MBC and RBC
Landscape Sensitivity and Capacity Study

Figure 3.4:
Landscapes and Views of Borough-wide Importance

- Melton and Rushcliffe Borough Councils
- Surrounding authorities
- Primary landmark
- Secondary landmark
- Secondary landmark (Church spires & towers)
- Approximate angle of view from notable viewpoints

Landscape Character Assessment Unit

- 1 : Vale of Belvoir
- 2 : The Leicestershire Wolds: Belvoir Scarp
- 3 : The Leicestershire Wolds: Dalby to Belvoir Wolds
- 4 : The Leicestershire Wolds: Knipton Bowl
- 5 : The Leicestershire Wolds: Ragdale to Saltby Wolds
- 6 : Kesteven Uplands: Saltby and Sproxton Limestone Edge
- 7 : The Leicestershire Wolds: Belvoir, Stapleford and Croxton Parkland
- 8 : High Leicestershire Hills: Great Dalby and Gaddesby Pastoral Farmland
- 9 : The Leicestershire Wolds: Wreake Valley
- 10 : The Leicestershire Wolds: Eye Valley
- 11 : High Leicestershire Hills: Gaddesby Valley
- 12 : High Leicestershire Hills: Burrough Hills
- 13 : The Leicestershire Wolds: Freeby, Buckminster and Wymondham Farmland
- 14 : The Leicestershire Wolds: Asfordby Quarry
- 15 : The Leicestershire Wolds: Melton Farmland Fringe
- 16 : Nottinghamshire Wolds: Gotham and West Leake Wooded Hills and Scarps
- 17 : Nottinghamshire Wolds: East Leake Rolling Farmland
- 18 : Nottinghamshire Wolds: Widmerpool Clay Wolds
- 19 : Nottinghamshire Wolds: Cotgrave Wooded Clay Wolds
- 20 : South Nottinghamshire Farmlands: Clifton Slopes
- 21 : South Nottinghamshire Farmlands: Ruddington Alluvial Farmland ...
- 22 : South Nottinghamshire Farmlands: Mickleborough Fringe
- 23 : South Nottinghamshire Farmlands: East Bridgford Escarpment Farmland
- 24 : South Nottinghamshire Farmlands: Cotgrave and Tollerton Village Farmland
- 25 : South Nottinghamshire Farmlands: Aslockton Village Farmland
- 26 : Trent Valley: Attenborough Wetlands
- 27 : Trent Valley: Soar Valley
- 28 : Trent Washlands: West Bridgford to East Bridgford Washlands

Map Scale @ A3: 1:175,000

LUC



CB:DM EB:Green_C LUCLON 6053-01_004_Landmarks_and_views_Rev3 20/08/2014

Source: LUC

# 4 Method for undertaking the landscape sensitivity study

## Information sources

4.1 In addition to the landscape character assessments described in Chapter 3, the following key sources of information have been used to inform the assessment:

- The Nottinghamshire Historic Landscape Character Assessment and Leicestershire, Leicester and Rutland Historic Landscape Character Assessments (HLCs).
- National Character Area Profiles for the Nottinghamshire Wolds (NCA 74), Trent and Belvoir Vales (NCA 48), High Leicestershire Hills (NCA 93) and Kesteven Uplands (NCA75).
- Ordnance survey base maps (1:250K, 1:50K and 1:25K).
- Aerial photography (Google Earth).

## Development types considered

4.2 This assessment applies to all forms of turbines, although it has been based on the most common horizontal axis three-bladed turbine. The assessment considers landscape sensitivity to different turbine heights and provides further comments about cluster sizes, based on bandings that reflect those that are most likely to be put forward by developers (now and in the future) assuming that the existing trends discussed in **Section 2** above continue: these are set out in **Table 4.1** - **4.2:**

**Table 4.1: Development sizes used in this assessment**

| Height to blade tip |
|---|
| <25[6] |
| 25 to 50 m |
| 51 to 75 m |
| 76 to 110 m |
| 111 to 150 m |

**Table 4.2: Cluster sizes used in this assessment**

| Cluster size |
|---|
| Single turbine |
| Cluster of two or three turbines |
| Wind farm of four or five turbines |
| Wind farm of six or seven turbines |
| Wind farm of eight to ten turbines |

[6] Note that structures of less than 15 m fall under permitted development rights.

4.3 It should be noted that the divisions between turbine and cluster sizes have been created for the purposes of the assessment – if a turbine lies on the edge of a group guidance for both group sizes should be taken into account.

## Features as size comparators

4.4 In order to visualise how the different turbine heights set out above relate to features found in the study area, a list of comparable features is provided in **Table 4.3**.

**Table 4.3 : Features as size comparators**

| Feature | Size |
|---|---|
| Domestic buildings | 6-10 metres |
| **Very Small Turbines** | 15-25m |
| Mature deciduous trees (dependent on species) | 10-25m |
| **Small Turbines** | 26-50m |
| Wind turbine at Stygate Lane | 34.2m |
| St Michael's Church spire, Sutton Bonington | 41m |
| Trent Bridge Cricket Ground flood lighting columns | 44m |
| Common pylon lattice tower | Between approximately 45m and 49m |
| **Medium Turbine** | 51-75m |
| East Midland Airport Air Traffic Control Tower | 52m[7] |
| St Mary's Church spire, Bottesford | 64m (210 ft[8]) |
| **Large Turbine** | 76-110m |
| Eastcroft incinerator chimney (outside the Boroughs) | 90m |
| Ratcliffe on Soar Power Station Cooling Tower | 115m |
| **Very Large Turbine** | 110-150m |
| Wind Turbine at Severn Trent sewage works in Wanlip (outside the Boroughs) | 132m to tip |
| Ratcliffe on Soar Power Station chimney | 199m |
| Waltham Mast | 315m |

[7] http://www.eastmidlandsairport.com/emaweb.nsf/Content/FactsAndFigures
[8] http://www.stmarysbottesford.co.uk/church-building-and-history/history/

Image 3: Waltham Mast, 315m

Image 4: Ratcliffe on Soar Power Station (cooling towers 115m, chimney 199m)

## Evaluating Landscape Sensitivity

4.5 There is currently no published method for evaluating sensitivity of different types of landscape to renewable energy developments. However, the approach taken in this study builds on current guidance published by the former Countryside Agency and Scottish Natural Heritage including the Landscape Character Assessment Guidance[9] and Topic Paper 6 that accompanies the Guidance[10], as well as LUC's considerable experience from previous and ongoing studies of a similar nature (see **Section 1** above).

*4.6* As stated earlier, *"Judging landscape character sensitivity requires professional judgement about the degree to which the landscape in question is robust, in that it is able to accommodate change without adverse impacts on character. This involves making decisions about whether or not significant characteristic elements of the landscape will be liable to loss… and whether important aesthetic aspects of character will be liable to change."* (Paragraph 4.2, Topic Paper 6[11]).

*4.7* In this study the following definition of sensitivity has been used, which is based on the principles set out in Topic Paper 6. It is also compliant with the third edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA 3, 2013) as well as definitions used in other landscape sensitivity studies of this type:

**Landscape sensitivity is the extent to which the character of the landscape is susceptible to change as a result of wind energy development.**

### Assessment Criteria

4.8 In line with the recommendations in Topic Paper 6, this landscape sensitivity assessment is based on an assessment of landscape character using carefully defined criteria. Criteria for determining landscape sensitivity to wind energy development are based on attributes of the landscape most likely to be affected. **Table 4.4** sets out the criteria that will be used for the assessment of landscape sensitivity to the principle of wind energy development. The key characteristics of each Landscape Character Unit are assessed against each of the criteria to arrive at a judgement as to their potential sensitivity.

[9] Countryside Agency and Scottish Natural Heritage (2002) Landscape Character Assessment: Guidance for England and Scotland CAX 84

[10] The Countryside Agency and Scottish Natural Heritage (2004) Landscape Character Assessment Guidance for England and Scotland. Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity

[11] The Countryside Agency and Scottish Natural Heritage (2004) Landscape Character Assessment Guidance for England and Scotland. Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity

**Table 4.4 : Criteria and guidance for assessing landscape sensitivity to wind energy**

| **Landform and scale** | | | | |
|---|---|---|---|---|
| A smooth gently sloping or flat landform is likely to be less sensitive to wind energy development than a landscape with a dramatic rugged landform, distinct landform features (including prominent hills and scarps) or pronounced undulations. Larger scale landforms are likely to be less sensitive than smaller scale landforms - because turbines may appear out of scale, detract from visually important landforms or appear visually confusing (due to turbines being at varying heights) in the latter types of landscapes.<br><br>Information sources: Landscape Character Assessments; Ordnance Survey mapping; topography data (Ordnance Survey Panorama); fieldwork. | | | | |
| ***Examples of sensitivity ratings*** | | | | |
| **Lower sensitivity** | ⟷ | | | **Higher sensitivity** |
| e.g. an extensive lowland flat landscape or elevated plateau, often a larger scale landform | e.g. a simple gently rolling landscape, likely to be a medium-large scale landform | e.g. an undulating landscape, perhaps also incised by valleys or with topographical features, likely to be a medium scale landform | e.g.a landscape with distinct landform features, and/or irregular in topographic appearance (which may be large in scale), or a smaller scale landform | e.g. a landscape with a rugged landform or dramatic landform features (which may be large in scale), or a small scale or intimate landform |
| **Land cover pattern and presence of human scale features** | | | | |
| Simple, regular landscapes with extensive areas of consistent ground cover are likely to be less sensitive to wind energy development than landscapes with more complex or irregular land cover patterns, smaller and / or irregular field sizes and landscapes with frequent human scale features that are traditional of the landscape, such as stone farmsteads, walls and hedges[12]. This is because large features such as wind turbines may dominate smaller scale traditional features within the landscape.<br><br>Information sources: National, regional and local-level Landscape Character Assessment; Ordnance Survey mapping; Google Earth (aerial photography); fieldwork. | | | | |
| ***Examples of sensitivity ratings*** | | | | |
| **Lower sensitivity** | ⟷ | | | **Higher sensitivity** |
| e.g. a very large-scale landscape with uniform groundcover and lacking in human scale features | e.g. a landscape with large-scale fields, little variety in land cover and occasional human scale features such as trees and domestic buildings | e.g. a landscape with medium sized fields, some variations in land cover and presence of human scale features such as trees, domestic buildings | e.g.a landscape with irregular small-scale fields, variety in land cover and presence of human scale features such as trees, domestic buildings | e.g. a landscape with a strong variety in land cover and small-scale / irregular in appearance containing numerous human scale features |

[12] Human scale features are aspects of land cover such as stone walls, hedges, buildings which give a 'human scale' to the landscape

## Skylines

Prominent and distinctive undeveloped skylines, or skylines with important landmark features, are likely to be more sensitive to wind energy development because turbines may detract from these skylines as features in the landscape, or draw attention away from existing landform or landmark features on skylines. Important landmark features on the skyline might include historic features, such as castles, monuments, or church spires. This criterion is judged based on how the skylines are viewed within the LCU. Where the LCU skylines being considered influences the character/forms part of an important skyline for another LCU this is assessed under 'inter-visibility' (see below).

Information sources: Landscape Character Assessment; fieldwork.

***Examples of sensitivity ratings***

| **Lower sensitivity** | ⟷ | | | **Higher sensitivity** |
|---|---|---|---|---|
| e.g. a large-scale flat or plateau landscape where skylines are not prominent and/or there are no important landmark features on the skyline | e.g. a large-scale landscape where skylines are not prominent and/or there are very few landmark features on the skyline – other skylines in adjacent LCTs are more prominent | e.g. a landscape with some prominent skylines, but these are not particularly distinctive. There may be some landmark features on the skyline. | e.g. a landscape where are prominent and where they may form an important backdrop to views from settlements or important viewpoints, and/or with important landmark features | e.g. a landscape where skylines are prominent or distinctive and undeveloped or where skylines have particularly important landmark features |

## Perceptual qualities

Landscapes that are relatively remote or tranquil (due to freedom from human activity and disturbance and having a perceived naturalness or a strong feel of traditional rurality with few modern human influences) tend to increase levels of sensitivity to wind energy development compared to landscapes that contain signs of modern development (as the development will introduce new and uncharacteristic features which may detract from a sense of tranquillity and or remoteness/ naturalness).

Information sources: Landscape Character Assessments; Ordnance Survey basemaps (presence / absence of development, modern settlement, modern structures).

***Examples of sensitivity ratings***

| **Lower sensitivity** | ⟷ | | | **Higher sensitivity** |
|---|---|---|---|---|
| e.g. a landscape with much human activity and development such as industrial areas or a port | e.g. a rural landscape with much human activity and dispersed modern development | e.g. a rural landscape with some modern development and human activity | e.g. a more naturalistic landscape and / or one with little modern human influence and development | e.g. a remote or 'wild' landscape with little or no signs of current human activity and development |

| Scenic qualities | | | | |
|---|---|---|---|---|
| Landscapes that have a high scenic quality will be more sensitive than landscapes of low scenic quality. Scenic qualities can include contrasts and combinations of landform and landcover which together contribute to attractive views. Scenic qualities may be recorded in the Landscape Character Assessment, or may be referenced in tourist material. Scenic viewpoints may be marked on Ordnance Survey maps. Scenic quality is also considered in the field.<br><br>Information sources: Landscape Character Assessments; OS maps; tourist literature; fieldwork. | | | | |
| ***Examples of sensitivity ratings*** | | | | |
| **Lower sensitivity** ⟷ **Higher sensitivity** | | | | |
| e.g. A landscape without attractive character, with no pleasing combinations of features, visual contrasts and/or dramatic elements, such as an industrial area or derelict land | e.g. A landscape of limited attractive character, with few pleasing combinations of features, visual contrasts and/or dramatic elements | e.g. A landscape of intermittently attractive character, with occasional pleasing combinations of features, visual contrasts and/or dramatic elements | e.g. A landscape of attractive character, with pleasing combinations of features, visual contrasts and/or dramatic elements | e.g. A landscape of outstandingly attractive character, with pleasing combinations of features, visual contrasts and/or dramatic elements, likely to be recognised by national designation |
| **Intervisibility** | | | | |
| Landscapes which have important visual relationships with other areas, for example where one area provides a scenic backdrop to a neighbouring area or an area is overlooked by another which contributes to the visual experience of that adjacent landscape, are considered more sensitive than those with little or less important visual relationships.<br><br>Information sources: Landscape Character Assessment; intervisibility mapping; fieldwork. | | | | |
| ***Examples of sensitivity ratings*** | | | | |
| **Lower sensitivity** ⟷ **Higher sensitivity** | | | | |
| An enclosed, self-contained landscape, or one with weak visual connections to neighbouring areas, and/or where related landscapes are of lower sensitivity | A landscape with limited visual relationship with another area(s), and/or where related landscapes are of low or medium sensitivity | A landscape which has some visual relationship with another area(s), and/or where related landscapes are of medium sensitivity | A landscape which is has a strong visual relationship with another area(s), and these are likely to be of medium or higher sensitivity | A landscape which has an important visual relationship with another area(s) one or more neighbouring areas, and these are likely to be of high sensitivity |

### Discussion on Landscape Sensitivity

4.9 Once the criteria have been assessed individually, the results are drawn together into a summary discussion on sensitivity to the principle of wind energy development.

4.10 If one criterion has a particularly strong influence on landscape character this is drawn out in the discussion (an example might be skylines in a landscape character area with prominent/ dominant skylines, or perceptual qualities in a particularly remote landscape character area).

4.11 In any given Landscape Character Unit there may be conflicts between criteria. For example a settled landscape, while containing greater human influence (indicating a lower sensitivity), will also include more human scale features that could be affected by large-scale wind turbines (indicating a higher sensitivity – particularly to larger turbines). Conversely, a more remote landscape will lack the human scale features but may have a higher sensitivity from a perceptual point of view. These issues are brought out in the discussion on landscape sensitivity.

4.12 The sensitivity assessment is not influenced by existing renewable energy developments which predate this study.

### Judging Landscape Sensitivity to Different Sizes of Development

4.13 The next stage of the assessment is to come to a judgement on landscape sensitivity to different heights of wind turbine. Notes are also provided in relation to sensitivity to different turbine cluster sizes as set out in **Table 4.2**. The relationship between the evaluations against the individual criteria and the judgements of landscape sensitivity is not a linear one. The process is based on professional judgement, using the individual criteria as indicators of sensitivity only. The relative importance of each criterion will vary between different landscapes; key characteristics may identify where a particular criterion is more important, and should therefore be given greater weight in the judgement of sensitivity.

4.14 Sensitivity is judged on a five-point scale as shown in **Table 4.5** below.

**Table 4.5 : Sensitivity levels and definitions**

| Sensitivity Level | Definition |
|---|---|
| High (H) | The key characteristics and qualities of the landscape are highly sensitive to change from the type and scale of renewable energy being assessed. |
| Moderate-High (M-H) | The key characteristics and qualities of the landscape are sensitive to change from the type and scale of renewable energy being assessed. |
| Moderate (M) | Some of the key characteristics and qualities of the landscape are sensitive to change from the type and scale of renewable energy being assessed. |
| Low-Moderate (L-M) | Few of the key characteristics and qualities of the landscape are sensitive to change from the type and scale of renewable energy being assessed. |
| Low (L) | Key characteristics and qualities of the landscape are robust and are less likely to be adversely affected by the type and scale of renewable energy development being assessed. |

## Presentation of Results

4.15 The full landscape sensitivity assessments for each of the Landscape Character Units are presented in **Chapter 7**. The tables provide:

- a summary description of the Landscape Character Unit;
- an assessment against each of the assessment criteria, giving a landscape sensitivity assessment 'score' for each (on the coloured five-point scale as set out in **Table 4.5** above);

- an overall discussion on landscape sensitivity for the Landscape Character Unit;
- an overall landscape sensitivity rating for each turbine height category;
- a commentary on landscape sensitivity to different cluster sizes; and
- a list of key sensitive features/characteristics.

4.16 A summary of the results of the landscape sensitivity assessment is presented in **Chapter 8**.

## Guidance on Development

4.17 Siting and design guidelines were developed for application across the two boroughs, and for each Landscape Character Unit. The 'generic' guidelines (presented in **Section 6**) can apply to any proposal in the boroughs, while the Landscape Character Unit-specific guidelines provide more detail at a level specific to the relevant assessment unit.

4.18 The Landscape Character Unit-specific guidelines draw on a series of key issues identified from the sensitivity assessment. The siting and design guidelines also include consideration of potential cumulative effects that may arise from operational and consented development.

## Limitations of the Landscape Sensitivity Assessment

4.19 While this Landscape Sensitivity Assessment provides an initial indication of the relative landscape sensitivities of different areas to wind energy development, it should not be interpreted as a definitive statement on the suitability of a certain location for a particular development. It is not a replacement for detailed studies for specific siting and design and all developments will need to be assessed on their individual merits. It is also unrelated to any targets for renewable energy development or studies of technical potential.

4.20 This Landscape Sensitivity Assessment is based on an assessment of landscape character using carefully defined criteria. As with all analyses based upon data and information which is to a greater or lesser extent subjective, some caution is required in its interpretation. This is particularly to avoid the suggestion that certain landscape features or qualities can be absolutely associated with certain sensitivities – the reality is that landscape sensitivity is the result of a complex interplay of often unequally weighted variables (or 'criteria'). We have sought to address this issue in our summary of overall landscape sensitivity given for each Landscape Character Unit – which considers how the criteria-based assessments combine to give an overall sensitivity result for different scales of development within a Landscape Character Unit. Because of the complexity of the criteria, and their subtle interrelationships with each other, we have purposefully not used a numeric scoring system in expressing sensitivity. The assessments are based on professional judgement, taking account of the interplay between criteria, as well as those which might be more important [to landscape character] in a particular Landscape Character Unit.

4.21 It should also be noted that the boundaries between Landscape Character Units are transitions on the ground and if a proposal is on or near a boundary, assessments for both areas need to be considered.

4.22 It is also worth noting that the assessment does not cover specific ecological issues associated with nature conservation designations or bird flight paths; specific cultural heritage/archaeological issues associated with individual designated heritage assets and their settings; other planning designations that restrict development such as Green Belt; visual amenity issues; or technical issues (such as the fact that trees and woodland can create turbulence making siting of turbines more difficult, or that an area is within an Airport Safeguarding Zone where turbines may have an effect on Radar systems). These are all issues that will need to be taken into account in site selection and impacts will need to be reported at the time when individual proposals are being put forward – e.g. through the Environmental Impact Assessment (EIA) process.

# 5 User Guide

5.1 This brief User Guide is designed for both developers and decision-makers to help them consider landscape character and sensitivity in relation to proposals for wind energy developments. It is arranged under three key stages, and sets out a series of questions as prompts to assist in using available information to shape proposals / assist in planning decisions.

## Stage 1 – Landscape sensitivity

- What size development is proposed (number/height of turbines)?
- Which Landscape Character Unit (LCU) is the proposed development in?
- Is the site characteristic of the wider LCU (as summarised in the key characteristics)?
- What is the sensitivity rating for the LCU and scale of development being proposed? (NB if a development size lies on the edge of a category guidance from more than one category may need to be considered)
- What are the key sensitivities of this LCU and are these affected by the development?

## Stage 2 – Detailed siting and design considerations

- Is the number/height of turbines consistent with the guidance for development provided for the relevant LCU?
- Does the development accord with the generic guidance set out in Chapter 6? If not, what aspects of the proposed development conflict with which parts of the guidance?
- Does the development accord with the additional specific guidance set out for the relevant LCU? If not, what aspects of the proposed development conflict with which parts of the guidance?
- If the development conflicts with any guidance for development, can the impacts be mitigated?
- If the development does not adversely affect key landscape characteristics, and is in line with guidance, it is likely to be able to be accommodated in the landscape (from a landscape character point of view – note other issues will also need to be assessed including impacts on cultural heritage, ecology, visual amenity and residential amenity).

## Stage 3 – Cumulative impact

- Does the development, in the context of other existing and consented developments, maintain landscape character so that wind energy developments do not become a key characteristic of the landscape or have a defining influence on the overall experience of the landscape (i.e. developments do not result in a change in landscape character of a Landscape Character Unit)?
- Is the development in line with the guidance on 'designing for multiple developments' set out in Chapter 6 and the guidance for multiple developments set out in the relevant LCU? If not, which guidance does it conflict with?
- If the development conflicts with any guidance for development, can the impacts be mitigated?

# 6 Generic Guidance on Siting and Designing Wind Energy Developments

## Siting

6.1 The following provides some generic guidance on siting wind energy development in Melton and Rushcliffe, focussing on minimising landscape and visual effects. It is recognised that technologies need to be sited and designed to ensure a reasonable output.

6.2 In all cases the relevant guidance set out within the landscape character assessments should be considered when choosing potential sites for wind energy development where appropriate (i.e. the landscape actions within the relevant draft policy zones of the Greater Nottingham Landscape Character Assessment (2009) for Rushcliffe borough). The following guidance should be followed for siting any wind energy development, whether it comprises one small turbine or multiple large turbines:

i. Because of intrinsic historic landscape character significance, or potential for preserved archaeological evidence, avoid siting wind energy development on land recorded as the falling within Historic Landscape Character Types: fossilised open fields, river valley meadows, woodland, and parks and gardens (in Rushcliffe) and heathland and common, ridge and furrow, broadleaved woodland, mixed woodland, parkland, village greens, parks and gardens, country houses, marsh and floodplain fields (most traditionally used as meadows) in Melton.

ii. Seek to avoid areas where ground level disturbance affects landscapes that are difficult to restore or are historically significant (e.g. land where medieval ploughing system of ridge and furrow is evident).

iii. Ensure siting of turbines does not damage the special characteristics of the landscape as recorded in the Landscape Character descriptions within the relevant draft policy zones of the Greater Nottingham Landscape Character Assessment (2009) for Rushcliffe Borough and the Melton Landscape Character Assessment (2006) for Melton Borough.

iv. It is generally preferable to see a substantial part of a turbine rather than partial blades so that the object can be understood in its landscape context – this may be a particular consideration for views from sensitive viewpoints or those frequented by a larger number of viewers.

v. Significant adverse effects on views from important viewpoints (including views which are integral to the character of conservation areas as set out in **Appendix 3** and recognised /iconic views as listed in **Section 3**), popular tourist and scenic routes, and settlements should be avoided where possible or minimised through careful siting and design.

vi. Consider locations in association with business parks and reclaimed, industrial and man-made landscapes where other landscape sensitivities are not compromised.

vii. Consider the landscape effects of transmission infrastructure when siting development, aiming for sites that will minimise the need for above ground transmission infrastructure.

viii. Make use of existing vegetation to screen ground-level features of wind energy developments (such as fencing, tracks and transformers).

ix. The visibility of turbines from valleys and lower ground may be reduced if they are located on plateaux with concave or steep wooded slopes, and set back from the edge of valley crests (avoidance of visibility of partial blades will also be a consideration, see point iv).

x. It is preferable to site turbines where they do not diminish the understanding and appreciation of historic landmarks features such as hilltop monuments or church towers.

xi. Protect the character of conservation areas including views or features of the surrounding landscape which contribute to their setting (as mentioned in Conservation Area Appraisals).

xii. Protect the the setting to listed buildings (particularly where the character of the landscape is an important part of a listed building's special interest), and protect the character of Registered Historic Parks and Gardens including views to and from, particularly designed views and historic visual connections[13].

xiii. When siting multiple turbines over 50m tip height, select sites in simple, regular landscapes over landscapes with more complex or irregular land cover patterns, smaller field sizes and landscapes with frequent human scale features (subject to satisfying other sensitivities).

xiv. When selecting sites consider potential effects of transporting turbines to site, and the possible limitations presented by narrow lanes or historic bridges and the potential landscape impacts of road widening.

6.3 When siting single turbines the following guidance should be considered:

xv. Consider siting turbines so they are perceived as part of other built development /in association with a building group where effects on amenity allow. For example, there may be some opportunity to site smaller single turbines in relation to farm buildings with larger scale single turbines sited in relation to larger businesses or community buildings - development should be commensurate with (or reflect) the scale of the associated buildings.

6.4 When siting multiple turbines the following guidance should be considered:

xvi. Locate turbines on the most level part of a site or following contours to avoid a discordant variation of turbine heights.

xvii. Ensure the size and grouping of turbines responds to landscape character, reinforcing the difference between distinct landscape character types.

xviii. Seek to keep a turbine group within one landscape character type (particularly as perceived in sensitive views) so that turbines do not span across marked changes in character on the ground, such as changes in topography.

## Detailed Layout and Design

6.5 The next stage in planning a wind energy scheme is the detailed layout and design. Alternative options should be investigated to find the optimum layout and design of a wind energy development. The NPPF (para. 66) expects applicants to work closely with those directly affected by their proposals to evolve designs that take account of the views of the community[14]. The landscape and visual impact assessment (LVIA) may aid this process. The following should be considered:

- Layout and number of turbines;
- Size, design and proportion of turbines;
- Requirement for, and location of, transformers;
- Site access including potential need for road upgrades, design of access tracks and onsite cables;
- Requirement for, and location of, borrow pits;
- Location and restoration of construction compounds and any fencing;
- Location of monitoring masts;

[13] The relevant Historic Environment Service should be approached directly to obtain advice on development that could affect these assets.

[14] A Public Engagement Protocol for the South West [http://www.cse.org.uk/pdf/pub1036.pdf] outlines a series of responsibilities aimed at local planning authorities and wind energy developers for promoting more effective public engagement within the development of wind energy projects.

- Design of lighting (if required);
- Location and design of substation building(s);
- Land management changes including opportunities for habitat creation/ enhancement appropriate for the character area, set out in a landscape management strategy.

6.6 The following provides some generic guidance for the detailed layout and design of wind energy developments:

## Site Layout

i. When developing multiple turbines, ensure that turbines read as a coherent group in all the main views – aim for a composition that is visually balanced, simple and consistent in image as it is viewed from various directions, minimising views of blade tips only in views (which can be distracting).

ii. When developing multiple turbines, seek to avoid 'stacking' of turbines when seen from one direction as far as possible (such as is experienced when looking along a row).

iii. When developing multiple turbines, seek to avoid siting turbines which are remote from the rest of the group – maintain a clear balanced cluster.

iv. Ensure turbine size does not overwhelm the scale of distinct hills and ridges.

v. When developing multiple turbines, ensure cluster size is in proportion with the scale of the landscape, including landform features and landscape elements such as woodlands and fields.

vi. Ensure wind turbines respect the hierarchy of elements in the landscape and do not compete with, or create clutter when seen together with, other man-made landscape elements such as pylons.

vii. In urban fringe or industrial contexts, developments should respond to the scale of the built form and sit comfortably alongside buildings or structures.

viii. Use information on landscape scale contained within published landscape character assessments to inform choice of turbine size and cluster size.

ix. Ensure the layout and design of the development responds to other wind energy developments in the same type of landscape to minimise cumulative effects – this is more important the closer sites are together.

## Turbine Design

i. Ensure the height of turbines are in scale with the landform in which they are located and do not overwhelm the scale of hills, ridges, or historic landmarks and monuments.

ii. Ensure that the proportion of rotor diameter to tower height is balanced - short blades on a tall tower or long blades on a short tower may look unbalanced. Aim for a ratio of approximately 1:1 for tower height: blade diameter for medium and large turbines.

iii. Three bladed turbines tend to look more balanced than two bladed turbines.

iv. Tubular steel towers tend to look simpler and less 'industrial' than lattice towers.

v. Hubs are more aesthetically pleasing when oval shaped with flowing lines, rather than 'boxy' shapes.

vi. Simple, pale grey coloured turbines will be most suitable for most turbines over 25m to tip (to reduce contrast with the sky and match existing turbines in Melton and Rushcliffe). However, in some cases darker colours may be suitable for very small turbines to help them blend into their setting.

vii. Opinion is divided about how effective graduated bases (usually from green to grey) are at integrating turbine towers into the landscape [ref photo below] and may be appropriate in certain situations.

viii. All turbines on a site should rotate at the same speed and direction.

ix. Speed of blade rotations should be kept as low as possible (particularly on smaller turbines) to reduce visual impact.

x. Avoid use of advertising on turbines, particularly in rural areas.

## Ancillary Features

i. Minimise the width and length of new tracks introduced into the landscape, using existing routes wherever possible.

ii. Any new tracks should follow contours, avoiding steep slopes or wet ground where possible, and following field boundaries or woodland edges where possible – in some cases this may result in slightly longer lengths of track being required.

iii. Ensure the surface of tracks blend into the surrounding landscape and aim to re-vegetate tracks (in full or in part) following construction.

iv. Minimise works to offsite roads, particularly rural roads, and prevent damage and alterations to stone walls, hedges, flower rich verges, trees, historic bridges and gateposts - repair and replace any features affected ensuring materials and planting are in keeping with local context and character.

v. Where possible, house transformers within the turbine towers to reduce their visual effects.

vi. Substation and control buildings should be carefully sited and should generally avoid high or exposed locations – use existing buildings where possible, or existing and locally occurring vegetation to screen new buildings.

vii. Ancillary features should match the local vernacular where they are visible (e.g. using locally occurring materials on substations, control buildings, and transformer cabins if not housed within the turbines).

viii. Avoid use of urbanising elements in rural situations, such as kerbs, and minimise areas of hard surfacing, fencing and lighting.

ix. Ensure on-site cables are buried underground (minimising damage to existing hedges or archaeology) to minimise effects on landscape character and visual amenity – on-site grid connections should be underground wherever possible and crane hard standings re-vegetated during operation of the turbines.

x. If lighting is required on turbines for aviation purposes, use infra-red lighting to minimise visual effects at night, particularly in more rural and darker areas (NPPF encourages limiting the impact of light pollution from artificial light on local amenity and intrinsically dark landscapes).

## Land Use/ Landscape Enhancement

xi. Continue the existing land use underneath the turbines so that the landscape flows underneath and around the turbines, or link land use to adjoining land uses especially if this can create more robust semi natural habitats and reduce habitat fragmentation.

xii. Provide enhanced management of landscape features, habitats and historic assets as part of a development, including contributing to wider landscape scale targets and projects in relevant local authority Biodiversity Action Plans and other landscape related plans as well as management objectives within landscape character assessments.

xiii. Encourage traditional management of farmland including maintaining small fields and hedgerows.

xiv. Developers should provide a design statement to set out how the design has evolved, how the design responds to landscape character, how visual issues have been addressed and how this guidance has been taken on board.

xv. Developers should provide a land management plan for land surrounding/under installations to demonstrate proposed land use and management through the operational phase and restoration/aftercare after decommissioning.

## Designing for Multiple Developments

6.7 As larger numbers of wind energy developments are built, it is increasingly necessary to consider their cumulative effects. For Melton and Rushcliffe, the aim is to maintain landscape character, ensuring that wind energy developments do not become a key characteristic of the landscape or have a defining influence on the overall experience of the landscape (i.e. developments are occasional features within the landscape and would not result in a significant cumulative impact on a Landscape Character Unit, or result in a change in landscape character of an Landscape Character Unit). The guidance below can assist in minimising cumulative effects.

i. When designing a wind energy development it is important to consider how the scheme fits with other existing, consented and proposed schemes (including within neighbouring planning authorities) to minimise cumulative effects[15].

ii. If wind energy development already exists in a particular type of landscape, further wind energy development should continue this pattern of development (e.g. small cluster on hill tops, or single turbines associated with buildings), as long as the existing development is considered appropriate in the context of landscape character.

iii. Ensure multiple developments do not obscure distinctive landforms and are in scale with ridges and hills.

iv. If two or more wind energy developments are clearly visible in the same view and appear in the same type of landscape they should appear of similar scale and design (including the number of blades and proportion of rotor diameter to tower height), unless the existing design is considered inappropriate – the closer they are to each other the more important this is.

v. Ensure any wind energy scheme, or extension to an existing scheme, takes account of landscape sensitivity as well as any landscape strategies for wind energy development that may be available.

vi. It will be important to ensure that wind energy developments do not have a defining influence on the overall experience of the landscape and that some open views devoid of turbines are maintained.

vii. As multiple wind energy developments are built they may 'compete' with the landscape's original focal features/ landmarks – it is important to maintain a hierarchy of landmarks and ensure they can still be appreciated in the landscape.

viii. Consider views from settlements when designing multiple wind energy developments – avoid 'surrounding' a settlement with wind turbines.

ix. Individual wind energy developments should generally appear visually separate from each other unless specifically designed to create the appearance of a single combined wind farm.

x. When designing wind farm extensions it will be important that scale of turbines (including the proportion of rotor diameter to tower height) and rotation speeds are compatible.

[15] use of a common protocol allowing neighbouring local authorities to record and map renewable energy developments in a consistent way may be a useful tool.

# 7 Detailed assessments and guidance by Landscape Character Unit

7.1 This Chapter contains the Landscape Sensitivity Assessments and Guidance tailored to each of the Landscape Character Units found within Melton and Rushcliffe. Each document includes the following:

- A location map of the Landscape Character Unit;
- Key landscape characteristics taken from published Landscape Character Assessments;
- Landscape sensitivity assessment results for wind energy development;
- Key sensitivities and guidance for development for wind energy development.