www.landuse.co.uk

Landscape Sensitivity to Wind and Solar Energy Development in North Dorset District

Prepared by LUC
April 2014

Planning & EIA
Design
Landscape Planning
Landscape Management
Ecology
Mapping & Visualisation

LUC LONDON
43 Chalton Street
London NW1 1JD
T 020 7383 5784
F 020 7383 4798
london@landuse.co.uk

Offices also in:
Bristol
Glasgow
Edinburgh

FS 566056
EMS 566057

Land Use Consultants Ltd
Registered in England
Registered number: 2549296
Registered Office:
43 Chalton Street
London NW1 1JD
LUC uses 100% recycled paper

Project Title: Landscape Sensitivity to Wind and Solar Energy Development in North Dorset District

Client: North Dorset District Council

Version	Date	Version Details	Prepared by	Checked by	Approved by Principal
1.0	31.01.14	Draft report issued	RS	SP	KA
2.0	29.04.14	Final report issued	RS	KA	KA
3.0	07.05.14	Final report issued	RS	KA	KA

Contents

1 Introduction

Background and Scope

1.1 This study assesses the potential effect of wind and solar photovoltaic (PV) energy developments on landscape character in North Dorset District. It does this on the basis of the subdivision of the District into landscape character areas (LCAs) as identified in the North Dorset Landscape Character Assessment 2008, organised within the landscape character types (LCTs) identified in the Dorset Landscape Character Assessment[1]. Studies in the same format have also been carried out for East Dorset, Purbeck and Christchurch Borough.

1.2 Wind and solar power are two of the more 'mature' forms of renewable energy which have seen considerable growth across the UK in recent years. Planning applications for both types of installation have been submitted in most Dorset Districts and several sizeable schemes have been approved, including two solar farms totalling nearly 125 hectares at Parley, Christchurch, and the four-turbine Alaska Wind Farm at East Stoke near Wareham (although this is awaiting a final decision from the Court of Appeal). The first operational solar farm in Dorset, at Park Farm, Shroton, opened in 2011 and a 60m (to tip) wind turbine at Rogershill Farm, Bere Regis, was constructed in late 2012. Councils in Dorset want to ensure that renewable energy development takes place in the most appropriate locations, and landscape sensitivity is a key element in this.

1.3 Councils in Dorset recognise that the UK has a legally binding target to generate 15% of its energy from renewable sources. The National Planning Policy Framework (NPPF) requires local planning authorities to proactively address the need to increase the use of renewable energy sources; paragraph 97 of the NPPF states:

To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources. They should:

- *have a positive strategy to promote energy from renewable and low carbon sources;*
- *ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts;*
- *consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources;*
- *support community-led initiatives for renewable and low carbon energy, including developments outside such areas being taken forward through neighbourhood planning; and*
- *identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.*

1.4 Impact on landscape is one of the major planning considerations associated with wind and solar energy so by addressing sensitivity to these things this study will form a key element of the information base for addressing adverse impacts and community concerns, and for developing a positive strategy.

1.5 The study addresses sensitivity of landscape characteristics to wind and solar PV development but also considers the extent to which those characteristics will, at a general level, affect views of that landscape. It is not an assessment of visual sensitivity since that is dependent on the nature and location of the viewers (e.g. whether they are residents of a nearby settlement, tourists or passing motorists), and as such cannot be carried out without more detailed assessment of specific sites, but consideration of the way in which landscape characteristics affect views

[1] Prepared by Dorset Senior Landscape Officer Tony Harris subsequent to the District study – available on-line as an interactive map with associated data.

contributes to an appreciation of the likelihood of a development being considered acceptable or otherwise.

1.6 This assessment considers wind and 'field scale' solar PV developments that require planning consent (permitted development is set out in The Town and Country Planning (General Permitted Development) Order 1995[2]). It does not cover roof mounted turbines or PV panels and it does not encompass freestanding 'back garden' installations or turbines less than 15m high, which can be constructed under Permitted Development planning regulations.

1.7 The assessment of sensitivity is concerned principally with completed, operational developments, not the construction process, since the effects of construction will typically be more limited or associated with a specific development location.

1.8 Although the assessment presented in this document is limited to North Dorset District the methodology takes into consideration the effect of interrelationships with landscapes beyond the District boundary, in both Dorset and neighbouring counties.

Usage

1.9 LUC has been commissioned to undertake sensitivity assessment work for four Dorset Council areas: East Dorset District, Christchurch Borough, Purbeck District and North Dorset District. A common methodology has been employed across all four districts, but results are presented as separate reports for each Council.

1.10 It is intended that this report should:

- Provide guidance to inform the development of design proposals at the pre-application stage;
- Assist the Local Planning Authority with the EIA Screening process;
- Inform the preparation of landscape and visual impact assessments (LVIA) for proposed developments (whether or not Environmental Impact Assessment is a planning requirement);
- Assist with the determination of planning applications;
- Contribute to the evidence base used by the Local Planning Authority to inform policy.

1.11 The assessment of landscape sensitivity to wind and solar PV development presented in this report does not extend to the assessment of the capacity of any given landscape area for such development, although at a basic level it is reasonable to assume that an area in which sensitivity is judged to be lower is likely to be able to accommodate more development than one in which sensitivity is judged to be higher. The question of how much wind or solar development is too much cannot be answered by a landscape sensitivity assessment, because policy considerations beyond landscape character have a key influence on determining strategies for landscape capacity – i.e. the question of capacity might have strategic considerations beyond those of cumulative impact on landscape character. For example:

- National planning policy, guidance or targets might influence the level of wind or solar provision in an area, affecting the degree of landscape character change that might be considered acceptable by planning authorities in order to accommodate renewable energy;
- Planning authorities may decide to adopt an approach to wind or solar PV energy which focuses development in certain locations, in effect accepting that landscape character will change in these areas as a result but considering this to be preferable to a lesser degree of landscape change over a wider area. Similarly there may be certain locations in which it is decided that no wind or solar PV development (or none beyond a certain scale) will be permitted, even though in terms of landscape character the impact of a particular proposal might, if assessed, be less than in an area not subject to a 'blanket ban'.

[2] http://www.legislation.gov.uk/uksi/1995/418/made/data.pdf

Landscape Sensitivity

1.12 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 Countryside Agency and Scottish Natural Heritage including the Landscape Character Assessment Guidance[3], Topic Paper 6 that accompanies the Guidance[4] and the Landscape Institute and IEMA's guidance for assessing landscape and visual impact[5]. More specifically the assessment methodology reflects the pilot methodology for wind turbine sensitivity assessment set out in the *Dorset Landscape Change Strategy: Pilot Methodology* produced by LUC for Dorset County Council in January 2010, and subsequent and on-going studies of a similar nature.

1.13 Paragraph 4.2 of Topic Paper 6 states that:

'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'

1.14 Two aspects to landscape sensitivity assessment can be identified from this quote: the need to consider the characteristics of the landscape in relation to the type of development proposed – i.e. the *susceptibility* of the landscape – and the need to identify characteristics which are 'significant' or 'important'. These dual aspects of sensitivity are stressed in the latest Landscape Institute and IEMA guidance.

1.15 In this study the following definition of sensitivity has been used, which is based on the principles set out in Topic Paper 6 as well as definitions used in other landscape sensitivity studies of this type:

Landscape sensitivity is the extent to which the character and quality of the landscape is susceptible to change as a result of wind energy/field-scale solar PV development.

Basis of Assessment

1.16 This assessment uses as its 'baseline' the District-level Landscape Character Assessment published in 2008 and the County-level landscape character typologies (LCT) which were informed by District-level assessments. Reference has also been made to the Management Plans for the two AONBs which cover parts of the District[6]. All of these studies provide information on landscape characteristics and features, and also on the value which they contribute to overall character (which in some cases is reflected in landscape designations).

1.17 The study has been supported by fieldwork to verify desk-based assessment work. It does not set out to update the LCA, but it is possible that some conclusions with respect to sensitivity will reflect either a different interpretation of characteristics and their relative contribution or physical changes in the landscape which have occurred since the baseline assessments were published.

1.18 Potential effects of development on landscape character draw on LUC's experience in carrying out LVIA for specific development proposals in many part of the UK, preparing guidance on landscape sensitivity for local authorities and observing the landscape effects of operational wind and solar developments.

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

[4] 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.

[5] Guidelines for Landscape and Visual Impact Assessment v3 – Landscape Institute and Institute of Environmental Management & Assessment (2013)

[6] The Cranborne Chase and West Wiltshire Downs AONB Management Plan (2009-2014) and Dorset Area of Outstanding Natural Beauty - A Framework for the Future - AONB Management Plan (2009-2014)

Limitations of the Assessment

1.19 Certain locations, either localised or covering a broader area, may be considered less suitable for development for construction or operational reasons, e.g. access roads are too small to accommodate construction traffic or location has limited wind speeds or availability of sunlight. These considerations do not form part of the sensitivity assessment and would be expected to be addressed at an early stage in the consideration of a potential development site.

1.20 There will be local variations in the balance of sensitivities which this district-level study cannot pick out but which an assessment of a specific location for proposed development would be expected to identify. Conclusions on sensitivity are generalisations, hence the approach outlined in section 5 below to indicate factors that would raise the typical level of sensitivity.

1.21 Although it takes into account ancient monuments or other historic landscapes where they form notable landscape features, the guidance does not cover specific cultural heritage/archaeological issues associated with individual designated heritage assets and their settings. Likewise it does not consider ecological issues associated with nature conservation designations, other proposed uses for land which might influence any development proposal (e.g. housing allocations) or technical issues relating to what might make one site more suitable than another for wind or solar PV development. These are factors that will need to be taken into account in site selection and in impact assessment work produced as part of the planning application process.

Document Structure

1.22 Sections 2 and 3 set out the principal components of wind and solar PV energy schemes and the nature of the effects that these could have on physical landscape elements, landscape characteristics and landscape value. Consideration is also given to current development trends in these forms of renewable energy.

1.23 Section 4 looks at the characterisation of the District's landscape in published assessments, providing the baseline information for assessment of sensitivity.

1.24 Section 5 sets out the methodology employed to carry out and present this assessment.

1.25 Section 6 details the criteria against which sensitivity has been assessed, including definitions of sensitivity levels and typologies used to reflect potentially differing levels of sensitivity to different scales of development.

1.26 Section 7 presents the assessment results for North Dorset District.

1.27 Sections 8 and 9 give brief summaries of the sensitivity findings for wind and solar PV development respectively, together with maps to illustrate sensitivity for different scales of potential development across the District.

1.28 Sections 10 and 11 provide generic guidance, for wind and solar PV development respectively, to assist in the identification of potential development sites that minimise adverse landscape and visual impact.

2 Characteristics of Wind Energy Development

Components of Development

2.1 The key components of wind energy development are the wind turbines, which may be grouped together into a 'wind farm'.

2.2 The main visible components of a wind turbine consist of the tower, nacelle and rotor blade system. Depending on the scale and design of the turbine, the transformer may be located inside or outside the tower. The tower itself sits on a buried concrete foundation which is hidden from view.

2.3 In addition to the turbines themselves, developments typically require additional infrastructure as follows:

- Road access to the site able to accommodate Heavy Goods Vehicles (HGVs) carrying long, heavy and wide loads (for the turbine blades and construction cranes);
- On-site access tracks able to accommodate the construction HGVs - the size of these tracks will vary with the size of turbine and will remain during the operation of the wind farm, although they can be narrowed during operation;
- A temporary construction compound and lay down area for major components;
- An area of hardstanding next to each turbine to act as a base for cranes during turbine erection (these can be removed or covered over during operation);
- Underground cables connecting the turbines (buried in trenches, often alongside tracks);
- One or more anemometer mast(s) to monitor wind direction and speed;
- A control building, to ensure that the turbine(s) are operating correctly, and a substation.

2.4 Depending on the scale of the operation and the site terrain, borrow pits may also be required to provide construction materials for the access tracks and/or to create level surfaces.

2.5 Lighting requirements depend on aviation and can be required on turbines. However, aircraft warning lights can be infra-red (IR) and therefore not visible to the naked human eye. Lighting has not been considered as part of the landscape sensitivity study, although guidance will advise that if lighting is required on turbines for aviation purposes, infra-red lighting should be used where possible to minimise visual impacts at night.

2.6 Security fencing may be required, either during construction or on an on-going basis.

2.7 The District Network Operator (DNO) is responsible for establishing a connection between the substation and the national grid. This connection is usually routed via overhead cables on poles, but may be routed underground (a more expensive option). Since these are part of a separate consenting procedure these connections are not being considered as part of the landscape sensitivity study.

Location, Size and Arrangement

2.8 As noted, in paragraph 1.6, this study is concerned with turbines which are at least 15m from base to maximum rotor tip height. The tallest on-shore turbines currently operating in the UK are c.125m to tip, although larger models are available.

2.9 Wind strength and consistency are important factors in determining the efficiency of a turbine, so more exposed locations are favoured, although installations can still be cost-effective in less optimal sites.

2.10 Spacing between wind turbines is typically between 5 and 9 times the rotor diameter, reflecting a balance between minimising capital costs (which will be greater if the site is larger) and minimising loss of efficiency as a result of the 'wind shadowing' effect of upstream turbines (which will be greater if turbines are closer together). However, separation may be as little as 3 times the rotor diameter and, conversely, much wider separation distances may be more effective on larger wind farms.

2.11 A turbine would usually be located far enough away from any residential property to avoid the phenomenon of 'shadow flicker' (see 2.19 below).

2.12 Ecological considerations play a role in the positioning of turbines; in particular they are typically located away from hedgerows to avoid risk of harm to bats (which commute or forage along such linear features).

Appearance

2.13 The majority of wind turbines consist of horizontal axis three-bladed turbines on a steel tower, as shown in **Figure 1** below. Other turbines are available including two bladed turbines and vertical axis turbines.

2.14 Turbines are typically a pale grey colour but some models have gradations in colour on the lower part of the tower, from a darker green at the base to grey further up.

2.15 The movement of a turbine is a unique feature of wind energy, setting it apart from fixed tall structures such as communications masts and electricity pylons.

Permanence

2.16 All forms of turbine are usually given planning permission for 25 years, although applications for upgrading (known as 'repowering') in order to enhance energy production (through larger and/or more efficient turbines) may take place during this period or when it due to elapse.

Figure 1: A three bladed turbine at Stowford Cross, Bradworthy, in Devon.

Effect on Existing Landscape Elements

2.17 The physical surface area required to accommodate a wind turbine will be relatively modest. The construction of turbines and associated infrastructure may result in direct loss of landscape features such as sections of hedgerow (to facilitate access) and will require land surface and land use change in the immediate area of the turbine, although beyond this the existing land use in a field containing a turbine could continue (e.g. grazing or arable cultivation).

2.18 Depending on the road network in the vicinity of a site there may also be requirements for widening, tree clearance or crown-lifting to facilitate access for construction traffic.

2.19 The phenomenon of 'shadow flicker', in which the movement of rotor blades in between the sun and a viewer within a building causes an effect akin to lights being repeatedly switched on and off, only theoretically occurs under specific conditions within a limited distance from a turbine. As such it is a specific residential amenity issue rather than a landscape character issue, and falls outside the remit of this study.

2.20 Earthworks are occasionally undertaken, e.g. to screen certain views, but the scale of this is usually limited.

2.21 A wind turbine/farm is considered a reversible development, so in theory all elements should be removed/reinstated when the site is decommissioned.

2.22 If remote grid connection works are required, these would have to be assessed as a separate development.

Effect on Landscape Characteristics

2.23 Impact on landscape character will in most circumstances relate to changes in the aesthetic and perceptual aspects of landscape character as a result of the introduction of new landscape elements, rather than to any change to or loss of existing physical landscape elements.

2.24 The most significant attribute of a wind turbine is its vertical scale. Even a small turbine is likely to be taller than any landscape element in the vicinity, and the movement that accompanies it will enhance its prominence as a landscape element.

2.25 Other aesthetic aspects of landscape character which could potentially be affected by wind development include the complexity of the landscape, pattern (in the case of wind farms rather than individual turbines) and the combination of texture, form, line, colour and balance which help to define the landscape character of an area.

2.26 Perceptual aspects of landscape character, such as peacefulness and tranquillity, typically reflect a degree of value attributed to the landscape which could be affected by the movement of a turbine and, at close quarters, by the noise it generates. Where tranquillity is associated with a lack of modern development the presence of a distinctly modern structure could also affect perceptions of tranquillity.

Effect on Landscape Value

2.27 Landscapes that have a high scenic quality may be more sensitive than landscapes of low scenic quality. This is particularly the case where the qualities of a designated landscape (e.g. an AONB or AGLV) are likely to be affected by wind energy development.

2.28 All landscapes are likely to be valued to some degree by some people. 'Special qualities' is the term used to describe the characteristics that make an AONB distinctive and valued, but landscapes that are not designated may also have valued elements or characteristics recorded in District or County landscape assessments – e.g. perceptual qualities such as tranquillity.

Development Trends in Wind Energy

2.29 The following information is taken from 'reNews', a twice-monthly renewables industry publication, in a 'special report' of October 2013:

- There were 468MW of new wind energy installations in England in 2013, compared to average of 168MW per year over the period 2008-2012, which can principally be explained by the rush to install before the 10% reduction in the Renewables Obligation subsidy rate in April 2013.
- Developer predictions for new builds in 2014 are still high (a figure of 427MW was quoted in October 2013), but industry observers are predicting that gradual decline will set in within 5 years, as space and wind resource constraints become more significant, with central and southern England seen as having the most limited capacity.
- There is uncertainty in the industry over the degree of political will for continued growth in the sector, with an increasing number of schemes called in by the Department of Communities and Local Government, but decisions so far do not reflect any trend towards decreasing acceptance of wind energy.
- There is increasing competition for grid capacity between wind and solar developments, with their uncorrelated energy generation profiles creating redundant capacity in individual connections, so it is commercially effective to combine wind and solar on one site.

2.30 **Table 1** lists the applications, screening or scoping requests in relation to wind energy developments in North Dorset District in the 12 month period to September 2013. Whilst no full applications have been forthcoming in this period, there has been interest in potential development in the northern part of the District.

Table 1: Applications to North Dorset District Council in year to September 2013

Wind farm	Number of turbines	Height of turbine (to tip)	Status
Holly Home Bourton, Gillingham	2 x 250kW wind turbines	45m	EIA Screening
Midney Lane Bourton, Gillingham	1 x 250kW wind turbine	45m	EIA Scoping
Feltham Farm Silton, Gillingham	1 x 500kW wind turbine	100m	EIA Screening

3 Characteristics of Solar Energy Development

Components of Development

3.1 The principal component of solar PV development is panels of photovoltaic cells, encased in aluminium frames and supported by aluminium or steel stands. An individual panel is typically in the order of 1mx2m in size, but panels are grouped into 'arrays' of around 20 panels, usually in a double-row linear formation.

3.2 Grass is usually grown around and beneath the panels.

3.3 Other features of field scale solar PV may include:

- Temporary storage compounds for plant, machinery and materials during the construction phase.
- Inverters to convert the electricity from DC to AC - which may be housed within new or existing buildings and will require access tracks.
- Transformer and underground power cables to transfer the electricity to the National Grid.
- An on-site power house (usually a Portacabin with a concrete base).
- Security fencing, usually 2-2.5 metres in height, required for insurance purposes.
- Hedgerows or tree planting to screen sites.
- CCTV (such as cameras mounted on 4.5m high poles).
- Access tracks will be necessary on field scale schemes with central inverters (central inverters cannot be delivered and maintained using temporary tracks). In other instances, temporary matting can be used to bring the solar panels to a site (i.e. if a site is not accessible by existing roads or tracks).

Location, Size and Arrangement

3.4 In general, the favoured sites for PV schemes from a technical standpoint are plateau tops or gently sloping landforms, with a southerly aspect required to maximise efficiency. From a logistical standpoint, steep slopes are avoided.

3.5 The size of field-scale solar PV developments may vary considerably.

3.6 Panel arrays are positioned at a fixed angle between 20-40 degrees from the horizontal. The arrays are usually sited in parallel rows with gaps between the rows, typically 5-8m wide, to prevent shading of adjacent rows and to facilitate access.

3.7 The actual arrangement of the arrays within the landscape varies from scheme-to-scheme (i.e. regular layouts versus more varied and irregular, depending on the site situation). Generally though, layouts of the solar arrays tend to be regular.

Figure 2: solar PV development at Benbole Farm, Cornwall

3.8 Some developments contain panels that can be manually rotated several times a year to enable the arrays to track the sun and so ensure maximum capture of the sun's energy, while others feature fixed panels which are positioned to face in a southerly direction. The technology does exist to allow for automatic tracking, although this is at present much rarer. Movement due to automatic tracking is likely to be imperceptible as it will be slow.

3.9 Ground mounted panel arrays are typically set 0.6-1m above ground level, allowing the growth of vegetation beneath and between the arrays and sometimes the associated grazing of stock (usually sheep, since cattle would be more damaging to the installations and would require panels to be set further from the ground). The overall panel array height above ground level, taking into account the angle at which it is set, is usually between 2m and 3m.

Appearance

3.10 Panels are typically described as appearing dark in colour as a result of their non-reflective coating and maximised absorption of light. En-masse they tend to reflect the sky - for example, on a sunny day they can appear bluer while on a cloudy day they can appear a metallic grey. When viewed from a distance panels have sometimes been likened to poly tunnels or, depending on angle of light, to areas of standing water (i.e. reservoirs or lakes).

3.11 Whilst the spacing between rows means that a solar farm will not physically cover a whole field the degree of panel tilt means that, from most viewing angles, coverage will be dense and little will be seen of the ground surface in between rows. Similarly, unless viewed from above, it is unlikely that a whole solar PV development would be visible to the eye.

3.12 Panels may be seen from behind (back of the panels) or from the side (down the rows of frames), which will also influence how they are perceived.

3.13 The possibility of glint or glare emitting from the solar panels is a consideration in terms of the visual health and safety impacts of schemes, as specific alignments associated with a particular development proposal, e.g. a nearby road or airfield runway, might give cause for concern, but this is not addressed as a landscape character issue. Photovoltaic technology requires absorption of sunlight to allow for the conversion of energy to take place, therefore allowing little light energy to be lost, so the extent of impact on landscape character is not generally an issue above any concerns which might exist regarding the modern, man-made materials and geometric form of a solar PV installation.

Permanence

3.14 Like wind farms, solar PV developments are usually given planning permission for 25 years. The initial investment required to set up a solar farm, and its very nature as a renewable energy source, means that it would not be considered a short-term investment.

3.15 Earthworks associated with solar development are not usually major, so landscape impacts in most settings can be considered reversible. Panels do not require concrete foundations.

Figure 3: solar PV development in Muhlhausen, Germany

Figure 4: 1.25 hectare solar PV development at Five Mile Hill near Pathfinder Village, Cornwall

Figure 5: 8 hectare development at Park Farm, Shroton, North Dorset, viewed from Hambledon Hill

Effect on Existing Landscape Elements

3.16 Whilst there is some scope to utilise the space in between panels for other uses, a solar farm is likely, particularly in visual terms, to represent a change in land use. Vegetation within the site area is likely to be affected.

3.17 There may be damage to boundary features, e.g. hedgerows, to facilitate access.

3.18 Earthworks are occasionally undertaken, e.g. to screen certain views, but the scale of this is usually limited.

3.19 A solar farm is considered a reversible development, so in theory all elements should be removed/reinstated when the site is decommissioned.

3.20 Any major works associated with grid connections would have to be assessed as separate developments.

Effect on Landscape Characteristics

3.21 Solar PV development can affect the aesthetic and perceptual aspects of landscape character as a result of the introduction of new landscape elements.

3.22 The most significant aesthetic attributes of a solar PV development are its consistency of texture, form, line and colour and the rigidity of the geometric pattern created by massed arrays of panels. These can constitute a strong contrast with more natural textures and forms. These elements can, depending on the scale of development, have a significant impact on the existing landscape pattern.

3.23 Perceptual aspects of landscape character, such as a sense of rural tranquillity, typically reflect a degree of value attributed to the landscape (see below) which could be affected by the introduction of an overtly modern development such as a solar farm.

Effect on Landscape Value

3.24 Landscapes that have a high scenic quality may be more sensitive than landscapes of low scenic quality. This is particularly the case where the qualities of a designated landscape (e.g. an AONB or AGLV) are likely to be affected by solar PV energy development.

3.25 All landscapes are likely to be valued to some degree by some people. 'Special qualities' is the term used to describe the characteristics that make an AONB distinctive and valued, but landscapes that are not designated may also have valued elements or characteristics recorded in District or County landscape assessments – e.g. perceptual qualities such as tranquillity.

Development Trends in Field Scale Solar PV Energy

3.26 Solar energy development is typically seen as less controversial than large scale wind energy development, and as such it has received clearer government support over recent years than onshore wind energy. Combined with a reduction in construction costs over recent years, this has led to a significant increase in planning applications.

3.27 Reductions in subsidies in 2013 and concerns over limited capacity for new grid connections have fuelled a high level of applications in the last year or so, in particular for larger schemes (above 5MW).

3.28 The information in the table below suggests there is interest in creating large scale solar energy developments in North Dorset, but less interest in smaller field scale schemes.

Table 2: Applications to North Dorset District Council in year to September 2013

Location	Land area (ha)	Other details
Slaughtergate Farm Gillingham	4ha	1.8MW Consented
Canada Farm Winterborne Stickland	15ha	8.7MW Pending Decision
Manor Farm Gillingham	16ha	7MW Consented
Thornicombe Blandford	40ha	45MW EIA Screening Opinion
Thornicombe Blandford	22ha	4.8MW (a reduction of the above scheme) EIA Screening Opinion
Lipgate Farm Pulham	14ha	6MW EIA Screening Opinion
Little Rodmore Farm Kings Stag	6ha	2.5MW EIA Screening Opinion
Pleydells Farm Okeford Fitzpaine	21ha	5MW EIA Screening Opinion

4 Baseline Landscape Character

Landscape Character Types and Areas

4.1 The Dorset Landscape Character Assessment subdivides the county into landscape character types (LCTs), which may occur either as one discrete area or, more commonly, as a number of separate areas.

4.2 Each LCT has a description which is subdivided into information on location, key characteristics (bullet points followed by a description), management objectives and key land management guidance notes.

4.3 The North Dorset District Assessment assesses character for landscape character areas (LCAs), each of which is categorised using the same LCT terms as the County Assessment, although there are several cases where a LCA is split across two LCTs.

4.4 The District Assessment does not distinguish between chalk river valley floors and their surrounding valley sides, a distinction which is made at the County LCT level although no descriptive text is provided for the Chalk River Valley Floor LCT.

4.5 Each LCA description is subdivided into a bullet-point list of key characteristics, followed by a description split between the headings 'land shape and structure' and 'settlement and land cover'.

4.6 In order that this assessment can draw on both County LCT and District LCA baseline character data it is sometimes necessary to subdivide the LCA. The table below summarises the relationships between LCTs and LCAs and where necessary makes reference, in the 'notes' column, to any specific treatment for this landscape sensitivity assessment.

Table 3: Landscape categorisation

County LCT	District LCT	District LCAs	Notes
Limestone Hills	Limestone Hills	North Dorset Limestone Ridges	
Wooded Chalk Downland	Wooded Chalk Downland	Cranborne Chase Wooded Chalk Downland	
Chalk Valley and Downland	Chalk Valley and Downland	Upper North Winterborne Valley; Upper Milborne Valley; Tarrant Valley; Bloxworth/Charborough Downs; Chettle/Abbeycroft Downs; East Blandford/Pimperne Downs; South Blandford Downs	The floor of Tarrant Valley is considered separately in the sensitivity assessment as part of the Chalk River Valley Floor LCT. At County level the South Blandford Downs and Chettle/Abbeycroft Downs are split between the Open Chalk Downland and Chalk Valley & Downland LCTs. The South Blandford Downs and Bloxworth/Charborough Downs within this LCT are each assessed as one LCA, even though they are split across different districts.
Open Chalk Downland	Open Chalk Downland	South Blandford Downs; Chettle/Abbeycroft Downs	At County level the South Blandford Downs and Chettle/Abbeycroft Downs

County LCT	District LCT	District LCAs	Notes
			are split between the Open Chalk Downland and Chalk Valley & Downland LCTs. The South Blandford Downs within this LCT are each assessed as one LCA, even though they are split across different districts.
Chalk River Valley Floor	Chalk Valley and Downland	Lower Winterborne Valley; Lower Milborne Valley; Tarrant Valley (part)	The Lower Winterborne and Lower Milborne Valleys, although classified as Chalk Valley and Downland in the District Assessment, are narrowly defined to only encompass the valley floor area and so are treated as part of the Chalk River Valley Floor LCT. The Tarrant Valley LCA is split between Chalk River Valley Floor LCT and Chalk Valley & Downland LCT.
Chalk Ridge/ Escarpment	Chalk Ridge/ Escarpment	North Dorset Chalk Escarpment	
Rolling Vales	Rolling Vales	North Blackmore Rolling Vales; South Blackmore Rolling Vales; Blackmore Vale; Shaftesbury Greensand Ridges	Part of the Blackmore Vale LCA is categorised in the Rolling Vales LCT but most is in the Clay Vale LCT
Clay Vale	Clay Vale	Blackmore Vale	The Blackmore Vale LCA boundary is not contiguous with the Clay Vale LCT; part of it is categorised in the Rolling Vales LCT
Valley Pasture	Valley Pasture	Upper Stour Valley; Mid Stour Valley	The Upper Stour Valley is subdivided into four sub-areas, each of which is assessed as a separate LCA

4.7 **Figure 6** illustrates the LCTs and LCAs into which the North Dorset District landscape is subdivided.

Statutory Designations

4.8 All landscapes can be valued, but approximately 38% of the District is recognised by statutory designation as part of Areas of Outstanding Natural Beauty (AONB): the eastern part of the District lies within the Cranborne Chase and West Wiltshire Downs AONB and the central-southern area is part of the Dorset AONB. The designation (under the provisions of the 1949 National Parks and Access to the Countryside Act, with further protection under The Countryside and Rights of Way Act 2000) is for the fundamental purpose of conserving and enhancing natural beauty.

4.9 Paragraph 109 of the National Planning Policy Framework (NPPF) states that "*the planning system should contribute to and enhance the natural and local environment*" by, amongst other things, "*protecting and enhancing valued landscapes*". Paragraph 115 identifies AONBs as being valued landscapes, stating that "*great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty*". Paragraph 116 goes on to say that "planning permission should be refused for major developments in these designated areas except in exceptional circumstances and where it can be demonstrated that they are in the public interest".

4.10 The following "*special characteristics and qualities*" relating to the landscape are identified in the Cranborne Chase and West Wiltshire Downs AONB Management Plan (2009-14):

- *Simple and elemental character of the open downland – wide expansive skies, dominant skylines, dramatic escarpments and panoramic views.*
- *Unity of the underlying chalk expressed in the distinctive and sometimes dramatically sculpted landforms, open vistas, escarpments and coombes.*
- *A peaceful, tranquil, deeply rural area; largely 'unspoilt' and maintained as a living agricultural landscape.*
- *Strong sense of remoteness with expanses of dark night skies.*
- *Combination and contrast of the open exposed downland incised by intimate settled valleys and vales.*
- *The very scale of the landscape is often grand and dramatic with the 'intensity' of landscape character almost palpable.*
- *A landscape etched with the imprint of the past…*
- *Sparsely populated with absence of any large-scale settlement – reinforcing the rurality of AONB communities and sense of place.*
- *Distinctive settlement pattern along the valleys and vales, and small Medieval villages along the scarp spring line. Local vernacular building styles include the patterns of knapped flint, brick, clunch, clay tiles and straw thatch.*
- *Overlain by a woodland mosaic – including the eye-catching hill-top copses, veteran parkland trees and avenues, extensive areas of wooded downland and ancient forest together with more recent game coverts.*
- *Rich ecological character…*
- *Legacy of historic Halls and Houses with their characteristic estate and parkland landscapes…*
- *Strong sense of place and local distinctiveness represented by the use of local building materials and small-scale vernacular features such as the sunken lanes and distinctive black and white signposts.*

4.11 A landscape character assessment for the AONB was carried out in 1993[7]. This subdivided the landscape on broadly similar lines to the more recent North Dorset District Assessment. There is no conflict between the two assessments[8] so the more recent study is used as the principal source of information for this sensitivity assessment.

4.12 The significance of an AONB extends beyond the boundaries of its designated area. The draft management plan for the Cranborne Chase and West Wiltshire Downs AONB states that:

"The setting of an AONB is the surroundings in which the area is experienced. If the quality of the setting declines, then the appreciation and enjoyment of the AONB diminishes. The construction of a distant but high structure; or a change generating movement, noise, odour, vibration or dust over a wide area will affect the setting."

4.13 The Dorset AONB Management Plan[9] provides descriptions of the *special qualities* identified in the original designation: the *contrast and diversity of the landscape*, the *internationally important wildlife*, the *living textbook* of geology provided by the Jurassic Coast, the *historical record of rural England* that it provides and the *inspirational nature of the landscape*.

4.14 The first of these, the contrast and diversity of the landscape, has the most bearing on the landscape's visual character. Key phrases from the description are:

[7] Cranborne Chase and West Wiltshire Downs AONB – Integrated Landscape Character Assessment (LUC, 1993)

[8] The 1993 study similarly divides the landscape into escarpment, wooded chalk downland, open chalk downland and greensand terrace, although the boundaries between the wooded and open chalk areas have some differences.

[9] Dorset Area of Outstanding Natural Beauty - A Framework for the Future - AONB Management Plan (2009-2014)

- *A collection of fine landscapes, each with its own characteristics and sense of place … often closely juxtaposed to create striking sequences of beautiful landscapes that are unique to Britain.*
- *Uninterrupted panoramic views* [from the chalk escarpments].
- *Numerous individual landmarks such as hilltop earthworks, monuments and tree clumps, that help to contribute an individuality and a sense of place at a local scale.*
- A *sense of tranquillity and remoteness.*
- *Dark night skies.*
- *An undeveloped rural character.*

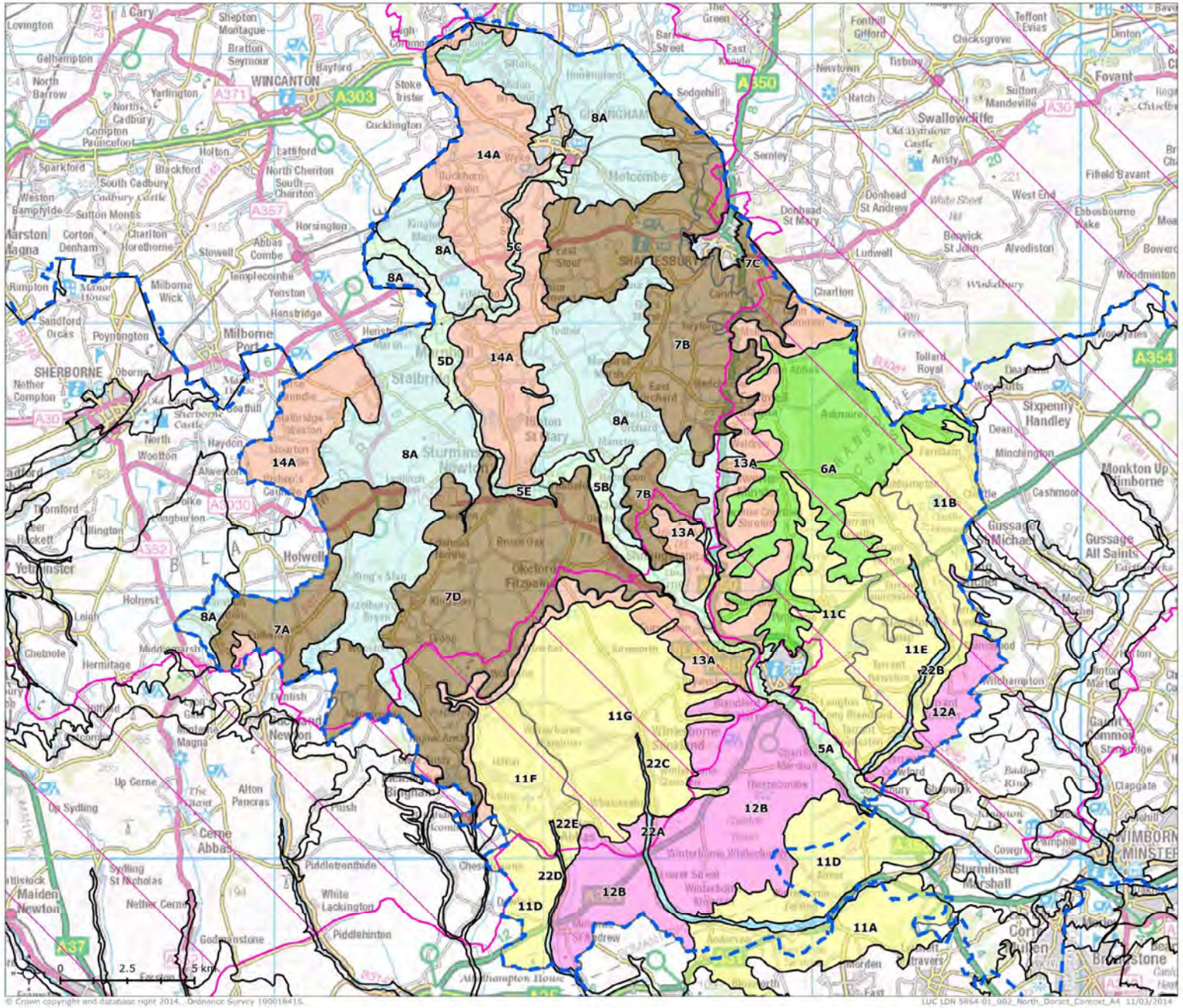
4.15 With regard to cultural heritage, the AONB is described as having:

- *An unrivalled expression of the interaction of geology, human influence and natural processes in the landscape*.
- A *strong sense of continuity with the past, supporting a rich historic and built heritage.*
- *A rich legacy of cultural associations. The best known of these is Thomas Hardy, whose wonderfully evocative descriptions bring an extra dimension and depth of understanding to our appreciation of the Dorset landscape.*

4.16 A landscape character assessment for the Dorset AONB was carried out in 2008[10]. This subdivided the landscape into the same character areas as the North Dorset District Assessment, but with boundaries altered to fit with the defined perimeter of the AONB. There is no conflict between the two assessments so the District study is used as the principal source of information for this sensitivity assessment.

4.17 AONB designations are also indicated on **Figure 6**.

[10] Conserving Character – Landscape Character Assessment & Management Guidelines for the Dorset AONB (2008)



LUC LDN 5854 01_002_North_Dorset_Context_A4 11/03/2014

North Dorset Landscape Sensitivity Assessment

Figure 6

North Dorset - Landscape Character Types and Areas

- District boundaries
- LCT boundaries
- LCA boundaries
- AONB

Landscape Character Types and Areas

5. Valley Pasture
   - 5A - Mid Stour Valley
   - 5B - Upper Stour Valley: South of Gillingham
   - 5C - Upper Stour Valley: North of Sturminster Newton
   - 5D - Upper Stour Valley: Sturminster Newton to Durweston
   - 5E - Upper Stour Valley: Sturminster Newton

6. Wooded Chalk Downland
   - 6A - Cranborne Chase Wooded Chalk Downland

7. Rolling Vales
   - 7A - Blackmore Vale
   - 7B - North Blackmore Rolling Vales
   - 7C - Shaftesbury Greensand Ridges
   - 7D - South Blackmore Rolling Vales

8. Clay Vale
   - 8A - Blackmore Vale

11. Chalk Valley & Downland
   - 11A - Bloxworth/Charborough Downs
   - 11B - Chettle/Abbeycroft Downs
   - 11C - East Blandford/Pimperne Downs
   - 11D - South Blandford Downs
   - 11E - Tarrant Valley
   - 11F - Upper Milborne Valley
   - 11G - Upper North Winterborne Valley

12. Open Chalk Downland
   - 12A - Chettle/Abbeycroft Downs
   - 12B - South Blandford Downs

13. Chalk Ridge/Escarpment
   - 13A - North Dorset Chalk Escarpment

14. Limestone Hills
   - 14A - North Dorset Limestone Ridges

22. Chalk River Valley Floor
   - 22A - Lower Winterborne Valley
   - 22B - Tarrant Valley
   - 22C - Upper North Winterborne Valley
   - 22D - Lower Milborne Valley
   - 22E - Upper Milborne Valley

Map Scale @ A4: 1:200,000

LUC

Source: North Dorset District Council

5 Methodology

Components of Landscape Sensitivity

5.1 The sensitivity of a landscape will depend on the **susceptibility** of the characteristics of that landscape to change as a result of the development type in question, the extent of **contribution** of those characteristics to landscape character and the overall **value** attached to the landscape.

5.2 It is recognised that it is not the intention of the District Assessment to attribute relative levels of value to different character areas. This approach is in keeping with LCA guidance[11], which recognises that all landscapes are valued to some extent by some people, but LVIA guidance[12] recognises that there are differences in value which will affect sensitivity, so some consideration of value is therefore required.

5.3 The methodology outlined below presents a systematic approach to assessing sensitivity, making judgements as objectively as possible.

Sensitivity Assessment Process

5.4 Section 6 defines sets of **assessment criteria** relating to wind and solar PV energy development. The criteria are the same for both development types, but the definitions of relative levels of susceptibility vary. The definitions for each sensitivity criterion include examples to illustrate five different levels of sensitivity (see **Table 4**).

5.5 The level of impact on landscape character resulting from a development will clearly depend to an extent on the scale of the proposed development so it is necessary to consider different scenarios. These take account of the variable characteristics of each development type which are most likely to have an effect on landscape character. Section 6 therefore also defines the different **scales of development** for wind and solar PV energy that have been used in this study.

5.6 Section 7 sets out the **assessment of sensitivity to wind and solar PV energy development**. This is presented at the generic Landscape Type (LCT) level, with detailed information presented for constituent Landscape Character Areas (LCA).

5.7 Landscape Character Type assessments:

- The County-level LCT summaries are studied to identify characteristics which reflect **susceptibility** to change as a result of wind or solar PV development as defined in the assessment criteria;
- Any designations which indicate landscape value, and any characteristics or sensitivities identified in the LCT summary which reflect aspects of landscape **value**, are noted. The landscape typologies provide guidance on management objectives which gives a clear indication of value through the identification of elements to conserve, protect or restore. The latest LVIA guidance suggests a number of factors which can be used to identify the value of landscapes (see definitions in **Figure 7** below);
- Comments are made on the 'typical' sensitivity within the LCT, weighing up the relative **contribution** of different characteristics and taking into consideration any aspects of landscape **value** which would affect the judgements.

5.8 Landscape Character Area assessments:

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

[12] Guidelines for Landscape and Visual Impact Assessment v3 (2013) – Landscape Institute and IEMA

- The above steps are repeated for each LCA represented within the LCT, making reference to the published landscape character assessment and, where applicable, any landscape character information provided in AONB management plans or AGLV Supplementary Planning Guidance;
- An assessment of the LCA's sensitivity, represented by a rating on a five-point scale (defined in **Table 4** below), is made for each combination of the defined **scales of development** for each development type. Consideration is given to any characteristics or features which would elevate the typical level of sensitivity within each LCA.

5.9 Presentation of the landscape sensitivity assessment results:

- Sections 8 and 9 comprise brief summaries of the assessment findings for wind and solar PV energy respectively, followed by maps illustrating sensitivity ratings across the district for each development scale category. AONB and AGLV boundaries are also shown.
- In addition to the assessment of sensitivity by LCA/LCT a generic check list is provided, in **Section 10** for wind energy and **Section 11** for solar PV, to assist potential developers in the consideration of the sensitivity of a specific site.

Table 4: Sensitivity definitions

Sensitivity Level	Definition
High	Key characteristics and qualities of the landscape are highly vulnerable to change from the development type. Such development is likely to result in a significant change in character.
Moderate-high	Key characteristics and qualities of the landscape are vulnerable to change from the development type. There may be some limited opportunity to accommodate the development type without significantly changing landscape character. Great care would be needed in locating development.
Moderate	Some of the key characteristics and qualities of the landscape are vulnerable to change from the development type. Although the landscape may have some ability to absorb development, it is likely to cause a degree of change in character. Care would be needed in locating development.
Moderate-low	Fewer of the key characteristics and qualities of the landscape are vulnerable to change from the development type. The landscape is likely to be able to accommodate development with limited change in character. Care is needed when locating development to avoid adversely affecting key characteristics.
Low	Key characteristics and qualities of the landscape are unlikely to be adversely affected by introduction of the development type. The landscape is likely to be able to accommodate development without a significant change in character. Care is needed when locating development to ensure best fit with the landscape.

Range of factors that can help in the identification of valued landscapes

- **Landscape quality (condition)**: A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
- **Scenic quality**: The term used to describe landscapes that appeal primarily to the senses (primarily but not wholly the visual senses).
- **Rarity**: The presence of rare elements or features in the landscape or the presence of a rare Landscape Character Type.
- **Representativeness**: Whether the landscape contains a particular character and/or features or elements which are considered particularly important examples.
- **Conservation interests**: The presence of features of wildlife, earth science or archaeological or historical and cultural interest can add to the value of the landscape as well as having value in their own right.
- **Recreation value**: Evidence that the landscape is valued for recreational activity where experience of the landscape is important.
- **Perceptual aspects**: A landscape may be valued for its perceptual qualities, notably wildness and/or tranquillity.
- **Associations**: Some landscapes are associated with particular people, such as artists or writers, or event in history that contribute to perceptions of the natural beauty of the area.

Figure 7: Aspects of landscape value (from Guidelines for Landscape and Visual Impact Assessment v3)

6 Criteria for Assessment of Sensitivity

Criteria for Assessment of Sensitivity to Wind Energy Development

6.1 **Table 5** identifies landscape characteristics which could potentially be affected by wind development, and gives examples of physical landscape elements which, by exhibiting these characteristics, might suggest a greater susceptibility to character change.

Table 5: Landscape characteristics and their susceptibility to wind energy development

Scale and complexity of landform				
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 headlands and cliffs) 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. Information sources: Landscape Character Assessment, Ordnance Survey maps; 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, 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

Scale and complexity of land use & field pattern				
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 and small farm woodlands [13]. This is because large features such as wind turbines may dominate smaller scale traditional features within the landscape. Information sources: Landscape Character Assessment, Ordnance Survey maps; 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
Visual exposure				
The relative visibility of a landscape or distinctive elements within it, both from within the character area and in relation to other character areas, will influence its sensitivity. An open, elevated landscape such as a hill range or escarpment, which permits panoramic views and is also widely visible from surrounding landscapes, may be more sensitive than a more enclosed, inward-looking landscape, where turbines are more likely to be screened by vegetation and/or topography. Landscapes which have important visual relationships with other areas, for example where one area provides a skyline backdrop to a neighbouring area, are considered more sensitive than those with less important visual relationships. The sensitivity of the related landscapes will also affect the importance of visual exposure: a character area will for example be more sensitive if it forms part of the setting of a designated landscape (e.g. an AONB), and if the character area itself also has high scenic quality then its sensitivity will be further magnified. Visual sensitivities may also relate to specific landscape features, such as a prominent ancient monument. Information sources: Landscape Character Assessment, fieldwork.				
Examples of sensitivity ratings				
Lower sensitivity	⟷			**Higher sensitivity**
e.g. An enclosed, self-contained landscape, or one with weak connections to neighbouring areas, and/or where related landscapes are of lower sensitivity	e.g. A landscape with limited connections to neighbouring areas, and/or where related landscapes are of low or medium sensitivity	e.g. A landscape which has some relationship with neighbouring areas, and/or where related landscapes are of medium sensitivity	e.g. A landscape which is intervisible with several related areas, and/or where related landscapes are of medium or higher sensitivity	e.g. A landscape which has important relationships with one or more neighbouring areas, and/or where related landscapes are of high sensitivity

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

Development and activity
Landscapes that are relatively remote or tranquil tend to be more sensitive to wind energy development, since turbines may be perceived as intrusive. Landscapes which are relatively free from overt human activity and disturbance, and which have a perceived naturalness, or a strong feel of traditional rurality, or are dominated by historic rather than modern buildings, will therefore be more sensitive. Wind turbines will generally be less intrusive in landscapes which are strongly influenced by modern development, including settlement, industrial and commercial development and infrastructure. Information sources: Landscape Character Assessment, Ordnance Survey maps, fieldwork.

Examples of sensitivity ratings				
Lower sensitivity		⟷		**Higher sensitivity**
e.g. a landscape with much human activity and development, such as industrial areas	e.g. a rural or semi-rural landscape with much human activity and dispersed modern development, such as settlement fringes	e.g. a rural landscape with some modern development and human activity, such as intensive farmland	e.g. a landscape with much human activity and development, such as industrial areas	e.g. a rural or semi-rural landscape with much human activity and dispersed modern development, such as settlement fringes

Wind Energy Development Typologies

6.2 For the purposes of presenting the assessment, the following wind turbine height categories are defined:

- 15-35 metres to blade tip;
- 36-65 metres to blade tip;
- 66-99 metres to blade tip;
- Over 99 metres to blade tip.

6.3 The following cluster size categories are also defined:

- A single turbine;
- 2-4 turbines;
- More than 4 turbines.

6.4 These typologies have been defined with reference to the spread of turbine sizes available, the sizes of turbines already operational in the County, the range of sizes for which planning applications or pre-application requests have been made and a general assessment of sensitivity of the Dorset landscape.

6.5 In order to visualise how these different turbine heights relate to other tall structures, **Table 6** and **Figure 8** below set out the heights of features including some well-known landmarks and existing wind energy developments in the County:

Table 6: Tall structures comparison

Structure	Height
Domestic buildings	6-10m
Mature deciduous trees (depending on species)	10-25m
Charborough Tower	30m
Horton Tower, near Chalbury Common	43m
Standard lattice tower 'pylons'	25-50m
Sealife Tower, Weymouth	53m
Rogershill Farm turbine, near Bere Regis	60m (to tip)
Salisbury Cathedral	123m

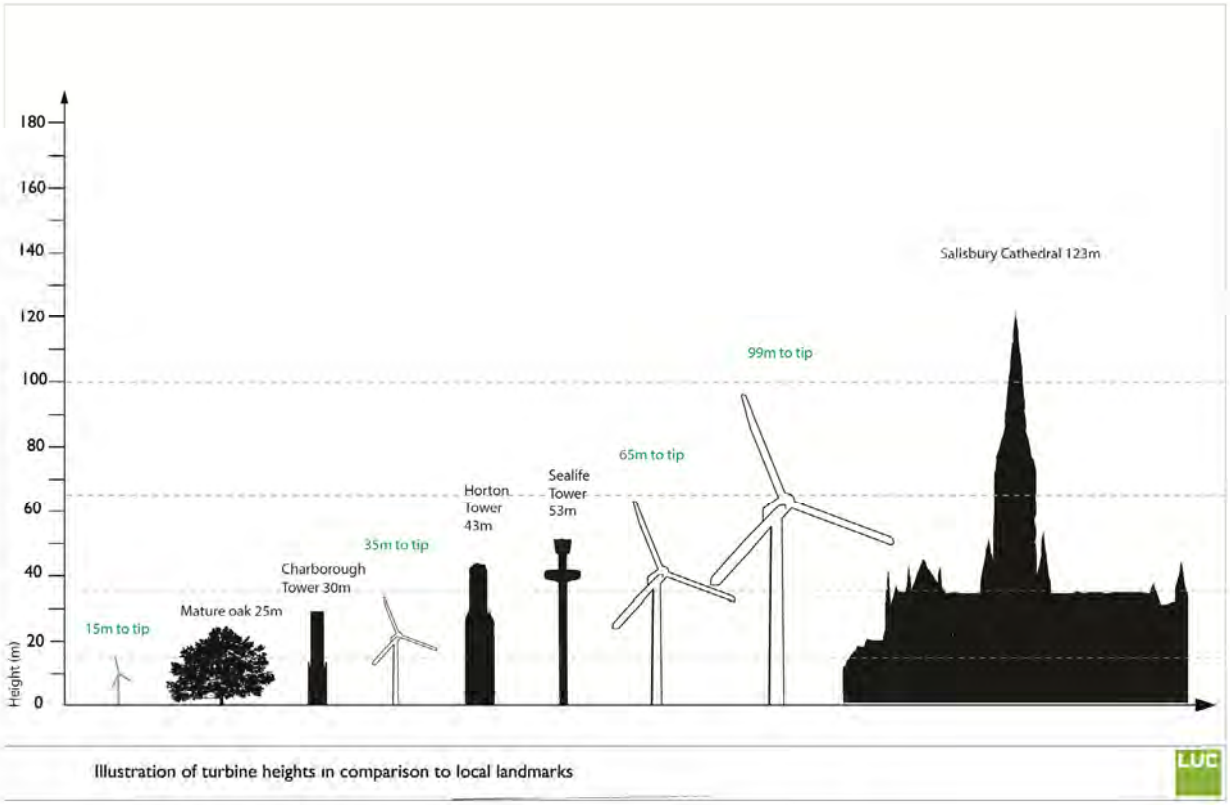


Figure 8: Tall structures comparison

Criteria for Assessment of Sensitivity to Solar PV Development

6.6 **Table 7** below identifies landscape characteristics which could potentially be affected by solar PV development, and gives examples of physical landscape elements which, by exhibiting these characteristics, might suggest a greater susceptibility to character change.

Table 7: Landscape characteristics and their susceptibility to solar PV development

Scale and complexity of landform				
Arrays of solar panels will be less easily perceived in a flatter landscape than on a sloping one, and will also stand out less if the landform is even rather than undulating. A landscape in which topographic variations occur at a more localised scale is more likely to contrast with solar PV land use than a larger scale landscape in which variations are less frequent. The margins of character areas may be more sensitive, if there is a distinct change in landform. Information sources: Landscape Character Assessment, Ordnance Survey maps; fieldwork.				
Examples of sensitivity ratings				
Lower sensitivity		⟷		**Higher sensitivity**
e.g. An extensive flat lowland landscape or elevated plateau, often a larger scale landscape with no distinctive landform features	e.g. A simple, gently rolling landscape, likely to be of medium-large scale, without distinctive landform	e.g. An undulating landscape, perhaps also incised by valleys, likely to be of medium scale	e.g. A landscape with distinct landform features, and/or irregular in topography (which may be large in scale), or a smaller scale landform	e.g. A landscape with a distinctive, rugged landform or dramatic topographical features (which may be large in scale), or a small scale or intimate landform
Scale and complexity of land use & field pattern				
A solar farm is a very homogeneous and typically geometric form, and one which is likely to contrast with more natural textures. The presence of a diversity of land uses in the landscape will act to reduce sensitivity in this respect, particularly if those uses include arable land, horticulture or brown-field sites, whereas there is more likelihood that solar PV development will stand out as a significant change in a semi-natural landscape or one in which permanent pasture features heavily. However, complexity of land use needs to be considered in tandem with scale and complexity of field patterns: the size of a proposed development relative to the scale of the field pattern in the locality is an important consideration because of the risk of diluting or masking the characteristic landscape patterns through development that is out of scale with boundary features. In general terms landscapes with small-scale, more irregular field patterns are likely to be more sensitive to the introduction of solar PV development than landscapes with medium or large scale fields in regular, geometric patterns, although an open area lacking field boundaries would also be highly susceptible to the imposition of a new pattern. Information sources: Landscape Character Assessment, Ordnance Survey maps; Google Earth (aerial photography); fieldwork.				
Examples of sensitivity ratings				
Lower sensitivity		⟷		**Higher sensitivity**
e.g. A landscape with a strong variety in land cover, including significant arable or 'brownfield' elements, but with a geometric, medium or large field pattern	e.g. A mixed pastoral and arable landscape with medium sized fields mostly in geometric forms	e.g. A mixed pastoral and arable landscape with a some variation in field sizes or shapes and some semi-natural land cover	e.g. A landscape with irregular or small-scale fields and some variety of land use but largely pastoral	e.g. A landscape of small, irregular fields with uniform pastoral land use, or an open semi-natural landscape

Visual exposure				
The relative visibility of a landscape or distinctive elements within it, both from within the character area and in relation to other character areas, will influence its sensitivity. A landscape with a strong sense of enclosure is likely to be less sensitive to solar PV development than a more open and exposed landscape in which the development can be more readily perceived. Landscapes which have important visual relationships with other areas, for example where one area provides a skyline backdrop to a neighbouring area, are considered more sensitive than those with less important visual relationships. The sensitivity of the related landscapes will also affect the importance of visual exposure: a character area will for example be more sensitive if it forms part of the setting of a designated landscape (e.g. an AONB), and if the character area itself also has high scenic quality then its sensitivity will be further magnified. Visual sensitivities may also relate to specific landscape features, such as a prominent ancient monument. Information sources: Landscape Character Assessment, fieldwork.				
Examples of sensitivity ratings				
Lower sensitivity		⟷		**Higher sensitivity**
e.g. An enclosed, self-contained landscape, or one with weak connections to neighbouring areas, and/or where related landscapes are of lower sensitivity	e.g. A landscape with limited connections to neighbouring areas, and/or where related landscapes are of low or medium sensitivity	e.g. A landscape which has some relationship with neighbouring areas, and/or where related landscapes are of medium sensitivity	A landscape which is intervisible with several related areas, and/or where related landscapes are of medium or higher sensitivity	e.g. A landscape which has important relationships with one or more neighbouring areas, and/or where related landscapes are of high sensitivity
Development and activity				
Landscapes which show evidence of modern development, including settlement, industrial and commercial development and infrastructure, tend to be less sensitive to solar PV development. Landscapes which are relatively free from overt human activity and disturbance, and which have a perceived naturalness, a strong feel of traditional rurality or are dominated by historic rather than modern buildings, will therefore be more sensitive. Information sources: Landscape Character Assessment, Ordnance Survey maps, fieldwork.				
Examples of sensitivity ratings				
Lower sensitivity		⟷		**Higher sensitivity**
e.g. A landscape with much human activity and development, such as industrial areas	e.g. A rural or semi-rural landscape with much human activity and dispersed modern development, such as settlement fringes	e.g. A rural landscape with some modern development and human activity, such as intensive farmland	e.g. A more naturalistic or historic landscape and/or one with little modern human influence and development	e.g. A tranquil landscape with little or no overt sign of modern human activity and development

Solar PV Development Typologies

6.7 Of the scheme elements considered in **Section 3** the only one which is considered to offer sufficient variation to have a significant impact on landscape sensitivity is the overall size of the solar PV development in terms of the land area covered by panels. The technology is very scalable, and can be used from garden-sized installations upwards; applications as large as 50

hectares have been submitted elsewhere in the UK. In general, the larger the proposed development the greater its impact is likely to be, but the characteristics of the landscape in which it is sited may either emphasise or diminish this impact.

6.8 The density of rows of solar PV panels doesn't tend to vary more than is necessary to allow sufficient spacing to avoid over-shading (which will differ a little depending on latitude), and the general appearance of a solar farm, in terms of array design, materials and associated fencing and built infrastructure, are fairly consistent.

6.9 Higher arrays are unlikely to appear because any benefit of additional vertical panels would be offset by the need to set parallel rows of arrays further apart, to avoid shading. A rare exception to this is where the intention is to graze cattle beneath the panels, requiring higher and stronger mountings.

6.10 For the purposes of assessing landscape sensitivity through this study, the following scales of solar PV development are defined:

- Up to 1 hectare (2.5 acres);
- 1 to 10 hectares (2.5 to 25 acres);
- 10 to 30 hectares (25 to 75 acres);
- Over 30 hectares (75 acres).

6.11 This banding has been defined with reference to the sizes of solar PV development already operational in the County, the range of sizes for which planning applications or pre-application requests have been made and a general assessment of sensitivity of the Dorset landscape.

6.12 In order to visualise these different areas, the table below sets out the size of features including some well-known landmarks and existing solar energy developments in the County:

Table 8: Comparative areas

Structure	Area (hectares)
Typical football pitch	0.6 – 0.8
Moors Lake (in Moors Valley Country Park)	3.6
Badbury Rings Hill Fort	7
Solar Farm at Park Farm, Shroton	8
Longham Reservoir (south of Ferndown)	10
Poole Park Boating Lake	21
Typical 18-hole golf course	50