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## Scope

- This document provides an explanation to the methodology used in order to identify potentially suitable and unsuitable sites for wind energy development across the Council's region in order to provide a wind energy evidence base to accompany the Council's Local Plan.

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## Overview

- Following guidance issued by the Chief Planner at the Department for Communities and Local Government ("DCLG"), it highlighted that a development site is required to be in an area identified as suitable for wind energy development in a Local or Neighbourhood Plan.
- An internal GIS mapping software tool has been used to screen the North West Leicestershire Council region based upon key planning constraints. This mapping methodology was used in order to produce an evidence based wind energy suitability map for inclusion within the Council's Local Plan, therefore meeting the new DCLG guidance for wind development.
- In order to determine potentially suitable areas for wind energy development, ASC have established criteria to assess the council area based upon DECC's guidance within the Renewable and Low Carbon Energy Capacity Methodology for the English Regions<sup>1</sup>. Based upon this, three key planning constraints have been identified:
  - Wind Speed;
  - Environmental and Landscape Designations; and
  - Proximity to Residential Properties.
- It should be noted, when referring to sites potentially suitable and unsuitable for wind energy development, two maps have been produced:
  1. Small scale wind development opportunities (up to 50m in turbine tip height); and
  2. Medium/large scale wind development opportunities (50m+ in turbine tip height).

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## Small Scale Wind Energy Opportunities

### Wind Speed

The industry standard NOABL<sup>2</sup> wind speed database was used to assess average wind speeds over the Council's region. For small scale wind energy opportunities within North West Leicestershire District, the wind speed threshold for determining suitability was assessed measuring 4.5m/s (metres per second) or

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<sup>1</sup> DECC. Renewable and Low-carbon Energy Capacity Methodology. (2010). Viewed at [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/226175/renewable\\_and\\_low\\_carbon\\_energy\\_capacity\\_methodology\\_jan2010.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/226175/renewable_and_low_carbon_energy_capacity_methodology_jan2010.pdf)

<sup>2</sup> Numerical Objective Analysis of Boundary Layer. Provides estimated mean annual wind speeds for each 1km square of the UK at heights of 10m, 25m and 45m above ground level.

above at 25m above ground level. This suggested threshold wind speed is as per the DECC guidance within the Renewable and Low Carbon Energy Capacity Methodology for the English Regions.

#### Environmental and Landscape Designations

Landscape and environmental designations have the potential to impact the planning feasibility of any wind energy development. DECC's guidance recommends that in order to achieve the UK's renewable energy targets, designated landscapes and nature conservation areas should not be disregarded as potential wind energy development sites. It is emphasised that wind energy developments do not usually gain planning consent within international and national nature conservation designations (SPAS's, SAC's, RAMSARs, SSSIs, NNRs etc...), along with nationally important landscapes (National Parks, AONBs, Heritage Coastline etc...). However, the extent of the restriction of wind energy development within these designations would vary on a site basis; therefore their importance should be decided within the planning process and not used to determine areas classed as suitable/unsuitable for the purposes of this mapping exercise.

The key designations which have been identified as areas unsuitable for wind energy development within North West Leicestershire District for small scale wind energy opportunities include; Ancient Woodland, Semi Natural Ancient Woodland, Scheduled Ancient Monuments and Registered Parks and Gardens. Any other environmental and landscape designations can be investigated further during the planning process where the appropriate consultees can determine the significance of potential impacts.

#### Proximity to Residential Dwellings

DCLG Planning Guidance states *"Fall over distance (i.e. the height of the turbine to the tip of the blade) plus 10% is often used as a safe separation distance. This is often less than the minimum desirable distance between wind turbines and occupied buildings calculated on the basis of expected noise levels and due to visual impact."* Following DCLG Planning Guidance<sup>3</sup>, a separation distance has been applied to all residential dwellings within the Council's region using a buffer distance based upon a 50m high turbine to blade tip, plus 10%. In practice, the minimum distance required between a wind farm and residential dwellings is site specific taking into account many other factors.

#### Other Constraints

Based upon DECC's guidance, additional relevant constraints have been mapped for the North West Leicestershire District Council region, identifying suitable and unsuitable areas for wind energy development sites. The main A roads and rail lines have been identified, along with a 5km buffer applied to East Midlands Airport as an area constrained for wind energy development within North West Leicestershire District. It is noted that two small scale wind turbines (45m to tip height) are operational at East Midlands Airport. Their placement within the grounds of the airport has resulted in the turbine structures being able co-exist with the navigational aids and radar zones that originate from East Midlands Airport. The placement of other wind turbines within 5km of East Midlands Airport could infringe on radar zones, requiring mitigation and would likely impact the planning feasibility of the wind energy development.

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<sup>3</sup> <http://planningguidance.planningportal.gov.uk/blog/guidance/renewable-and-low-carbon-energy/particular-planning-considerations-for-hydropower-active-solar-technology-solar-farms-and-wind-turbines/>

## **Medium/Large Scale Wind Energy Opportunities**

### Wind Speed

The industry standard NOABL wind speed database was used to assess average wind speeds over the Council's region. For medium/large scale wind energy opportunities within North West Leicestershire District, the wind speed threshold for determining suitability was assessed measuring 5.0m/s (metres per second) or above at 45m above ground level. This suggested threshold wind speed is as per the DECC guidance within the Renewable and Low Carbon Energy Capacity Methodology for the English Regions.

### Environmental and Landscape Designations

Landscape and environmental designations have the potential to impact the planning feasibility of any wind energy development. DECC's guidance recommends that in order to achieve the UK's renewable energy targets, designated landscapes and nature conservation areas should not be disregarded as potential wind energy development sites. It is emphasised that wind energy developments do not usually gain planning consent within international and national nature conservation designations (SPAS's, SAC's, RAMSARs, SSSIs, NNRs etc...), along with nationally important landscapes (National Parks, AONBs, Heritage Coastline etc...). However, the extent of the restriction of wind energy development within these designations would vary on a site basis; therefore their importance should be decided within the planning process and not used to determine areas classed as suitable/unsuitable for the purposes of this mapping exercise.

The key designations which have been identified as areas unsuitable for wind energy development within North West Leicestershire District for medium/large scale wind energy opportunities include; Ancient Woodland, Semi Natural Ancient Woodland, Scheduled Ancient Monuments and Registered Parks and Gardens. Any other environmental and landscape designations can be investigated further during the planning process where the appropriate consultees can determine the significance of potential impacts.

### Proximity to Residential Dwellings

DCLG Planning Guidance states *"Fall over distance (i.e. the height of the turbine to the tip of the blade) plus 10% is often used as a safe separation distance. This is often less than the minimum desirable distance between wind turbines and occupied buildings calculated on the basis of expected noise levels and due to visual impact."* Following DCLG Planning Guidance, a separation distance has been applied to all residential dwellings within the Council's region using a buffer distance based upon a 130m high turbine to blade tip, plus 10%. In practice, the minimum distance required between a wind farm and residential dwellings is site specific taking into account many other factors.

### Other Constraints

Based upon DECC's guidance, additional relevant constraints have been mapped for the North West Leicestershire District Council region, identifying suitable and unsuitable areas for wind energy development sites. The main A roads and rail lines have been identified, along with a 5km buffer applied to East Midlands Airport as an area constrained for wind energy development within the North West Leicestershire District. It is noted that two small scale wind turbines (45m to tip height) are operational at East Midlands Airport. Their placement within the grounds of the airport has resulted in the turbine structures being able co-exist with the navigational aids and radar zones that originate from East Midlands Airport. The placement of other wind turbines within 5km of East Midlands Airport could

infringe on radar zones, requiring mitigation and would likely impact the planning feasibility of the wind energy development.

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## **Conclusion**

The initial constraints across North West Leicestershire District have been mapped in order to produce two maps showing areas for both small scale and medium/large wind energy opportunities that are potentially suitable and unsuitable sites for wind energy development.

It should be noted, the areas identified as potentially suitable would require further detailed assessment during pre-planning and throughout the planning process. Any planning application would be assessed on a site by site basis and the mapping produce is a guideline for potentially suitable and unsuitable sites for wind energy development.

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