority.

Reason: In the interests of amenity for nearby residents.

- (21) No development shall take place until a scheme to mitigate the impacts of the Development on the regulated links operated by Western Power Distribution has been submitted to and approved in writing by the Local Planning Authority. The scheme shall be implemented as approved in writing by the Local Planning Authority.

Reason: To ensure mitigation of any impacts on Western Power Distribution`s assets in the vicinity of the Development.

#### Aviation Safeguarding

- (22) Prior to the erection of the first turbine, written confirmation shall be provided to the Local Planning Authority of the anticipated date of completion of construction; the height above ground level of the highest structure in the Development and the position of each wind turbine in latitude and longitude.

Reason: In the interests of aviation safeguarding.

### Archaeology

- (23) No development shall commence until the Company has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted to and approved in writing by the Local Planning Authority.

Reason: To ensure that any archaeological remains present are preserved, either by being left in situ or recorded before they are damaged or destroyed.

### Operational Noise

- (24) The rating level of noise immissions from the combined effects of the wind turbines (including the application of any tonal penalty), when determined in accordance with the attached Guidance Notes, shall not exceed the values for the relevant integer wind speed set out in Tables 1 and 2 attached to these conditions and:
- (A) Prior to the First Export Date, the Company shall submit to the Local Planning Authority for written approval a list of proposed independent consultants who may undertake compliance measurements in accordance with this condition. Amendments to the list of approved consultants shall be made only with the prior written approval of the Local Planning Authority.
  - (B) Within 21 days from receipt of a written request of the Local Planning Authority, following a complaint to it alleging noise disturbance at a Dwelling, the Company shall, at its expense, employ an independent consultant approved by the Local Planning Authority to assess the level of noise immissions from the Development at the complainant's Dwelling in accordance with the procedures described in the attached Guidance Notes. The written request from the Local Planning Authority shall set out at least the date, time and location that the complaint relates to. Within 14 days of receipt of the written request of the Local Planning Authority made under this paragraph (B), the Company shall provide the information relevant to the complaint logged in accordance with paragraph (H) to the Local Planning Authority in the format set out in Guidance Note 1(e).
  - (C) Where there is more than one Dwelling at a location specified in Tables 1 and 2 attached to this condition, the noise limits set for that location shall apply to all Dwellings at that location. Where a Dwelling to which a complaint is related is not identified by name or location in the Tables attached to these conditions, the Company shall submit to the Local Planning Authority for written approval proposed noise limits selected from those listed in the Tables to be adopted at the complainant's Dwelling for compliance checking purposes. The proposed noise limits are to be those limits selected from the Tables specified for a listed location which the independent consultant considers as being likely to experience the most similar background noise environment to that experienced at the complainant's Dwelling. The submission of the

proposed noise limits to the Local Planning Authority shall include a written justification of the choice of the representative background noise environment provided by the independent consultant. The rating level of noise immissions resulting from the combined effects of the wind turbines when determined in accordance with the attached Guidance Notes shall not exceed the noise limits approved in writing by the Local Planning Authority for the complainant's Dwelling.

- (D) Prior to the commencement of any measurements by the independent consultant to be undertaken in accordance with these conditions, the Company shall submit to the Local Planning Authority for written approval the proposed measurement location identified in accordance with the Guidance Notes where measurements for compliance checking purposes shall be undertaken. Measurements to assess compliance with the noise limits set out in the Tables attached to these conditions or approved by the Local Planning Authority pursuant to paragraph (C) of this condition shall be undertaken at the measurement location approved in writing by the Local Planning Authority.
- (E) Prior to the submission of the independent consultant's assessment of the rating level of noise immissions, the Company shall submit to the Local Planning Authority for written approval a proposed assessment protocol setting out the following:
  - (i) the range of meteorological and operational conditions (the range of wind speeds, wind directions, power generation and times of day) under which the rating level of noise immissions is to be determined;
  - (ii) a reasoned assessment as to whether the noise giving rise to the complaint contains or is likely to contain a tonal component.

The proposed range of conditions shall be those which prevailed during times when the complainant alleges there was disturbance due to noise, having regard to the information provided in the written request of the Local Planning Authority under paragraph (B), and such others as the independent consultant considers likely to result in a breach of the noise limits. The assessment of the rating level of noise immissions shall be undertaken in accordance with the assessment protocol approved in writing by the Local Planning Authority.

- (F) The Company shall provide to the Local Planning Authority the independent consultant's assessment of the rating level of noise immissions undertaken in accordance with the Guidance Notes within 2 months of the date of the written request of the Local Planning Authority made under paragraph (B) of this condition unless the time limit is extended in writing by the Local Planning Authority. The assessment shall include all data collected for the purposes of undertaking the compliance measurements, such data to be provided in the format set out in Guidance Note 1(e) of the Guidance Notes. The instrumentation used to undertake the measurements shall be

calibrated in accordance with Guidance Note 1(a) and certificates of calibration shall be submitted to the Local Planning Authority with the independent consultant's assessment of the rating level of noise immissions.

- (G) Where a further assessment of the rating level of noise immissions from the wind farm is required pursuant to Guidance Note 4(c) of the attached Guidance Notes, the Company shall submit a copy of the further assessment within 21 days of submission of the independent consultant's assessment pursuant to paragraph (F) above unless the time limit for the submission of the further assessment has been extended in writing by the Local Planning Authority.
- (H) The Company shall continuously log nacelle wind speed, nacelle orientation, power generation and nacelle wind direction for each turbine in accordance with this consent, all in accordance with Guidance Note 1(d) of the attached Guidance Notes. The data from each wind turbine shall be retained for a period of not less than 12 months. The Company shall provide this information in the format set out in Guidance Note 1(e) of the attached Guidance Notes to the Local Planning Authority on its request within 14 days of receipt in writing of such a request.

**Table 1 - Between 07:00 and 23:00 - Noise level dB L<sub>A90</sub>, 10-minute**

Property Easting, Northing	Standardised wind speed at 10 metres height (m/s) within the site averaged over 10-minute periods									
	3	4	5	6	7	8	9	10	11	12
	L <sub>A90</sub> Decibel Levels									
1 - 4 New Cottage, Side Bar Lane 518616, 345176	40.0	40.4	40.9	41.6	42.3	43.0	43.8	43.8	43.8	43.8
2 Council House, East Heckington 520190, 343985	46.9	47.6	48.3	49.0	49.7	50.2	50.2	50.2	50.2	50.2
Catlins Farm 521762, 344327	40.0	40.0	40.0	40.9	42.5	44.2	46.0	47.7	47.7	47.7
College Farm 521901, 344438	40.0	40.0	40.0	40.9	42.5	44.2	46.0	47.7	47.7	47.7
Derwent Cottage, Side Bar Lane 518666, 344950	40.0	40.4	40.9	41.6	42.3	43.0	43.8	43.8	43.8	43.8
Elm Grange Farm, East Heckington 519065, 344484	46.9	47.6	48.3	49.0	49.7	50.2	50.2	50.2	50.2	50.2
First Cottage, Side Bar Lane	40.0	40.4	40.9	41.6	42.3	43.0	43.8	43.8	43.8	43.8

518697, 344809										
Five Willow Wath Farm, Side Bar Lane 518592, 346871	40.0	40.0	40.0	40.0	41.2	43.0	44.8	46.8	46.8	46.8
Glebe Farm, Side Bar Lane 518472, 346187	40.0	40.0	40.0	40.0	41.2	43.0	44.8	46.8	46.8	46.8
Home Farm, East Heckington 519347, 344435	46.9	47.6	48.3	49.0	49.7	50.2	50.2	50.2	50.2	50.2
Mill Green Farm 519952, 347320	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.7	40.7	40.7
Rakes Farm, East Heckington 520807, 343779	46.9	47.6	48.3	49.0	49.7	50.2	50.2	50.2	50.2	50.2
Rectory Farm House, East Heckington 519660, 344208	46.9	47.6	48.3	49.0	49.7	50.2	50.2	50.2	50.2	50.2
Six Hundreds Drove, East Heckington 520605, 343705	46.9	47.6	48.3	49.0	49.7	50.2	50.2	50.2	50.2	50.2
Spinney Farm 522812, 346067	40.0	40.0	40.0	40.0	40.0	40.4	44.5	49.1	49.1	49.1
Swineshead House 521150, 343583	46.9	47.6	48.3	49.0	49.7	50.2	50.2	50.2	50.2	50.2
The Chapel House, Side Bar Lane 518378, 345871	40.0	40.4	40.9	41.6	42.3	43.0	43.8	43.8	43.8	43.8
The Old Church 521899, 347226	40.0	40.0	40.0	40.0	40.0	40.4	44.5	49.1	49.1	49.1

**Table 2 - Between 23:00 and 07:00 - Noise level dB L<sub>A90</sub>, 10-minute**

Property Easting, Northing	Standardised wind speed at 10 metres height (m/s) within the site averaged over 10-minute periods									
	3	4	5	6	7	8	9	10	11	12
	L <sub>A90</sub> Decibel Levels									
1 - 4 New Cottage, Side Bar Lane 518616, 345176	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
2 Council House, East Heckington 520190, 343985	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Catlins Farm 521762, 344327	43.0	43.0	43.0	43.0	43.0	43.0	45.1	49.1	51.3	51.3
College Farm 521901, 344438	43.0	43.0	43.0	43.0	43.0	43.0	45.1	49.1	51.3	51.3
Derwent Cottage, Side Bar Lane 518666, 344950	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Elm Grange Farm, East Heckington 519065, 344484	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
First Cottage, Side Bar Lane 518697, 344809	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Five Willow Wath Farm, Side Bar Lane 518592, 346871	43.0	43.0	43.0	43.0	43.0	43.0	44.3	48.9	51.5	51.5
Glebe Farm, Side Bar Lane 518472, 346187	43.0	43.0	43.0	43.0	43.0	43.0	44.3	48.9	51.5	51.5
Home Farm, East Heckington 519347, 344435	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Mill Green Farm 519952, 347320	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	44.3	44.3
Rakes Farm, East Heckington 520807, 343779	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Rectory Farm House, East Heckington 519660, 344208	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Six Hundreds Drove, East Heckington 520605, 343705	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0

Spinney Farm 522812, 346067	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	48.1	48.1	48.1
Swineshead House 521150, 343583	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
The Chapel House, Side Bar Lane 518378, 345871	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
The Old Church 521899, 347226	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	48.1	48.1	48.1

Note to Tables 1 & 2: The geographical coordinates references set out in these tables are provided for the purpose of identifying the general location of dwellings to which a given set of noise limits applies. The standardised wind speed at 10 metres height within the site refers to wind speed at 10 metres height derived from those measured at hub height, calculated in accordance with the method given in the Guidance Notes.

## Guidance Notes for Noise Condition

These notes are to be read with and form part of the noise condition. They further explain the condition and specify the methods to be employed in the assessment of complaints about noise immissions from the wind farm. The rating level at each integer wind speed is the arithmetic sum of the wind farm noise level as determined from the best-fit curve described in Note 2 of these Guidance Notes and any tonal penalty applied in accordance with Note 3 with any necessary correction for residual background noise levels in accordance with Note 4. Reference to ETSU-R-97 refers to the publication entitled “The Assessment and Rating of Noise from Wind Farms” (1997) published by the Energy Technology Support Unit (ETSU) for the Department of Trade and Industry (DTI).

### Note 1

- (a) Values of the  $L_{A90,10\text{-minute}}$  noise statistic should be measured at the complainant’s property (or an approved alternative representative location as detailed in Note 1(b)), using a sound level meter of EN 60651/BS EN 60804 Type 1, or BS EN 61672 Class 1 quality (or the equivalent UK adopted standard in force at the time of the measurements) set to measure using the fast time weighted response as specified in BS EN 60651/BS EN 60804 or BS EN 61672-1 (or the equivalent UK adopted standard in force at the time of the measurements). This should be calibrated before and after each set of measurements, using a calibrator meeting IEC 60945:2003 “Electroacoustics – sound calibrators” Class 1 with PTB Type Approval (or the equivalent UK adopted standard in force at the time of the measurements) and the results shall be recorded. Measurements shall be undertaken in such a manner to enable a tonal penalty to be applied in accordance with Guidance Note 3.
- (b) The microphone shall be mounted at 1.2 - 1.5 metres above ground level, fitted with a two-layer windshield or suitable equivalent approved in writing by the Local Planning Authority, and placed outside the complainant’s Dwelling and be not more than 35 metres from it. Measurements should be made in “free field” conditions. To achieve this, the microphone shall be placed at least 3.5 metres away from the building facade or any reflecting surface except the ground at the approved measurement location. In the event that the consent of the complainant for access to his or her property to undertake compliance measurements is withheld, the Company shall submit for the written approval of the Local Planning Authority details of the proposed alternative representative measurement location prior to the commencement of measurements and the measurements shall be undertaken at the approved alternative representative measurement location.
- (c) The  $L_{A90,10\text{-minute}}$  measurements should be synchronised with measurements of the 10-minute arithmetic mean wind speed and wind

direction data and with operational data logged in accordance with Guidance Note 1(d) and rain data logged in accordance with Note 1(f).

- (d) To enable compliance with the conditions to be evaluated, the Company shall continuously log arithmetic mean nacelle wind speed (duly corrected for the presence of the rotating blades) arithmetic mean nacelle orientation, nacelle wind direction and arithmetic mean power generated during each successive 10-minute period for each wind turbine on the site. The hub height wind speeds recorded from the nacelle anemometers or as calculated from the power output of each turbine shall be supplemented by standardised ten metre height wind speed data calculated for each 10-minute period from those measured at hub height assuming a reference roughness length of 0.05 metres and using the equation given on page 120 of ETSU-R-97. All 10-minute periods shall commence on the hour and in 10-minute increments thereafter synchronised with Greenwich Mean Time and adjusted to British Summer Time where necessary. Standardised 10 metre height wind speed data shall be correlated with the noise measurements determined as valid in accordance with Note 2(b), such correlation to be undertaken in the manner described in Note 2(c).
- (e) Data provided to the Local Planning Authority in accordance with paragraphs (E) (F) (G) and (H) of the noise condition shall be provided in comma separated values in electronic format.
- (f) A data logging rain gauge shall be installed within 3m of any sound level meter installed in the course of the independent consultant undertaking an assessment of the level of noise immissions. The gauge shall record over successive 10-minute periods synchronised with the periods of data recorded in accordance with Note 1(d).

## **Note 2**

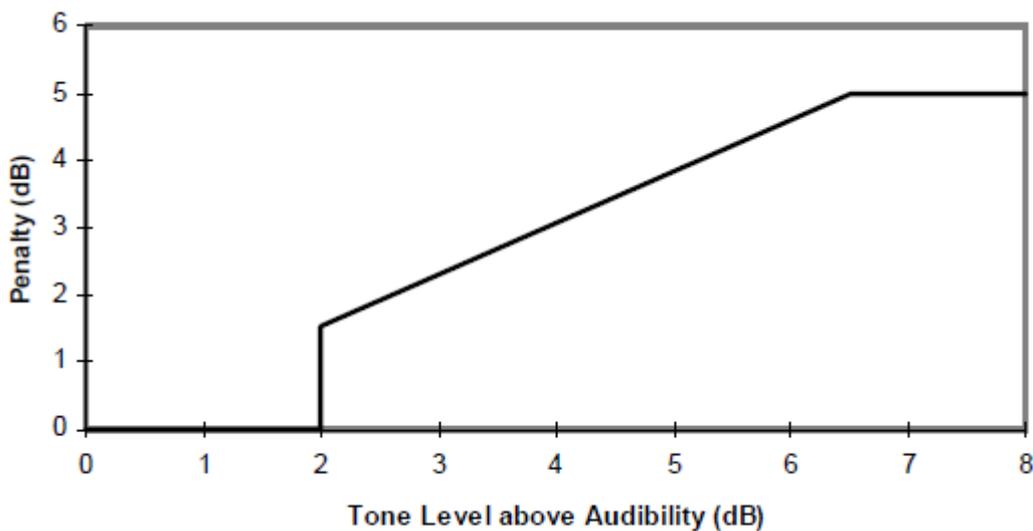
- (a) The noise measurements should be made so as to provide not less than 20 valid data points as defined in Note 2 paragraph (b).
- (b) Valid data points are those measured during the conditions set out in the assessment protocol approved by the Local Planning Authority under paragraph (E) of the noise condition but excluding any periods of rainfall measured in accordance with Note 1(f).
- (c) Values of the  $L_{A90,10\text{-minute}}$  noise measurements and corresponding values of the 10-minute standardised ten metre height wind speed for those data points considered valid in accordance with Note 2(b) shall be plotted on an XY chart with noise level on the Y-axis and wind speed on the X-axis. A least squares, "best fit" curve of an order deemed appropriate by the independent consultant (but which may not be higher than a fourth order) shall be fitted to the data points to define the wind farm noise level at each integer speed.

## **Note 3**

- (a) Where, in accordance with the approved assessment protocol under paragraph (E) of the noise condition, noise immissions at the location

or locations where compliance measurements are being undertaken contain or are likely to contain a tonal component, a tonal penalty shall be calculated and applied using the following rating procedure.

- (b) For each 10-minute interval for which  $L_{A90,10\text{-minute}}$  data have been determined as valid in accordance with Note 2, a tonal assessment shall be performed on noise immissions during 2-minutes of each 10-minute period. The 2-minute periods should be spaced at 10-minute intervals provided that uninterrupted uncorrupted data are available (“the standard procedure”). Where uncorrupted data are not available, the first available uninterrupted clean 2-minute period out of the affected overall 10-minute period shall be selected. Any such deviations from the standard procedure shall be reported.
- (c) For each of the 2-minute samples the tone level above audibility shall be calculated by comparison with the audibility criterion given in Section 2.1 on pages 104 -109 of ETSU-R-97.
- (d) The tone level above audibility shall be plotted against wind speed for each of the 2-minute samples. Samples for which the tones were below the audibility criterion or no tone was identified, a value of zero audibility shall be substituted.
- (e) A least squares “best fit” linear regression shall then be performed to establish the average tone level above audibility for each integer wind speed derived from the value of the “best fit” line fitted to values. If there is no apparent trend with wind speed then a simple arithmetic mean shall be used. This process shall be repeated for each integer wind speed for which there is an assessment of overall levels in Note 2.
- (f) The tonal penalty is derived from the margin above audibility of the tone according to the figure below derived from the average tone level above audibility for each integer wind speed.



#### Note 4

- (a) If a tonal penalty is to be applied in accordance with Note 3 the rating level of the turbine noise at each wind speed is the arithmetic sum of the measured noise level as determined from the best fit curve described in Note 2 and the penalty for tonal noise as derived in accordance with Note 3 at each integer wind speed within the range set out in the approved assessment protocol under paragraph (E) of the noise condition.
- (b) If no tonal penalty is to be applied then the rating level of the turbine noise at each wind speed is equal to the measured noise level as determined from the best fit curve described in Note 2.
- (c) If the rating level at any integer wind speed lies at or below the values set out in the Tables attached to the conditions or at or below the noise limits approved by the Local Planning Authority for a complainant's Dwelling in accordance with paragraph (C) of the noise condition then no further action is necessary. In the event that the rating level is above the limit(s) set out in the Tables attached to the noise conditions or the noise limits for a complainant's Dwelling approved in accordance with paragraph (C) of the noise condition, the independent consultant shall undertake a further assessment of the rating level to correct for background noise so that the rating level relates to wind turbine noise immission only.
- (d) The Company shall ensure that all the wind turbines in the development are turned off for such period as the independent consultant requires to undertake the further assessment. The further assessment shall be undertaken in accordance with the following steps:
- i. Repeating the steps in Note 2, with the wind farm switched off, and determining the background noise ( $L_3$ ) at each integer wind speed within the range set out in the approved noise assessment protocol under paragraph (E) of this condition.
  - ii. The wind farm noise ( $L_1$ ) at this speed shall then be calculated as follows where  $L_2$  is the measured level with turbines running but without the addition of any tonal penalty:
$$L_1 = 10 \log \left[ 10^{L_2/10} - 10^{L_3/10} \right]$$
  - iii. The rating level shall be re-calculated by adding the tonal penalty (if any is applied in accordance with Note 3) to the derived wind farm noise  $L_1$  at that integer wind speed.
  - iv. If the rating level after adjustment for background noise contribution and adjustment for tonal penalty (if required in accordance with note (iii) above) at any integer wind speed lies at or below the values set out in the Tables attached to the conditions or at or below the noise limits approved by the Local Planning Authority for a complainant's

Dwelling in accordance with paragraph (C) of the noise condition then no further action is necessary. If the rating level at any integer wind speed exceeds the values set out in the Tables attached to the conditions or the noise limits approved by the Local Planning Authority for a complainant's Dwelling in accordance with paragraph (C) of the noise condition then the development fails to comply with the conditions.

Giles Scott  
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Energy Development Unit  
Department of Energy and Climate Change

8 February 2013

**ecotricity**

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**Legend**

- Other land within the applicants control
- Application Site Edged Red

Drawn by: RS  
Checked by: PM  
Approved by: PM



Document Number: 4038\_A0085\_03

Date: July 2012

Scale: 1:15,000 @ A3

Title: Site Edged Red  
Heckington Fen Wind Park



Approved this document with the following conditions: LANCENR0119