

# Cornwall Renewable Energy Planning Advice

March 2016

## **Annex 2: Cumulative Impact Assessment Guidance for Cornwall - Wind Turbines**



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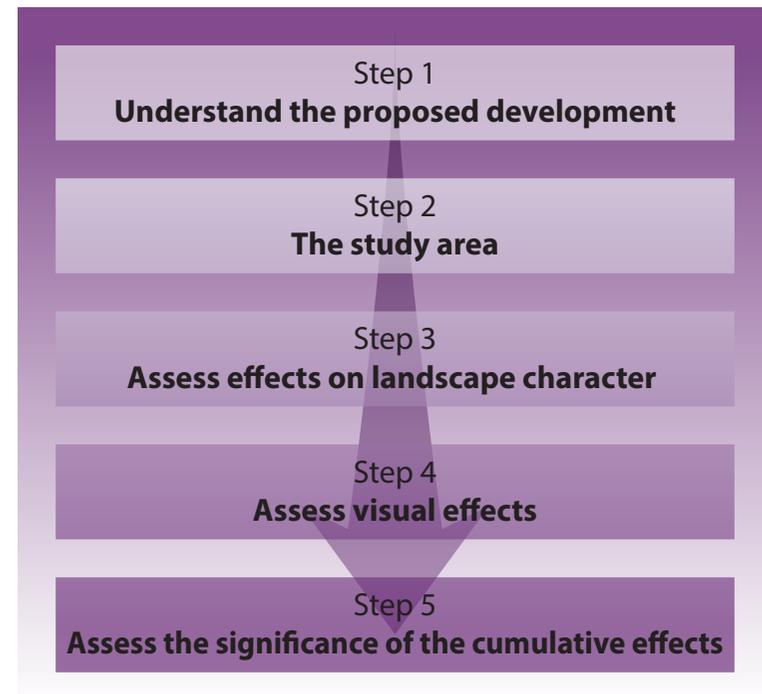
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# Introduction

## The need for this guidance

- 1 Cornwall Council recognises the many benefits created by generating energy through renewable sources and supports the development of onshore wind turbines, where they do not create significantly adverse effects.
- 2 In recent years interest in generating energy from the wind has increased. This has increased desire to provide clarity on the cumulative impact assessment process for those parties interested in the planning application decision-making process. This guidance provides a structured process to assist landscape and planning professionals in making and judging their assessments; and to enable non-professionals to engage in the process.
- 3 Cumulative impacts can be defined as the additional changes caused by a proposed development in conjunction with other similar developments, or as the combined effect of a set of developments taken together. The cumulative impact of a 'wind energy development' on landscape and visual amenity are the product of :
  - the distance between the individual wind turbines
  - the distance over which they are visible
  - the overall character of the landscape and its sensitivity to windfarms
  - the siting and design of the wind turbines and
  - the way in which the landscape is experienced<sup>1</sup>
- 4 Wind energy developments need to be assessed in conjunction with existing wind turbines, other tall structures (pylons and telecommunication masts) and sometimes other forms of development. The scale of a cumulative impact assessment should be appropriate for the particular circumstances of the proposed wind energy development. The assessment of cumulative effects is only one of a number of factors considered in the determination of a planning application.

## The Cumulative Impact Assessment Process



*Note: Appendix 2 provides a checklist of questions which acts as a quick reference guide to the process.*

<sup>1</sup> Scottish Natural Heritage (2012) Assessing the Cumulative Impact Of Onshore Wind Energy Developments

## Step 1 - Understand the proposed development

### The format of the submitted cumulative impact assessment

- 5 Cumulative impact assessments are normally undertaken by the applicant and submitted in support of the planning application. An application subject to an Environmental Impact Assessment (EIA)<sup>2</sup> is likely to be supported by a Cumulative Impact Assessment. A non-EIA scheme may only go as far as making a statement regarding potential cumulative effects. **The scale of the cumulative effects created by a proposed wind energy development will vary depending upon the size and number of turbines within the proposed development. In both cases, agreeing the scope of the assessment with the Case Officer will help prevent problems later.**

### What should the cumulative assessment cover?

- 6 The landscape and visual effects are normally assessed separately in a Landscape and Visual Impact Assessment (LVIA). Where such assessments are required, the LVIA will describe and assess the effects of the proposed turbine with those wind energy developments which are already operational or are being constructed. This assessment forms the landscape baseline. The Cumulative Impact Assessment looks at the potentially significant effects of the proposal in combination with other development in the area.

<sup>2</sup> Developments which are likely to create significant environmental effects will need to produce more detailed assessments in line with the Environmental Impact Assessment Regulations

## Step 2 - The cumulative assessment study area

### When is a cumulative impact assessment needed?

- 7 Cumulative impacts should be assessed where a proposed development involves :
- a new development in combination with one or more existing or approved but unbuilt developments;
  - an extension to an existing or approved but unbuilt development;
  - more than one development proposed at the same time within an area;
  - or any combination of the above<sup>3</sup>.

### What development is included within the study area?

- 8 Cumulative effects are not only experienced between developments of the same type, i.e. multiple wind turbines, they can also be experienced in combination with other development in the surrounding landscape, including solar farms, pylons, telecommunication masts and in some cases other large industrial developments. The scale of cumulative assessment study area will be dependent on the size of the proposed wind turbines and the number and scale of other developments in the area.
- 9 The cumulative impact assessment must consider developments that are already operational and those which have been granted planning permission but are not yet built. It is at the discretion of the Council as to whether the cumulative impact assessment should also consider proposals which are currently under consideration (pending a decision or appeal and subject to an EIA screening request). This will need to be discussed with the Case Officer.

### How big should the study area be?

- 10 The area to be considered as part of a cumulative impact assessment is usually larger than when the effects of a wind farm as a standalone development are considered. It should cover the area where there is potential for combined effects from the proposed development and other nearby developments. Larger applications are likely to have produced Cumulative Zones of Theoretical Visibility (CZTVs<sup>4</sup>) which will assist in the determination of the study area. It is best practice to agree the scope of these assessments with the Case Officer prior to the submission of the planning application. The height and number of turbines will influence the area over which it is likely to create significant effects. The following simplified method is a good guide to how this is determined.

<sup>3</sup> Scottish Natural Heritage 2012 - 'Assessing the Cumulative Impact of Onshore Wind Energy Developments'

<sup>4</sup> Cumulative Zones of Theoretical Visibility shade areas on a map base from where it may be possible to see the proposed development (based on a bare ground scenario, not taking into consideration built form and vegetation)

Tables 1 (**Potentially significant effects on landscape character**) and 2 (**Potentially significant visual effects**) provide a guide to the distance over which each height of turbine is likely to have potential for a 'significant effect'. By drawing a circle around the proposed turbine/s and any existing turbines or tall structure, using the relevant radii for each, you can get an indication of those which are likely to combine and have potential for significant cumulative effects. A more accurate area can be established through a site visit, as local topography can influence the actual area which may experience cumulative effects.

**TABLE 1 - Potentially significant effects on landscape character**<sup>5</sup>

| Turbine height to blade tip | Circle radius from the base of the turbine for potentially significant effects on landscape character |
|-----------------------------|---|
| Up to 40m                   | 1km   |
| 40 – 50m                    | 2km   |
| 50 – 70m                    | 3km   |
| 70 – 100m                   | 4km   |
| 100m plus                   | 5km   |

The diverse nature of the Cornish landscape means it is impossible to provide definitive radii to establish the potential extent of significant effect on landscape character. These distances are a reference guide only, and a site visit will more accurately determine the distance over which a specific wind energy development has an influence on the character of the landscape.

**TABLE 2 - Potentially significant visual effects**<sup>6</sup>

| Turbine height to blade tip | Circle radius from the base of the turbine for potentially significant visual effects |
|-----------------------------|---|
| Up to 40m                   | 3km   |
| 40 – 50m                    | 6km   |
| 50 – 70m                    | 8km   |
| 70 – 100m                   | 10km  |
| 100m plus                   | 10km  |

**Simply because a wind turbine is 'visible' doesn't mean it will have a significant effect on the appreciation of the landscape.** These visual effect radii are a reference

<sup>5</sup> 4km is taken as a starting point and will need to be confirmed on site

<sup>6</sup> 10km is taken as a starting point and will need to be confirmed on site

guide to enable an assessment to be made of the area of potentially significant visual effect. These distances will vary depending on the landform and features within it.

When establishing the study area it will be important to have considered **sequential** cumulative effects as well as the combined effects. Sequential cumulative effects occur where an individual would see the proposed wind energy development either simultaneously or successively with other development as they move through the landscape along key routes. It is best practice to agree h routes are to be included in the assessment with the Case Officer prior to the submission of the application.

## Step 3 - Assessing cumulative effects on landscape character

### What are cumulative landscape effects?

- 11 Scottish Natural Heritage guidance<sup>7</sup> describes cumulative landscape effects as arising when two or more developments affect the **physical fabric** of the landscape components (e.g. removing or changing woodland, rural roads, hedges), or the **character of the landscape** (by introducing new features). Such effects can be both positive and negative.

### What is the process to assess significance of the cumulative change?

- 12 To be able to arrive at a decision as to whether cumulative change to landscape character is, or isn't significant you must determine
- what the changes (effects) will be (Step 1 & 2 of this guide)
  - how sensitive the affected landscape character is to the cumulative change
  - what the magnitude of the change will be in terms of their scale, geographical extent, duration and reversibility.

## Landscape Sensitivity

### Which Landscape Character Area is the development within?

- 13 Cornwall and Isles of Scilly Landscape Character Study 2007 provides an overview of existing landscape character. This Study is available on the Council's website. The sensitivity of each of Cornwall's Landscape Character Areas (LCAs) to wind turbines is detailed with Annex 1 of the Cornwall Renewable Energy Supplementary Planning Document. Annex 1 also sets out a strategy for wind development in the LCA which gives a clear guide as to whether or not additional wind development can be accommodated in an area.
- 14 Four possible strategies for the deployment of wind turbines are described in Annex 1. These are summarised below.

#### Strategy 1 - Landscape without wind energy development

- In general there should be no turbines in these LCAs
- Some LCAs have capacity turbines under 25m associated with farm buildings
- Some views of wind energy developments (which are located in different LCAs) which may be acceptable

#### Strategy 2 - Landscape with occasional wind energy development –

- Turbines will be present, including some minor cumulative effects may be experienced in LCAs with this strategy
- Developments will be clearly separated
- Small parts of the LCA may be able to accept more concentrated clusters of wind turbines (these must not define the character of the whole LCA)
- Wind turbines maybe visible in more than one direction
- Wind turbines will not have a defining influence on the character of the LCA

#### Strategy 3 - Landscape with wind energy development

- Several wind energy developments will be present with cumulative effects experienced.
- Developments will generally be separated
- Pockets of higher density turbine clusters may be accommodated in parts of the LCA (these must not define the character of the whole LCA)
- Wind turbines will be visible in more than one direction
- Wind turbines will influence, but not overwhelm the character of the LCA

#### Strategy 4 - A wind farm landscape

- Numerous wind energy developments in an LCA with significant cumulative effects
- Turbines visible in the majority of directions
- Turbines are the overwhelming influence on character of the LCA

- 15 Each of Cornwall LCAs has been given one of these 4 strategies, based on an assessment its sensitivity to wind turbines. **Where the introduction of a new wind turbine(s) means that the next strategy up (e.g. strategy 3 rather than 2) best describes the situation in the LCA, the LCA is deemed to have exceeded its recommended capacity.** This should trigger a higher level of sensitivity for the relevant area of landscape.
- 16 Where new wind turbines are being proposed close to the boundary of a LCA the capacity of more than one LCA may need to be considered in the assessment.

## Magnitude of change to the landscape character

### What is cumulative magnitude of change to landscape character?

- 17 This deals with the size, scale, geographical area, duration and reversibility of the cumulative landscape effects upon the wider landscape character area; the quality and condition of the landscape, individual features and elements within the

<sup>7</sup> Scottish Natural Heritage (2012) Assessing the Cumulative Impact Of Onshore Wind Energy Developments

landscape; and the aesthetic and perceptual appreciation of the area.

18 To determine the magnitude of change (to landscape character) you will need to look at :

- the extent of the landscape elements which will be changed or lost
- the proportion of the landscape as a whole that this represents
- the contribution that these elements make to the wider landscape character
- how the proposed development relates to the existing pattern of development (including the number, design, layout, size, scale and distance between developments)

19 Table 3 (below) provides the basis for an objective assessment of the likely magnitude of change. This is intended as a guide to assist in gaining an overview of the magnitude of change. Other tools may be used. The landscape area you are referring to when answering the questions in Table 3 is the area of overlap created by the circles drawn on a map base corresponding to the turbine height determined as part of Step 2.

### Table 3 – Reference table: Assessing magnitude of change to landscape character

**NOTES:**

1. The information given against each rating (low, moderate and high) in the table is for illustrative purposes and is intended to guide the assessor rather than provide a definitive framework for assessing magnitude of change.
2. Assessment should also cover those turbines which are not yet built (as agreed with the Case Officer).

| Landscape Change<br>Refer to the areas where the circles overlap (Step 2)   | Ratings for magnitude of change   |  |  |
|---|---|--|--|
|   | Size/scale (SS)   | Low  | Moderate   |
| SS1 – What is the size of the area of potential cumulative effect on landscape character?   | Single very small area of overlap   | Single large, or more than one smaller area of overlap   | Multiple new areas of cumulative effects which are greater than small scale;<br>One area of overlap which is of considerable size;<br>One area with multiple overlaps.   |
| SS2 - What size and scale are the landscape elements, features or characteristics which are lost or changed?                          | Some minor features which may be limited to the development site will be lost, but there is opportunity to mitigate this loss as part of the development. | Partial loss or moderate alteration to one or more key elements/features in the landscape which maybe prominent and uncharacteristic with the attributes of the surrounding landscape. | Substantial change or removal of key, or combinations of key landscape characteristics;<br>Further introduces elements totally uncharacteristic with the attributes of the surrounding landscape.  |
| Geographical Extent   |   |  |  |
| GE1 – What is the extent of the area of potential cumulative landscape effects as a proportion of the Landscape Character Area (LCA)? | Small or relatively localised change in the LCA.  | Notable but not extensive change to the LCA; or to a more intensive change over a smaller part of the LCA.   | Areas of overlap cover an extensive and widespread area which represents a substantial part of the wider LCA.  |
| Duration & reversibility (DR)   |   |  |  |
| DR1 – What is the duration of the application permission?   | Less than 5 years   | Between 6 and 19 years   | 20 years or more   |
| DR2 – Is it possible to reverse the effects of the development after the period of the permission has expired?                        | The proposal can be removed and reinstatement will not create residual adverse effects upon the landscape character.                                      | The proposal in conjunction with the 'other turbines' creates changes which can be partially restored when the proposal is decommissioned.   | The proposal and its associated infrastructure in conjunction with the 'other turbines' create changes to landscape features, elements and characteristics which it will not be possible to reinstate to an equivalent 'base line' quality when the development is decommissioned. |

## Step 4 - Assessing visual effects

### What is cumulative visual change?

20 Cumulative effects on visual amenity are summarise below:

- Combined visibility
  - in combination - the observer is able to see two or more developments from one stationary viewpoint, without moving his or her head (a 90 degree arc of view is used).
  - in succession - the observer whilst stationary, can see two or more development when they turn their head.
- Sequential visibility - the observer moves to other viewpoints to see different developments. Typically routes that will be assessed include roads and public rights of way.

### What is the process to assess significance of the cumulative change?

21 To be able to arrive at a decision as to whether cumulative change to visual amenity is, or isn't significant you must determine

1. what the changes (effects) will be (Step 1 and 2 of this Guide)
2. who will be affected by the changes
3. how sensitive these individuals are to the potential cumulative change
4. what is the magnitude of the cumulative visual change. This considers the numbers of other developments present in the landscape, their design, layout, direction, distance, and duration of their lifetime.

## Visual Sensitivity

### Sensitivity of the visual receptor<sup>8</sup>

22 The assessment of sensitivity of the visual receptor based on a judgement of the following:

- How the people viewing the landscape might be affected by the proposed change
- The purpose (e.g. recreation, passing through a landscape, residence or employment)
- The context of their view (e.g. location, time of day, degree of exposure).

23 Different visual receptors will have different levels of susceptibility to changes created

<sup>8</sup> Visual receptor is a term used to describe the person or persons who will experience the change in view brought about by the prosed development

by wind energy developments. By providing some examples, Table 4 (below) offers some guidance on the different levels.

**Table 4 - Levels of susceptibility of visual receptors**

|                                     | Levels of viewer susceptibility |   |   |
|-------------------------------------|---------------------------------|---|---|
|                                     | Low                             | Moderate  | High  |
| People who will perceive the change | Users of 'A' class roads        | Vehicles using noted 'Scenic Routes'  | Residents   |
|                                     | Train passengers                | Those working outdoors  | Recreational users – walkers horse riders, cyclists with an interest focused on the landscape   |
|                                     | People at their place of work   | Users of 'B' class and smaller roads in the open countryside                              | Visitors to popular natural / historic features or attractions which maybe mentioned in guidebooks or on tourist maps (such as standing stones, ancient woodland) |
|                                     |                                 | Visitors to tourist theme park attractions (such as Paradise Park, Flambards, Crealy etc) | Visitor holiday accommodation   |

### Assessing the suitability of the submitted viewpoints and sequential routes

24 The number and location of static viewpoints, and the routes to be assessed in the sequential assessment should be identified by the applicant and it is best practice to agree these with the Case Officer prior to submission. The number of viewpoints assessed should be relative to the scale of the wind energy development, and the number of other developments within the wider landscape. The use of early stage cumulative ZTVs is a valuable tool to determine the choice of static viewpoints for the assessment. As a guide the following is an indication of the number of viewpoints the developer is likely to provide for the cumulative impact assessment.

| Number of other wind energy developments in the cumulative impact assessment area | Typical recommendation of cumulative viewpoints |
|---|---|
| 1 or 2  | 1-2   |
| 3 to 5  | 2-4   |
| 6 to 8  | 4-6   |
| 9 to 12   | 6-8   |
| 13 +  | 9-12  |

In addition, the viewpoints should:

- Represent a diversity of viewers;
- Include residential properties, areas used for recreation, Public Rights of Way

(PROW), open access land, key routes, locations detailed in guide books, important features in the landscape, both natural and built (where there is public access);

- Locations noted for their long distance views, vistas, or particular focal points in the landscape;
- Different categories of road, and railways (where appropriate).

### Establishing new viewpoints for this assessment

- 25 If you wish to verify the application's static viewpoints for assessing cumulative visual effects in combination, Step 2 suggests a simplified method to determine where the areas of potential cumulative visual effects may occur, using overlapping circles which correspond to the height of the proposed turbine, and the others in the surrounding landscape. The viewpoints will also be checked on site.
- 26 Assessing the sequential visual effects considers the wider landscape over and above the area covered by the overlapping circles of potential cumulative visual effect, focussing on key roads, and public rights of way.

## Magnitude of visual change

### What is the visual cumulative magnitude of change?

- 27 Each of the cumulative visual effects of the development need to be assessed in terms of the size, scale, geographical area, duration and reversibility. Visual magnitude of change will need to look at:
- the scale of change in the view
  - whether the developments integrate or contrast with the existing landscape
  - whether the proposed development appears as an extension to an existing wind energy development or introduces development into a new part of the view
  - the compatibility of the developments (i.e. design)
  - the position of the wind energy developments in the view (e.g. the distance from the viewer or location relative to the skyline)
  - the distance over which the cumulative effects would be visible, and for how long (combined and sequential)
  - the frequency and duration of views of wind energy developments when travelling along routes
  - the nature of the cumulative view, whether this includes the full extent of the wind energy developments, or seen partially, or glimpsed, or a combination of these
  - the impact of seasonal changes in vegetation
  - whether the cumulative visual effects reversible

- 28 Table 5 (below) provides the basis for an objective assessment of the likely magnitude of change. This is intended as a guide to assist in gaining an overview of the magnitude of change. Other tools may be used.

## Table 5 – Reference table: Assessing the magnitude of cumulative visual change

### NOTE :

1. The information given against each rating (low, moderate and high) in the table is for illustrative purposes and is intended to guide the assessor rather than provide a definitive framework for assessing magnitude of change.
2. Assessment should also cover those turbines which are not yet built (as agreed with the Case Officer).
3. Complete this assessment for each fixed viewpoint, but where the question is not relevant do not provide a rating.

| Visual Change<br>Refer to the areas where the circles overlap (Step 2)  | Ratings for magnitude of change   |   |  |
|---|---|---|--|
|   | Low   | Moderate  | High   |
| Combined visibility assessment  |   |   |  |
| Size/scale (SS)   |   |   |  |
| SS3 - How far is the viewpoint from the proposal and the 'other turbines' which contribute to the area of potential cumulative visual change (areas where the circles overlap)? | The viewpoint is located at distance, or close to the boundary of the area of potential significant cumulative visual effect. | The viewpoint lies within an area where the proposal's circle of potential cumulative visual effect overlaps with one other circle. | The viewpoint lies within an area where multiple circles of potential cumulative visual effect overlap.                                    |
| SS4 - Are the developments single or multiple wind turbines   | The 'other developments' are all single turbines  | The 'other developments' are single turbine with one further development of two or more turbines                                    | The 'other developments' are a varied combination of single and multiple turbines  |
| SS5 - To what extent are the proposal and the 'other turbines' all the same height, design, and proportion of rotor blade to column height?                                     | The proposal and 'other turbine'(s) will all be the same design, height, and have the same number of rotor blades             | The proposal and 'other turbine'(s) will not be the same height, but each will have the same number of rotor blades                 | The proposal and 'other turbine'(s) will not be the same height, will be of different design, and having differing numbers of rotor blades |

| Visual Change<br>Refer to the areas where the circles overlap (Step 2)   | Ratings for magnitude of change  |   |  |
|--|--|---|--|
|  | Low  | Moderate  | High   |
| SS6 – Will the combined view of the proposal (in combination and succession) include other development considered of a large scale? (eg pylons, telecommunication masts, solar arrays, very large buildings in the open countryside) | There are no other large scale developments or vertical structures in the surrounding landscape                  | There are no other large scale developments or vertical structures in the surrounding landscape Other large scale development is present, but its visual effect is mitigated by the nature of the topography and land cover from this viewpoint | The existing landscape already contains large scale development/ vertical structures.  |
| <b>In combination</b><br>SS7 – Look directly at the proposal. How many 'other turbines' will be visible within your 90o view?  | Only one other wind turbine will be visible closely associated with the proposal                                 | The proposal and a number of 'other turbines' will be visible within the 90° view   | Multiple turbines will be visible spread across the whole 90° view and or where some are considered close to the proposed development.   |
| <b>In succession</b><br>SS8 - Standing facing the proposal and turning around on the spot through 360°, to what extent is it possible to see more than one 'other turbine'(s)?   | Turbines will be visible in 2 directions and the proposal is within one of these views                           | The proposal and multiple 'other turbines' will now occupy approximately 50% of the 360° view.  | The proposal and multiple 'other turbines' would be visible in multiple directions creating a feeling of being surrounded  |
| <b>Geographical Extent</b>   |  |   |  |
| GE3 – To what extent do the proposal and the 'other turbines' all appear as separate developments in the landscape?  | The proposal and one 'other turbine' will appear individually and will be located at a distance from one another | The proposal will be separate from an existing cluster of 'other turbines'.   | The proposal will create a mix of single and clustered turbines with varying distances between each development. The impact maybe further increased by the close proximity of the viewpoint to the multiple turbines |

| Visual Change<br>Refer to the areas where the circles overlap (Step 2)  | Ratings for magnitude of change   |  |   |
|---|---|--|---|
|   | Low   | Moderate   | High  |
| GE4 - How does the proposal in conjunction with the 'other turbines' relate to the topography of the landscape  | From this viewpoint the column and rotor blades of each of the turbines are visible and none of the turbines will appear as a partial view broken by the skyline  | The proposal creates a new break on the skyline where previously 'other turbines' would be perceived at a lower level against the land | The proposal is clearly visible on a prominent skyline with 'other turbine'(s) present in the view, either partially breaking the skyline (only the rotor blades are visible) or where the full turbine(s) will be perceived (including the column).  |
| <b>Sequential visibility assessment complete this assessment for key / sensitive routes</b>   |   |  |   |
| <b>Duration (D)</b>   |   |  |   |
| D1 - To what extent will the proposal in conjunction with the other turbines in the wider landscape have an impact on any particular route(s)? e.g. from A roads; scenic roads; public rights of way. | The proposal and 'other developments' are experienced over a short section of a route where vehicles are travelling at speed; or where there is a considerable distance between them when moving along an off road route. | The proposal and one or more 'other developments' are visible from a route, at varying distance, viewed indirectly.                    | The addition of the proposal will: <ul style="list-style-type: none"> <li>considerably extend the linear distance over which there is a perception of wind energy development along a route;</li> <li>create a concentration of development along an off road route used for recreation and appreciation of the environment; increase the frequency of development which is experienced along a particular route;</li> <li>increase the period of time when travelling along a route that wind energy developments are visible in the landscape.</li> </ul> |

## Step 5 - Assessing the significance of the cumulative effects

### Significance of cumulative change

29 Steps 3 and 4 explained how to determine the level of sensitivity of the landscape and visual receptor, and the cumulative magnitude of change to each. Step 5 explains as part of the overview how to determine whether the cumulative landscape and visual effects are significant. The following matrix can be used to combine the results to combine the results of steps 3 and 4 to give an indication of the level of significance of the cumulative effects. A blank table has been provided in Appendix 1 to allow you to record your results.

**Table 6 – Matrix combining sensitivity of the receptor with the magnitude of cumulative effect**

| Sensitivity of landscape or visual receptor | Landscape or visual magnitude of change |               |               |
|---|---|---------------|---------------|
|   | Low                                     | Moderate      | High          |
| Low   | Low                                     | Low Moderate  | Moderate      |
| Moderate                                    | Low Moderate                            | Moderate      | Moderate High |
| High  | Moderate                                | Moderate High | High          |

 Indicates a significant effect

- 30 The following examples give an illustration the way the matrix can be used to help form a judgement about the overall significance of the cumulative effects:
- where the landscape character is rated of low sensitivity (Step 3) and the magnitude of change is deemed moderate (Table 3), it is not likely that there will be a significant cumulative effect upon the landscape character; or
  - where the person viewing the landscape is considered of high sensitivity (e.g. they are going for a walk along a public right of way), and the magnitude of change to the view is deemed to be high (Table 5), it is likely that the cumulative visual effect will be significant.

### Interpreting the Scores for Significance

31 Having arrived at an overall significance level for the proposed development, the final stage in the assessment process is to form a judgement on whether the cumulative impact is likely to acceptable or not. The scenarios below give an example of how the various scores for significance could be interpreted. These scenarios are intended for illustrative purposes only.

**Scenario 1 – The significance levels for each criterion assessed (landscape and visual) are predominantly Moderate High or High.**

- This means the proposal has the potential to create unacceptable cumulative effects.

**Scenario 2 – The significance levels for each criterion assessed (landscape and visual) are predominantly Moderate, but one of the viewpoints records a High rating.**

- This means the proposal some potential to create significant cumulative effects, but that one particular viewpoint is very sensitive to the cumulative change. The relative importance of this viewpoint may be critical in reaching a judgement about whether or not the proposal is acceptable. For example, an important historic vantage point visited by a great many people throughout the year might attract greater weight than a viewpoint of relatively low importance this is not visited frequently.

**Scenario 3 – The significance levels for each criterion assessed (landscape and visual) are varied.**

- In this instance it will be important to look at each of the criteria assessed (landscape and visual) to judge whether they are of individual importance, sufficient to influence the overall judgement about the acceptability of the proposal. In particular look at the importance of those criteria which have high levels of significance. If multiple LCAs are affected, the sensitivities (including the LCA strategies explained in Step 3) should be carefully considered.

**Scenario 4 – The significance levels for each criterion assessed (landscape and visual) are Low to Moderate.**

- Low to Moderate cumulative effects are not likely to be significant.

## Appendix 1 - Assessment tables

The tables have been provided as a guide to help record your findings and build up the assessment as you go.

### Cumulative effects upon landscape character

Complete this table recording:

1. the sensitivity of the landscape in the first column;
2. the magnitude of cumulative change to the landscape character as a rating of Low Moderate or High;
3. combining the sensitivity and magnitude ratings using the matrix in Table 6 to reach a conclusion upon whether the effect is considered significant.

| Landscape sensitivity | Landscape change<br>Refer to the areas where the circles overlap (Step 2)   | Ratings for magnitude of Change |          |      | Significance |
|-----------------------|---|---------------------------------|----------|------|--------------|
|                       |   | Low                             | Moderate | High |              |
|                       | <b>Size/scale (SS)</b>  |                                 |          |      |              |
|                       | SS1 – What is the size of the area of potential cumulative effect on landscape character?   |                                 |          |      |              |
|                       | SS2 - What size and scale are the landscape elements, features or characteristics which are lost or changed?                          |                                 |          |      |              |
|                       | <b>Geographical Extent</b>  |                                 |          |      |              |
|                       | GE1 – What is the extent of the area of potential cumulative landscape effects as a proportion of the Landscape Character Area (LCA)? |                                 |          |      |              |
|                       | <b>Duration &amp; reversibility (DR)</b>  |                                 |          |      |              |
|                       | DR1 – What is the duration of the application permission?   |                                 |          |      |              |
|                       | DR2 – Is it possible to reverse the effects of the development after the period of the permission has expired?                        |                                 |          |      |              |

### Cumulative combined visual effects from static viewpoints

Complete this table for each viewpoint which forms the cumulative visual assessment, record:

1. the visual sensitivity of the person(s) who will perceive the change from this viewpoint in the first column
2. the magnitude of cumulative visual change as a rating of Low Moderate or High
3. combine the sensitivity and magnitude ratings using the matrix in Table 6 to reach a conclusion upon whether the effect is considered significant.

| Landscape sensitivity | Visual change<br>Comment from each viewpoint (Step 2)   | Ratings for magnitude of change |          |      | Significance |
|-----------------------|---|---------------------------------|----------|------|--------------|
|                       |   | Low                             | Moderate | High |              |
|                       | <b>Size/scale (SS)</b>  |                                 |          |      |              |
|                       | SS3 - How far is the viewpoint from the proposal and the 'other turbines' which contribute to the area of potential cumulative visual change (areas where the circles overlap)?   |                                 |          |      |              |
|                       | SS4 - Are the developments single or multiple wind turbines   |                                 |          |      |              |
|                       | SS5 - To what extent are the proposal and the 'other turbines' all the same height, design, and proportion of rotor blade to column height? (refer to page 5)   |                                 |          |      |              |
|                       | SS6 – Will the combined view of the proposal (in combination and succession) include other development considered of a large scale?<br><br>(e.g. pylons, telecommunication masts, solar arrays, very large buildings in the open countryside) |                                 |          |      |              |
|                       | <b>In combination</b>   |                                 |          |      |              |
|                       | SS7 – Look directly at the proposal. How many 'other turbines' will be visible within your 90o view? (refer to combined visibility paragraph 34)  |                                 |          |      |              |

| Landscape sensitivity | Visual change<br>Comment from each viewpoint<br>(Step 2)   | Ratings for magnitude of change |          |      | Significance |
|-----------------------|--|---------------------------------|----------|------|--------------|
|                       |  | Low                             | Moderate | High |              |
|                       | <b>In succession</b><br>SS8 - Standing facing the proposal and turning around on the spot through 360°, to what extent is it possible to see more than one 'other turbine'(s)? (refer to combined visibility paragraph 34) |                                 |          |      |              |
|                       | <b>Geographical Extent</b>   |                                 |          |      |              |
|                       | GE3 – To what extent do the proposal and the 'other turbines' all appear as separate developments in the landscape?  |                                 |          |      |              |
|                       | GE4 - How does the proposal in conjunction with the 'other turbines' relate to the topography of the landscape   |                                 |          |      |              |

## Cumulative sequential visual effects as you move through the landscape on roads and public rights of way

Complete this table for selected key / important routes, the number of routes to be assessed should be agreed with the Case Officer and will only cover the routes where there are likely to be significant visual effects. Record:

1. in the first column, the visual sensitivity of the person(s) who will perceive the change as they move along this route
2. the magnitude of cumulative visual change they will experience with the addition of the proposal as a rating of Low Moderate or High
3. a final level of significance in the last column by combining the sensitivity and magnitude ratings using the matrix in Table 6 to reach a conclusion upon whether the sequential effect(s) is considered significant.

| Landscape sensitivity | Visual change<br>Comment from each viewpoint<br>(Step 2)   | Ratings for magnitude of change |          |      | Significance |
|-----------------------|--|---------------------------------|----------|------|--------------|
|                       |  | Low                             | Moderate | High |              |
|                       | <b>Duration (D)</b>  |                                 |          |      |              |
|                       | <b>Route 1</b><br>D1 - To what extent will the proposal in conjunction with the other turbines in the wider landscape have an impact on any particular route(s)? e.g. from A roads; scenic roads; public rights of way (refer to sequential visibility paragraph 34) |                                 |          |      |              |
|                       | <b>Route 2</b><br>D1 - To what extent will the proposal in conjunction with the other turbines in the wider landscape have an impact on any particular route(s)? e.g. from A roads; scenic roads; public rights of way (refer to sequential visibility paragraph 34) |                                 |          |      |              |

## Appendix 2 - Process checklist

The following process checklist poses a list of questions for each stage in the process as a reminder of the key considerations.

|   |   |
|---|---|
| <b>Step 1 – Understand the proposal</b> | <ul style="list-style-type: none"> <li>• How many wind turbines are proposed?</li> <li>• If more than two turbines do they collectively form a cohesive group?</li> <li>• What is the height of the wind turbine(s) to the hub (the top of the column) and to the blade tip (the greatest overall height)?</li> <li>• What is the wind turbine's design is it a vertical or horizontal axis; with two or three blades; solid or lattice column?</li> </ul>  |
| <b>Step 2 – The study area</b>          | <ul style="list-style-type: none"> <li>• Has the applicant demonstrated how they have determined the extent of their assessment area? Step 2 provides a 'rule of thumb' guide to help you check this.</li> </ul>  |
| <b>Step 3 – Landscape Character</b>     | <p><b>Landscape Sensitivity</b></p> <ul style="list-style-type: none"> <li>• What is the sensitivity assessment for the LCA in which the site is located (Annex 1)?</li> <li>• If the site is close to an adjacent LCA, note the sensitivity assessment for that LCA too (Annex 1).</li> <li>• What is the strategy for the LCA/s in Annex 1?</li> <li>• Does the proposed wind farm fit with this strategy, or exceed the recommendation?</li> </ul> <p><b>Magnitude of change</b></p> <ul style="list-style-type: none"> <li>• How well does the proposed development fit with the existing pattern of development (size scale, and distance between wind energy developments)?</li> <li>• What features will be lost and how important are they to the wider landscape?</li> <li>• How much of the landscape will be affected?</li> <li>• How long will the changes last?</li> </ul> |
| <b>Step 4 – Visual Impact</b>           | <p><b>Visual Sensitivity</b></p> <ul style="list-style-type: none"> <li>• Review the photographic viewpoints - do you think these are appropriate (a visit to the site will help you check them)?</li> <li>• How sensitive do you think the views are to wind turbines? (see Table 4).</li> </ul> <p><b>Magnitude of change</b></p> <ul style="list-style-type: none"> <li>• How well does the proposed development fit with the existing pattern of development (size scale, and distance between wind energy developments)?</li> <li>• Over what distance will the cumulative effects be experienced?</li> <li>• How long will the changes last?</li> </ul>   |
| <b>Step 5 - Significance</b>            | <ul style="list-style-type: none"> <li>• What do your findings tell you about (i) the level of significance of the effects and (ii) whether those effects will be acceptable or unacceptable in planning terms?</li> </ul>  |

## Appendix 3 - Glossary

|   |   |
|---|---|
| <b>AGLV</b>   | Area of Great Landscape Value   |
| <b>AONB</b>   | Area of Outstanding Natural Beauty  |
| <b>CLVIA</b>  | Cumulative Landscape and Visual Impact Assessment   |
| <b>Cumulative effect</b>                                | The summation of effects that result from changes caused by a development in conjunction with other past, present or reasonably foreseeable actions.  |
| <b>Cumulative impact</b>                                | The additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments. The impact may affect the way in which the landscape is experienced.   |
| <b>Cumulative Zone of Theoretical Visibility (CZTV)</b> | This represents the area(s) over which there may be visibility of multiple wind energy developments, based on digital terrain data. This information is usually presented on a map base and represents a bare ground scenario so does not allow for built form and vegetation. Actual visibility will need to be confirmed by visiting the landscape in which the developments are located. |
| <b>EIA</b>  | Environmental Impact Assessment Regulations from the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 where the identification, prediction and evaluation of potentially significant environmental effects is undertaken, with a view to the reduction of negative impacts.   |
| <b>Landscape character</b>                              | The distinct, recognisable and consistent pattern of elements that occur in a particular landscape and how these are perceived. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement.   |
| <b>LCA</b>  | Landscape Character Area. A single unique discrete geographical area of a particular landscape type taken from the 2007 Landscape Character Assessment.   |
| <b>Landscape sensitivity</b>                            | The relative extent to which the character and quality of the landscape is susceptible to change as a result of a particular type of development.   |
| <b>LVIA</b>   | Landscape and Visual Impact Assessment  |
| <b>Receptor</b>   | Either the landscape which is affected by the cumulative change or the person who experiences the cumulative change in the view of the landscape  |
| <b>Skyline</b>  | The outline of a range of hills, ridge or group of buildings seen against the sky.  |
| <b>Wire lines</b>                                       | Also known as wire frames, or computer generated line drawings which are digital terrain models that illustrate a three dimensional shape of the landscape  |

## For more information

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