

3. Landscape and Visual

3.1 Introduction

Cumulative landscape or visual effects are the combined effects that arise through the interaction of two or more developments, whether of the same type or not, within the landscape and visual baseline context. Collectively they give rise to an overall combined effect. A useful principle in considering cumulative effects is enshrined in PPS1 Delivering Sustainable Development, which states that there should be recognition of the limits of the environment to accept further development without irreversible harm. Cumulative impact assessment seeks to ascertain if a combination of developments is likely to reach or exceed that limit.

The assessment of cumulative landscape and visual effects (CLVIA) has been emerging over the last 15 years through EIA processes for a variety of development forms. Generally speaking, the assessment of cumulative effects is the same as for the assessment of site-specific landscape and visual effects in that the level of landscape and visual effect is determined by assessing the sensitivity of the landscape or visual receptor and the magnitude of change. The resulting level of effect may be described as 'not significant' or 'significant' in terms of the EIA Regulations and the type of effect may be described as temporary or permanent, direct or indirect, positive or negative, in accordance with the regulations. The Landscape Institute defines cumulative landscape and visual effects as:

'Additional changes to landscape and visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it) or actions that have occurred in the past, present or are likely to occur in the foreseeable future'.

3.2 Cumulative Landscape Effects

3.2.1 The Issue

Comment [I1]: Jeff Stevenson: Should be 'incremental'

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Comment [I2]: Jeff Stevenson: added

Comment [JSA3]: Jeff Stevenson: There is a potential problem with this approach since (a) it is predicated on change being equivalent to harm and (b) wind energy development is very substantially reversible and PPS 22 is explicit concerning the scope for wind energy developments to be 'temporary'

Comment [JSA4]: Jeff Stevenson: Perhaps a more appropriate way around this potential issue is to refer to the capacity of the visual and/or landscape resource to accommodate change without fundamental and unacceptable change in landscape character or visual composition.

Comment [JSA5]: Jeff Stevenson: This is not a correct interpretation of the GLVIA. The GLVIA is explicit in stating that sensitivity is not part of the landscape baseline but, rather, it is an outcome judgement. See Annex 1 at the end of this document.

Comment [I6]: Jeff Stevenson: should be 'should'

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Landscape impacts are those that affect the landscape resource, and a cumulative landscape effect can either be a direct physical effect on the fabric of the landscape or a change to the character of the landscape as a result of the combined impacts of more than one development:

- Effects on the fabric of the landscape occur when two or more developments affect landscape elements such as topography, hedgerows, woodland or shelterbelts; and
- Effects on landscape character arise when two or more developments in combination change the

qualities, combinations of elements, landscape patterns and or key characteristics which give rise to the overall character of a landscape.

Cumulative effects can arise from the interactions of differing types of development or from accumulation of the same type of development. The infrastructure associated with wind farm development such as access tracks and transmission connections can also have an impact on the landscape, sometimes in greater proportion to that generated by the turbines. Wind farms are often sited within the locality and viewed in conjunction with other forms of development such as mineral extraction, landfill sites, transmission lines and so on. Existing forms of development and land use such as woodland and forestry, patterns of agriculture, built form, settlements and infrastructure development including wind farms, already have an effect on the existing landscape that has been accepted or taken for granted and often contributes strongly to the existing landscape character. These combined elements and features can create a complex arrangement of man made elements potentiality conflicting with rural or urban settings.

Landscape Fabric

Effects on the landscape fabric are usually brought about by the physical removal or alteration of elements or features within the landscape, or the addition of new elements or features into the landscape such as access roads and transmission lines. In some cases the features that are lost may be defining elements of landscape

Comment [JSA7]: Jeff Stevenson:
There is a need a clearer definition of a cumulative effect in terms of being an incremental step along the way to a combined effect, and the combined effect in its own right. For example, existing scheme A has a set of effects in their own right. When Scheme B comes along, the cumulative effect is the difference between the effect of A in its own right and the combined effect – in other words there is an incremental stage.

Comment [I8]: Jeff Stevenson:
added

Deleted: or qualities

Comment [JSA9]: Jeff Stevenson:
This kind of statement requires supporting evidence.

Comment [JSA10]: Jeff Stevenson:
What does 'this mean'?

Comment [JSA11]: Jeff Stevenson:
Some wind farms meet this statement but many do not. Better simply to state that "Wind farms can be sited in many different contexts ranging from open undeveloped countryside to urban areas – sometimes close to ... and sometimes seen in the context of " There should not be any statements loaded in favour of wind farms only being seen in a developed context.

Comment [I12]: Jeff Stevenson:
What relevance does this have to wind energy development? Only the simple statement in Comment JSA11 is required.

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character and landscape character will be fundamentally changed as a result. In other cases the features may be contributory elements to landscape character and could be degraded but not fundamentally changed.

Cumulative impact assessment should ascertain whether the changes to landscape fabric are significant enough as a result of all developments to fundamentally change the landscape character and whether the changes are within the limits of acceptability with reference to planning policy as set out in the relevant development plans. A more proactive role can be taken by the landscape architect during the cumulative assessment, whereby positive action to improve landscape fabric can be incorporated into the overall project design which can result in positive cumulative impacts. In order for this to be fully effective, the cumulative assessment needs to start at the earliest possible time during the project lifecycle so that the cumulative assessment informs the design at the outset and the design can respond to the findings of the iterative assessment process.

Comment [JSA13]: Jeff Stevenson:
The use of 'will' is not justified - there can be no conclusive statement that this will occur in each and every case. Should be 'may'.

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Comment [JSA14]: Jeff Stevenson:
What is meant by 'degraded'? Is it that the strength of their contribution may be diminished thus weakening perceptions of existing character?

Comment [JSA15]: Jeff Stevenson:
This is not strictly speaking a judgement for the landscape professional. Their role is to establish where and when etc significant effects would occur. They may then conclude whether or not landscape character has been altered and to what extent. The policy judgement is something separate. Also, there is a need to beware confusing judgements concerning landscape character change with policy. See Annex 2.

Comment [JSA16]: Jeff Stevenson:
Suggest that throughout, all references are to 'landscape professionals' rather than 'landscape architects'.

Comment [17]: William Wheeler:
Question the use of 'positive', 'negative' and 'neutral' regarding CLVIA for wind projects. LDA Design's view is that these terms are unhelpful to the assessment, although it is acknowledged that this is at odds with standard LVIA guidance. Wind projects are different, as receptors often have a pre-disposition strongly one way or the other, so that a 'positive effect' to one visual receptor will be 'negative' to another.

Comment [18]: Jeff Stevenson:
added

Landscape Character

Cumulative changes to landscape character could have the effect of changing a landscape from a landscape with wind farms to a wind farm landscape in which wind farms become the dominant and defining characteristic of the area. This in itself may not necessarily be considered a detrimental impact as planning policy, as set out in development plans, may have identified this as a development

aspiration. The cumulative impacts assessment must be rooted in development policy for that location, for this is the mechanism whereby the aspirations of the planning authority and the community are expressed and provide guidance for delivery through the planning process.

Cumulative landscape character assessment should encompass similar areas as landscape character assessment for the site itself, and should be carried out as part of the same exercise. Landscape attributes that should be examined in the cumulative assessment include designations, and the effects on designated areas, the sense of wildness, the tranquillity of the area, the landscape value and quality, and the historic palimpsest.

Other Types of Development

Changes to landscape character can be brought about by the cumulative impact of different types of development and are not restricted to aggregation of any one type. A deeply rural landscape that is subject to wind farm development alongside a new road and a proposed quarry may lose much of its deeply rural character even though any one of the three developments may not compromise the character in its own right.

Wind farms are notable for introducing tall structures into the landscape and when considering which other developments need to be assessed as part of the cumulative study, attention should be given to those types of development that will have a similar impact on

Comment [JSA19]: Jeff Stevenson:
There is confusion here regarding change in character being automatically viewed as adverse. This is now saying that change might not be detrimental if policy defines it as an aspiration. It is important **not** to confuse a proper, balanced assessment (which recognises the positive and negative perceptions of landscape) with policy. There are two separate forces at play. One is to determine what the effects would be (and they may be regarded by some as positive and by others as negative). The second is to decide (and it may be the planning professional in discussion with the landscape professional) what the implications are for policy.

Comment [JSA20]: Jeff Stevenson:
This is fundamentally incorrect and the LI could not sign up to such a statement. The cumulative impacts assessment must be rooted in (a) a thorough understanding of the visual and resource baseline, (b) a thorough understanding of the development(s) under consideration and (c) the identification and assessment of significance of the potential effects arising. The development plan policies will assist in identifying what is of value in the environment into which the proposed wind farm(s) would be set and which therefore may inform the scope of the assessment with elements or attributes which may be taken into account.

Comment [JSA21]: Jeff Stevenson:
What does this mean?

Comment [JSA22]: Jeff Stevenson:
A designation is not an attribute.

Comment [I23]: William Wheeler:
Why are these specified? They are controversial issues and are often challenged at Inquiry. Suggest they are omitted.

Comment [JSA24]: Jeff Stevenson:
This is not an attribute. See Annex 3

Comment [HK25]: Helen Kennedy:
This is not an accepted term

Comment [JSA26]: Jeff Stevenson:
Suggest 'may be subject to a collective local character change'.

Comment [HK27]: Helen Kennedy:
This is an unjustified assumption

Comment [I28]: Jeff Stevenson:
Suggest 'significantly affect landscape character'

Comment [JSA29]: Jeff Stevenson:
This is a very dangerous sentence. It implies that a wind farm development is inconsistent with a rural countryside location, and that wind farm development is somehow anti-rural. If this were the case, why have so many wind farms been built in rural areas?

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common receptors. This may not necessarily be limited to other tall structures in the landscape, but may encompass other large-scale developments such as waste facilities, open cast mining and quarries. Those developments that need to be included should be identified during the scoping study and both development plans and consented proposals can guide the selection of appropriate developments to be included. With the increase in off-shore wind farms, it is likely that consideration of increasing numbers of on-shore proposals may have to extend cumulative assessment to include both on and off-shore developments. This may be particularly relevant along heritage coastlines, and within sight of coastal National Parks and AONBs.

Impacts on both landscape fabric and landscape character should be considered in cumulative impact assessment. The assessment should establish whether the cumulative changes exceed the tipping point that fundamentally changes the landscape character and exceed the limits of acceptable development defined by the development plans. Cumulative impact assessment should consider other major infrastructure developments that may have a cumulative impact on landscape character. As a guideline, other major infrastructure developments within 5km should be assessed, although this distance will vary according to the nature and size of the development, and the sensitivity of the location

3.2.2 Proposed Guidance

- Cumulative assessment of landscape fabric should include assessment of associated infrastructure development such as grid connections and access routes.
- Changes to landscape fabric and character should be assessed for acceptability against the relevant development plans.
- Other types of development that could have similar impacts on common receptors should be included in the cumulative assessment.
- Generally major infrastructure development within 5 km of the wind farm site should be considered

Comment [I30]: William Wheeler:
This is probably, on balance correct, but the implications of considering all such developments within the full extent of an agreed study area could be rather daunting / impractical. The onus should be upon the importance of the scoping exercise and reaching agreement as to where the possible significant effects might lie.

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Comment [I31]: Jeff Stevenson:
added

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Comment [I32]: Jeff Stevenson:
added

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Comment [I33]: Jeff Stevenson:
added

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Comment [JSA34]: Jeff Stevenson:
This statement would be more appropriate at the start.

Comment [JSA35]: Jeff Stevenson:
Suggest instead "Cumulative impact assessment should establish the degree to which landscape character will change as a result of one, two or more wind farm developments"

Comment [JSA36]: Jeff Stevenson:
Development plans are unlikely to define 'the limits of acceptable development'. They are usually rather vague on the subject, using stock terms rather than specific definitions.

Comment [JSA37]: Jeff Stevenson:
Why just infrastructure?

Comment [JSA38]: Jeff Stevenson:
Recommend that all reference to prescribed or even indicative distances are deleted - it should be left to the judgement of the assessor

Comment [I39]: William Wheeler:
Yes, but historically grid connection routes have often been subject to a separate application. This will change with the advent of the Infrastructure Planning committee

Comment [JSA40]: Jeff Stevenson:
See JSA38.

for inclusion.

3.3 Cumulative Visual Effects

3.3.1 The Issue

The increasing number of existing and proposed wind farms throughout the UK can create a complex arrangement of schemes concentrated within the landscape. The evolution of the industry in relation to turbine technology, particularly with regard to turbine size, throws up issues of development scale and design compatibility for onshore wind energy schemes. The SNH guidance on the *Environmental Impacts of Wind Farms and Small Scale Hydroelectric Schemes* recommends a strong emphasis be placed on the design and visual appearance of wind farms, encouraging order so that developments may appear as relatively simple and easily understood components of the landscape.

A cumulative visual effect is a change in views and visual amenity as a result of combined changes of more than one development. Visual effects can arise from the juxtaposition of two or more farms within a view, by the positioning of developments in the wider landscape where they can be seen successively by turning ones head, or by the general impression of wind farms in the landscape as one moves through it. These are sometimes known as combined, successive and sequential effects respectively. In considering visual impacts, combined impacts where the developments to be assessed are visible within a single view are the most straightforward and easiest to comprehend. They are also the easiest to portray graphically, as the cumulative elements can be shown within a single photographic frame. Successive or repetitive impacts are slightly more complex in that the viewer needs to turn in order to see the cumulative elements as they are not visible in a single view. A classic example of this is when the viewpoint is located directly between two wind farms; there are likely to be cumulative effects, but the viewer cannot see both farms at the same time.

Comment [JSA41]: Jeff Stevenson:
Can this sentence be made simpler and easier to understand?

Comment [I42]: Jeff Stevenson:
added

Comment [JSA43]: Jeff Stevenson:
These sentences would be more appropriate the start of the section

Comment [I44]: William Wheeler:
Any guidance on how best to present information, either written or visual, that sets out how combined, successive and sequential effects might each be addressed?

Comment [JSA45]: Jeff Stevenson:
See Annex 4.

Comment [JSA46]: Jeff Stevenson:
Not necessarily given that patterns may differ. Turbine sizes and rotational speeds may differ, and if one wind farm involving lower turbines is in front of a second with taller turbines, then there can be a sense of perspective distortion.

Comment [JSA47]: Jeff Stevenson:
It is not as simple as this. An observer may need to turn her/his head just a little to take in a second wind farm rather than the person having to turn around. In actual fact, when the observer is between two wind farms – one in front and one to the rear – the portrayal of the relationship is a whole lot more complex than 'slightly more complex'. In this case there may be the need for 360 degree wireframes and montages.

Comment [HK48]: Helen Kennedy:
Why 'classic'?

Comment [I49]: Jeff Stevenson:
Should be 'may'

Sequential visual impacts are associated with sensitive linear features such as transport routes, footpaths or more intangible features such as National Park or AONB boundaries. Once again, the development plans for the area will provide background information as to the importance and sensitivity of features in a local context and the linear features that are important should be defined during the scoping stage. The assessment for these types of receptor should be examining the experience of moving through the landscape and the ways this will change as a result of the proposed development. There may be a myriad of routes that could be assessed, but the focus of the assessment may be concentrated on those areas or routes that are the most highly valued and which may be most vulnerable to change.

The assessment of sequential effects should not be limited to transport routes or paths but needs to explore the general experience of moving through the landscape. This will include examination of the effect of ringing designated areas such as National Parks or AONBs with wind farm development and the effect that will have on the experience of the designated area. In carrying out a cumulative visual impact study, the practitioner must be clear about the purpose of each viewpoint within the study and make distinctions in the subsequent conclusions that are drawn. Some viewpoints will be chosen because they are key views from specific locations. Others

Comment [HK50]: Helen Kennedy:
This is incorrect: in visual impact assessment it is the viewer that is sensitive (or otherwise) not the viewpoint

Comment [JSA51]: Jeff Stevenson:
Sequential visual effects are associated with the recurrence of images of wind farm developments during the passage through the landscape. They may have nothing whatsoever to do with National Park boundaries etc.

Comment [JSA52]: Jeff Stevenson:
Importance (i.e. value) yes; sensitivity - no. It will only become apparent whether an element or factor is 'sensitive' after assessment. If there is a significant effect then it will be sensitive; if there is not, it won't.

Comment [I53]: Jeff Stevenson:
Why only local?

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Comment [I54]: Jeff Stevenson:
added

Comment [I55]: William Wheeler:
Endorse that the focus should be on routes most vulnerable to change

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Comment [JSA56]: Jeff Stevenson:
How else does one experience movement through the landscape if not by transport routes or paths?

Comment [HK57]: Helen Kennedy:
This is a lax expression. Existing wind farms are part of the baseline so are considered in the first place

Comment [JSA58]: Jeff Stevenson:
If it is not through passage through the landscape then it will be from fixed viewpoints and hence, not sequential.

may be chosen because they are key views of a specific visual feature such as a notable building or monument. Others may be chosen because they are representative of views that could be obtained from a number of related locations, such as views from within a village or residential street. The analysis of each of these will be different. The description of a key view from a specific location will describe the changes that can be expected within that particular view, while the description of a representative viewpoint will give a broader commentary of the experience of the landscape and how this will change as a result of the development. The assessor should be explicit about the reasons for choosing each viewpoint and the purpose of the analysis.

Comment [HK59]: Helen Kennedy: Disagree. The analysis will be the same, but the conclusions might be different.

Design Issues

As discussed earlier, if the cumulative impact assessment is commenced early in the design process, the findings can influence the design of the development. Issues that should be considered in relation to cumulative visual impact are:

- Siting,
- Size, both of the development as a whole and individual turbines,
- Spacing and arrangement,
- Proportions of tower to rotor,
- Rotor diameter,
- Nacelle shape,
- Colour,
- Movement,
- Rotation speeds

All of these factors can influence the way a wind farm is seen within the landscape and all will affect the way a wind farm appears in juxtaposition with other wind farms. The landscape architect can make a real contribution to the acceptability of a proposed development in relation to others by paying attention to these detailed design issues at an early enough stage of the design process.

Comment [I60]: Jeff Stevenson: added

Comment [HK61]: Helen Kennedy: There are references to assessor in some place and to landscape architect in others. Terminology must be consistent.

Comment [I62]: William Wheeler: Agreed. Involvement of landscape professionals earlier in the design process is prudent and welcomed. Too few developers consider this and miss opportunities that can make the difference between securing consent or being subjected to PI.

When considering extensions to existing schemes, matching the existing turbines may be counter-productive as many older farms

Comment [HK63]: Helen Kennedy: Agree with what this is trying to say but poorly choice of words. More accurate to say that the designer can only select machines currently available.

used smaller and less efficient turbines while modern developments tend towards fewer larger and more efficient machines. In addition, it is becoming increasingly hard to source smaller turbines as manufacturers concentrate on the production of larger machines. The designers must use their professional skill to minimise design and visual incompatibilities and **potential** discord within the landscape.

Comment [I64]: Jeff Stevenson: added

3.3.2 Proposed Guidance

- Combined and successive cumulative impacts need to be considered.
- Sequential impacts should consider the experience of moving through the landscape generally and, **where relevant, may have regard to, linear considerations** such as **designation boundaries** as well as roads and **other routes through the landscape**.
- Viewpoint analysis should differentiate between those viewpoints chosen as key views and those chosen as representative viewpoints.
- **If considered early enough in the development process, cumulative visual impact assessment can** be a tool **which can usefully** influencing **wind farm** design.

Comment [I65]: William Wheeler: Designation boundaries are relevant only if there is public access. Sequential effects should be assessed from publically accessible routes, which may not coincide with designation boundaries

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Comment [I66]: Jeff Stevenson: added

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Comment [I67]: Jeff Stevenson: added

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3.4 Viewpoint Selection

3.4.1 The Issue

The term viewpoint refers to locations from which views are analysed as part of the visual assessment, including the production of photomontages and wireframe images used to illustrate the proposed wind farm scheme in the LVIA. Common practice in LVIA for wind farm schemes is to **produce** a range of such viewpoints whose location is initially determined by the author of the LVIA based upon the hub height and blade tip ZTVs for the turbine layout of the proposed wind farm scheme. **Where appropriate, viewpoint selection seeks** to both identify **key views** that are important in their own right and locations that aid the wider understanding of **visual** effects on receptors even if it is not possible to **visit** individually **each**

Comment [HK68]: Helen Kennedy: Should be 'select' viewpoints

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Comment [I69]: Jeff Stevenson: added

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Comment [I70]: Jeff Stevenson: added

Comment [I71]: Jeff Stevenson: added

Deleted: visit

receptor location. The provisional viewpoint selection is set out in the scoping study and additional consultations are often undertaken with other decision making authorities that are within the ZTVs in order to arrive at the final selection. The selection of viewpoints for cumulative assessment is no different to this, and should be carried out concurrently. Some viewpoints may serve both the LVIA and the cumulative assessment, while others may need to be chosen purely for cumulative assessment purposes.

When viewpoint locations are agreed with the local authority during the Scoping Study for visual impacts, the viewpoints should be chosen to include the requirements of the cumulative assessment as well as assessment of the scheme under consideration. Further viewpoints may need to be added later if new schemes are submitted that require inclusion into the cumulative assessment, but the Scoping Study should identify all the schemes that will be included in the cumulative assessment and identify appropriate viewpoints to give a representative assessment.

There is no ideal number of viewpoints for cumulative assessment, rather the number of viewpoints chosen should reflect the need to communicate information concerning the potential impacts and inform the decision-making process. Some viewpoints may serve both the LVIA and the cumulative assessment, but it is likely that there will be at least some that are chosen for the CLVIA alone.

There is a strong argument for the landscape consultant and local authority officer to work together in choosing viewpoints and both parties should see this as an active collaborative process aimed at providing the most informative solution without entailing excessive amounts of unnecessary work. Central to this process is the principle of cumulative assessment being carried out in order to inform the decision making process, and the viewpoints should be selected with the aim of conveying as much information as possible.

In choosing and assessing viewpoints, a distinction should be made between representative viewpoints and key viewpoints. Key viewpoints are those that show a view from a specific point that has

Comment [HK72]: Helen Kennedy:
Recommend 'regulatory authority' is used throughout

Comment [HK73]: Helen Kennedy:
At what stage does the scheme have to be included?

Comment [I74]: William Wheeler:
A distinction is needed between a 'representative assessment' and a 'worst-case scenario assessment'. Objectors regularly challenge viewpoints on the basis that they don't represent the worst possible view, an approach that can then be pursued at Inquiry.

Comment [I75]: Jeff Stevenson:
added

Comment [I76]: Helen Kennedy:
Repetitive wording

Comment [HK77]: Helen Kennedy:
It is the solution that matters, not the amount of work

Comment [I78]: William Wheeler:
This distinction is helpful.

Comment [JSA79]: Jeff Stevenson:
Overly repetitive wording throughout this paragraph.

an importance in its own right, such as a lookout point or a vista from a particular building. In assessing the view from a key viewpoint, the assessor is analysing and drawing conclusions from that particular view as reproduced in the photograph. Representative viewpoints are representative of a range of locations that share similar types of view, such as views from a village (or even several villages) or views along a route such as a footpath or road. In assessing the views from a representative viewpoint the assessor is drawing generalised conclusions that may be applicable to a greater or lesser degree from any location within the area represented by that particular viewpoint, and the assessment must make this clear by including discussion of the variation in impact that is likely across the area.

Representative viewpoints are a useful way of conveying information about a wide variety of locations without needing to include large numbers of viewpoints with repetitive descriptions and conclusions, and the areas they represent should be explicitly described in the assessment. When choosing representative viewpoint locations, consideration should be given to the areas they represent in order to avoid unnecessary duplication and to reassure decision making authorities that all areas are being covered without including numerous viewpoints that have similar impacts. A draft list of cumulative viewpoints should be compiled during the scoping process and used as the basis of consultation.

As well as the determining planning authority and statutory consultees the consultation process would be strengthened were it to be extended to include all the planning authorities within the cumulative study area. In some parts of the UK a cumulative study area could encompass parts of a considerable number of planning districts and common sense would need to be employed with regard to including planning authorities that have only a small proportion of their area within the cumulative study area or are largely outside the cumulative ZTVs. The consultation exercise needs to be carefully managed to ensure that responses are made within a realistic timescale and restricted to a 'reasonable' number of viewpoint

Comment [JSA80]: Jeff Stevenson:
Representative viewpoints are also representative of a range of different distances and directions so that general conclusions can be made.

Comment [I81]: William Wheeler:
This can sometimes be problematic due to reluctance of some LPAs to engage in the process and / or conflicting viewpoint requirements. There also needs to be a reference to agreeing with the consultees the methodology to be adopted.

Comment [JSA82]: Jeff Stevenson:
In some areas, LPAs ask for a 70 km study area outwards from the site. Before anyone approaches all the LPAs in a study area, the first step should be to establish (a) the range, (b) the schemes within that range, (c) those schemes which can be immediately discounted (with reasons given) and (d) to identify what the assessor considers the relevant schemes to be. Then approach what are then considered to be the relevant LPAs.

Comment [JSA83]: Jeff Stevenson:
See also the advice given in Scotland. See ANNEX 5

locations within each planning authority. There may be situations where new schemes come into the planning system during the preparation of the cumulative assessment, and further viewpoints may be required to provide an assessment of the cumulative impacts of the new scheme. If the existing viewpoints do not cover the new development in sufficient detail, there is little alternative but to select appropriate new viewpoints and carry out an additional round of consultation and **assessment**.

Comment [JSA84]: Jeff Stevenson:
Agreeing a cut-off date for schemes to be taken into account would address this. This is especially the case since further schemes that come into the frame through scoping and then EIA will inevitably have to submit their own cumulative assessment. The authors of the original cumulative assessment can reserve the right to review any subsequent assessment and respond if appropriate.

3.4.2 Proposed Guidance

- The selection of cumulative visual impact viewpoints should be carried out during scoping and concurrently with LVIA viewpoint selection.
- Further viewpoints may need to be added at a later date to include new schemes that have entered the planning system.
- Viewpoints should be chosen to reflect the sensitivity of the **view** and to communicate the impacts – there is no standard number.
- Viewpoints should be agreed **if possible** with the **relevant** local planning authority **or authorities**.

Comment [HK85]: Helen Kennedy:
This structure feels very repetitive

Comment [HK86]: Helen Kennedy:
What stage? Scoping or application or what?

Comment [JSA87]: Jeff Stevenson:
This is wrong. A view does not have sensitivity - only a viewer does. This sentence also makes little sense. Suggested rewording: "Assessment viewpoints should be selected to be representative of a range of receptors, distances and directions from the site and where relevant should include specific viewpoints which are highly valued in the area".

Comment [I88]: Jeff Stevenson:
added

3.5 Use of Visualisations and ZTVs

3.5.1 The Issue

The guidance on the production of visualisations of wind farms published by Scottish Natural Heritage in **2006** provides both guiding principles and detailed methodologies with regard to the suitability and specification of photomontages, wireframes and ZTVs to be used to inform the visual impact assessment of wind farms. The SNH document has been widely accepted as representing **good** **practice** and its guidance with regard to the principles of the production and presentation of visualisations forms the foundation upon which this section of the current document hopes to build. The SNH guidance is **exhaustive** and it is not appropriate to reproduce it

Comment [I89]: William Wheeler:
Although dated March 2006, the SNH guidance was actually published in March 2007. SNH acknowledge the typo error.

Deleted: best

Comment [JSA90]: Jeff Stevenson:
The title was deliberately chosen in order to avoid the word 'best'.

Comment [HK91]: Helen Kennedy:
"Highly detailed" would be more accurate.

at length here. It is recommended that a copy of the SNH document is acquired by those intending to produce or review visualisations of the visual effects of wind farms (whether cumulative or non-cumulative). The SNH document does not provide any specific guidance as to how the techniques it describes should, or could, be applied to cumulative assessment. Whilst much of the guidance provided by SNH with regard to photography, data and the preparation of visualisations is readily transferable to the assessment of cumulative impacts, there is a lack of guidance with regard to the suitability of particular techniques to inform cumulative assessment and how these should be presented. In particular, guidance is required with regard to:

- The horizontal angle of view to be included within cumulative visualisations (field of view);
- The circumstances in which it is appropriate to use photomontage;
- How wireframes and photomontages should be presented; and
- How the complex interaction of multiple ZTVs can be illustrated in a meaningful and intelligible manner.

Each of these issues is considered briefly below.

Field of View

Past discussions regarding the appropriate horizontal angle of view to be employed in photomontages and wireframes intended to illustrate a single wind farm often attempted to identify a field of view that equates to that of human vision. However, there are many difficulties associated with this endeavour and the 2006 SNH guidance takes a more pragmatic approach to the issue. Paragraph 137 of the guidance states:

“... the size of a photograph required to represent a view will vary for different projects and viewpoints, depending on the key characteristics of a view that need to be included within the image (defined by the landscape architect or experienced specialist assessor on site), and the extent of the proposed wind farm which needs to be included.”

The need to take this pragmatic approach is reinforced by the requirements of cumulative assessment, where the movement of the

Comment [HK92]: Helen Kennedy:
Seems to be stating the obvious.

Comment [HK93]: Helen Kennedy:
Disagree. It is not difficult at all. It may be however that the field of vision would not include both of the windfarms

eye across a panorama is inherent in the generation of the potential effect. The required field of view will therefore be defined by the key characteristics of the view and the number and location of the existing, consented and proposed wind farms to be included. Approaches to presenting the defined field of view are discussed in the section on the presentation of wireframes and photomontages, below.

Photomontage or Wireframe

The potential for photomontage to provide a photorealistic image of a proposed development makes it an invaluable tool in the visual assessment of proposed wind farms and, where appropriate, it can be equally as effective in the assessment of cumulative visual effects. However, two issues which must be considered when deciding whether photomontage is an appropriate tool to be employed to assess the cumulative visual effects at a given view point are the distances from the viewpoint to the various wind farms to be assessed and the planning status of those wind farms.

The 2006 SNH guidance describes the difficulties associated with producing clear photomontages where the distance between the viewpoint and the wind farm to be assessed is greater than 15km. Production of a clear photomontage at 15km will require that photographs are taken in conditions of exceptionally good visibility, and conditions will vary around the country. Distances in southern England where photomontage is useful may be considerably shorter than in Scotland where visibility can be much greater.

A further limit to the usefulness of photomontage occurs with digital photographs, where elements smaller than a single pixel will not show in the resultant photograph. Distant wind turbine towers can breach this limit, in which case photomontage is not a useful medium. As recommended in Section 2.3.2 above, cumulative assessment should consider all wind farms within the agreed study

Comment [I94]: William Wheeler:
Careful wording is required here. It should be emphasised that photomontage is only a tool to aid the assessment process. It should never be used as the sole basis upon which to make judgements regarding effects – this should always be done on site. Photomontages are regularly misinterpreted and misapplied – they are no more than the best tool that we have for visually representing the proposed scheme once installed.

Comment [HK95]: Helen Kennedy:
This is the same as the LVIA surely?

Deleted: e

Comment [JSA96]: Helen Kennedy:
The meaning and point of this sentence is not at all clear.

Comment [HK97]: Helen Kennedy:
This guidance is not an appropriate place for discussion of this commonplace issue.

area that are either operational, under construction, consented or subject to a current planning application. With regard to the latter category, consideration should be given to the likelihood of all wind farms in the planning system gaining consent.

Comment [JSA98]: Jeff Stevenson: This is not relevant in a discussion of photomontages and wireframes.

Comment [HK99]: Helen Kennedy: How would this likelihood be assessed?

Presentation of Wireframes and Photomontages

As described above, the number of circumstances in which it is appropriate to produce photomontages to illustrate combined or successive cumulative visual effects is likely to be limited. However, where such an approach is appropriate, full use should be made of the guidance included in the 2006 SNH document, with particular reference to the guidance on viewing distances (paragraphs 124 – 129) and figure layout (paragraphs 249 – 251, Table 15 and Figure 38). Consideration should always be given to the utility of any visualisations produced within the context of Environmental Impact Assessment. For example, if photomontages have to be reproduced using a 50cm viewing distance so that distant turbines can be clearly discerned, 4 x 78cm fold-out sheets will be required to reproduce a 360° panorama. Such a photomontage should only be produced if it is likely to be of practical use in providing information to the decision makers.

Comment [HK100]: Helen Kennedy: It depends entirely on site circumstances, so this is an inaccurate generalisation

Comment [HK101]: Helen Kennedy: This is repeating SNH guidance, despite earlier statement that it will not be reproduced here.

It is important that when presenting photomontages, information is presented about how they were generated and how they are to be viewed. This is particularly important with longer images used for cumulative impacts. A tendency is to view these images in the same way as a single-frame image can be viewed, but in reality they may be illustrating a situation where the entire view can only be seen successively by turning ones head. The interpretation of such an image needs to take this into account. Also of importance are viewing distances, and this information should be given with the image. There is a considerable amount of information on this topic within the SNH guidance, and this remains relevant to cumulative impact assessment as well as to LVIA.

Comment [JSA102]: Jeff Stevenson: How will this be useful? Suggested rewording: "Having decided which wind farms should be included within the cumulative assessment, the choice of presentation format will be decided by the geographical disposition of those wind farms within the wider environment (i.e. whether they all appear within the same or different cones of view); the appropriate viewing distance for the visualisations, and the most appropriate means of conveying the information necessary to make judgements. In some circumstances, sufficient information may be conveyed on a single A3 visualisation. In others, extended A3 or even A2 sheets carrying full 360 degree coverage subdivided into 90 degree quadrants may be appropriate."

Comment [I103]: Helen Kennedy, Jeff Stevenson: This text is superfluous.

With regard to wireframes, consideration should be given to both the graphical conventions employed in the image and the format in

which they are reproduced. Where the number of wind farms to be included in the assessment is relatively low (approximately eight or fewer) it may be appropriate to assign a different colour to the turbines of each individual scheme. Where a greater number of schemes are to be assessed (this may be 50 or more in some areas of the UK), it will be necessary to colour-code turbines according to the planning status of the wind farm to which they belong i.e. operational, construction phase, consented, in planning.

Presentation of ZTVs

Mapping the theoretical zone of visibility (ZTV) of a proposed wind farm is a technique widely used to convey in a concise and immediate manner the geographical extent of areas from where the development may be visible. The technique has limitations in that it is difficult to model the local screening effects of vegetation (other than large blocks of forestry) and built structures across large study areas, and to illustrate the decrease in magnitude of effect associated with increasing distance. However, these limitations are now well understood and most people involved in the planning process are able to interpret such maps in a useful manner. Reference should be made to the Good Practice Guidance published by SNH with regard to the best procedures to be employed in generating individual ZTVs.

ZTVs are employed in cumulative landscape and visual assessment to illustrate the extent and interaction of the visibility of multiple wind farms, although for many non-technical readers of Environmental Statements they will be difficult to comprehend.

ZTVs are essentially a tool that informs the cumulative assessment, and while they should be included in the presented material, their primary use is to identify appropriate viewpoints. Whilst the techniques used to produce ZTVs for cumulative assessment are essentially the same as those employed with regard to a single wind farm, the presentation of cumulative ZTVs in an intelligible manner can be problematic due to the number of colours needed to illustrate the different permutations of potentially visible schemes. **Table 3.1** below sets out the number of different colours necessary to illustrate

Comment [I104]: William Wheeler: Including specific numbers here creates an unnecessarily high level of expectation as to the number of cumulative sites that might need to be included within a CLVIA. It also appears to presuppose a substantial study area which appears incompatible with the earlier statement that the CLVIA should only address those effects where there is a reasonable likelihood of a significant effect. This needs careful reconsideration.

Comment [I105]: Jeff Stevenson: In addition to colour coding, greater clarity can be achieved by labelling the wind farms within the visualisation.

Comment [I106]: William Wheeler: Point about agglomerating wind farms of the same planning status is welcomed and is the only practical way forward where there are large numbers of wind farms.

Comment [HK107]: Helen Kennedy: Sometimes expensive and time-consuming, rather than difficult per se.

Comment [HK108]: Helen Kennedy: This is a simplification – there is not always a linear relationship as skyline views at a distance may be more prominent, for example.

Comment [I109]: William Wheeler: Disagree with this statement. ZTVs also usefully contribute to an understanding of general theoretical visibility across a study area and are helpful in 'painting a representative picture' albeit with the usual caveats that accompany their use. Suggest also including a point about ZTVs not being examined at a level of detail beyond which they are intended.

Comment [I110]: Jeff Stevenson: added

the different permutations associated with 2, 3 and 4 potential wind farms.

Table 3.1 Numbers of Permutations Associated with 2, 3 and 4 Wind Farms

As can be seen from the table, illustrating the interaction of 2 or 3 separate wind farms can be relatively straightforward, as most people will have little difficulty in recognising 7 different colours (hues) ⁸. The introduction of a fourth wind farm requires 15 different colours to illustrate all the possible permutations. Whilst 15 different hues will be difficult to interpret in most situations, this can be partially overcome by employing a shade of grey for the fourth wind farm. Where this grey overlaps with any of the 7 hues used to illustrate the interaction of the other three schemes, a darker shade of these hues will be produced. It should be noted however; that maps produced using this technique may still be found hard to interpret in some people's view. It is preferable to present a series of ZTVs showing several different scenarios rather than attempting to present too much information on a single drawing. Each drawing should be linked to a specific enquiry and accompanied by a clear rationale as to why specific developments have been included or excluded.

In circumstances where more than 4 wind farms are included within the cumulative assessment, ZTVs may be simplified by the use of geographic clusters rather than individual wind farms. If necessary, additional ZTVs can be produced illustrating the interaction of the individual wind farms contributing to the ZTV of a particular cluster. Using this technique, it is possible to show the interaction of many wind farms and, through the use of several figures, allow an assessor to identify which schemes are visible in any given area.

Alternative Methods of Illustration

New and innovative methods of illustrating development within the landscape are developing rapidly and this, coupled with an increasing reliance on electronic submission of planning applications, means

Comment [I111]: William Wheeler:

The information in the table could be open to misinterpretation, in terms of what might reasonably be expected to be included in ZTVs with up to 4 different sites. It is generally difficult to visually comprehend more than 3 sites on a ZTV.

Comment [JSA112]: Jeff Stevenson:

15 hues will be impossible to interpret.

A way to overcome these problems is to approach the subject as follows.

1. Have base hub and tip ZTV's for the scheme in question suitably colour banded.
2. Overlay 4 wind farms' ZTV extents but applying black or dark grey lines – horizontal, vertical, diagonal one way and diagonal the other way. Make sure the assessment viewpoints are indicated. Then have individual hub and blade tip ZTV's for each of the cumulative schemes. That way the reader can check to see what schemes where, overlap with the proposed scheme and with the assistance of individual hub and blade tip ZTVs, the reader can check to what extent (x hubs and y tips) may be potentially visible. For more than 4 other schemes grouping them can be used. 1 + 14 schemes require 3 groups of four and one group of two. No confusion as to hue etc arises.

that this area is likely to change in the short term. Methods such as video montage and 3D wireframes are becoming increasingly affordable and feasible and these may become useful in illustrating proposals particularly for public consultation. Whatever methods are used, the emphasis must be on the value of the information being communicated and the clarity of communication.

3.5.2 Proposed Guidance

- Existing SNH guidance on Visual Representation of Windfarms is applicable to cumulative assessment and should be followed.
- A pragmatic approach should be taken to identifying an appropriate field of view for wireframes and photomontages. The field of view should be based upon the location of the wind farms to be included, other key features of the view and the advantages of a consistent approach to several viewpoints.
- The decision as to when to use photomontage should be taken in view of local circumstances. Atmospheric conditions and related visibility will be a key factor.
- Photomontages should be presented with information as to how they were generated and how they should be viewed.
- ZTV plans should be presented showing a series of scenarios rather than attempting to put all information on a single plan.
- Each ZTV drawing should be linked to a specific enquiry and accompanied by a clear rationale as to why specific developments have been included or excluded.
- Wind farms should be grouped into geographic clusters when large numbers of developments need to be assessed.

ANNEX 1

The landscape of the area over which change is likely to be experienced is described with reference made to such

Comment [I113]: Jeff Stevenson: added

evaluations as may have been carried out. In the past, attempts were made to establish landscape 'sensitivity' in advance of carrying out the assessment. The position has now become more clear in the most recent guidance. The position taken is: *Sensitivity is thus not absolute but is likely to vary according to the existing landscape, the nature of the proposed development and type of change being considered. Sensitivity is not, therefore, part of the landscape baseline but is considered during and arises from the assessment of effects* (2nd Edition para 2.28. *The sensitivity of the landscape is dependent on both the attributes of the receiving environment and the characteristics and effects of the proposed development and can only be established by carrying out the assessment.*' (2nd Edition para 7.43, 4th bullet).

ANNEX 2

Change is from one state to another which is different. Whether this will or should be regarded as adverse or positive will depend on the perception of the observer. As set out in the European Landscape Convention: *'Landscape' means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.*"
The change in character would be brought about in this case through the establishment of a wind farm or more than one wind farms. Given that wind farm development is generally perceived positively by the majority for one reason or another, in broad terms it is reasonable to conclude that the change in landscape character *'...as perceived by people..'* may well be regarded as a positive change. Change away from one set of key characteristics to a modified or different set cannot therefore be automatically assumed to be negative. This does not of course mean that a character change would be consistent with a policy which seeks to 'protect' that which is already there. But it does raise the possibility that such a policy could be regarded as overly restrictive especially given Natural England's position that we should be looking for

Comment [I114]: Jeff Stevenson: added

locations where wind energy development can be accommodated without giving rise to unacceptable harm. Natural England is aligning with the position that change is not unacceptable and harm, if deemed to arise for other reasons, in itself is not and should not be determinative. In simple terms, a single wind farm's effects or together with other wind farms – their cumulative and then combined effect might well be regarded as a positive change but one which is in conflict with a policy which seeks to maintain the status quo in character terms.

ANNEX 3

Factors (as opposed to attributes) that are generally considered include but are not limited to:

Landform

Scale

Openness

Condition

Settlement/Built Enclosure

Pattern

Foci

Visual Composition

Remoteness

Tranquillity

Sense of the Wild

Other Conservation Interests (Nature Conservation/Ecology)

Other Conservation Interests (Cultural Heritage)

ANNEX 4

Cumulative visual effects (whether with the baseline wind farms with a proposed scheme in its own right or with the baseline plus other potentially relevant additional proposed schemes can arise in three reasonably distinct ways.

Comment [I115]: Jeff Stevenson: added

Comment [I116]: Jeff Stevenson: added

First there is the effect of an extension of an existing development or the positioning of a new development such that it would give rise to an extended and/or intensified impression of a pre-existing wind farm in the landscape as seen from fixed or transitory locations. This type of cumulative effect is referred to in SNH literature within the 'static combined/simultaneous' category.

Second, cumulative effect can arise through an increase in the perceptions of wind farm development as seen from fixed points from which more than one wind farm would now be seen in different parts of the landscape. Sometimes this is disaggregated between situations in which the viewer holds her or his head still (SNH's static combined in combination) or moves it (static combined in succession). This latter point seems to be a somewhat unnecessary distinction given the tendency for viewers to look around the landscape, notably where panoramas are available. However, it is a distinction which is made by SNH and can be more relevant perhaps when the observer faces or visualises one wind farm with another in the opposite direction behind her/his back.

Third, an increase in the incidence of sequential perceptions of different turbines can occur through the recurrence of images and impressions arising from developments which are located at various points in the landscape and which are encountered when moving through it.

As noted, Scottish Natural Heritage has evolved guidance on this subject. Their approach is set out the Table below.

Cumulative Visual Assessment – Types of Effect

<u>GENERIC</u>	<u>SPECIFIC</u>	<u>CHARACTERISTICS</u>
<u>COMBINED</u>	<u>In Combination</u>	<u>Where several wind farms are</u>

Occurs where the observer is able to see two or more developments from one viewpoint.

In Succession

or would be within the observer's arc of vision at the same time without moving her/his head.

Where the observer has to turn her/his head to see the various wind farms – actual and visualised.

SEQUENTIAL

Frequently Sequential

Frequently sequential means the features appear regularly and with short time lapses between, depending on speed of travel and distance between the viewpoints.

Occurs when the observer has to move to another viewpoint to see different developments. Sequential effects should be assessed for travel along regularly-used routes like major roads or popular paths.

Occasionally Sequential

Occasionally sequential means long time lapses between appearances would occur because the observer is moving very slowly and / or there are large distances between the viewpoints.)

Cumulative landscape effects would occur when the presence of additional wind farm development would be sufficient to extend the geographical limits of existing character effects or when the added presence of non-contiguous wind farm development would be sufficient to combine perceptions of local characterising effects into a more substantial and continuous landscape subtype or to transform/re-define the relevant local landscape character area(s). In essence, it is necessary to assess *'whether the wind farms, cumulatively would dominate or be seen to dominate the landscape character area. If so, they would become the key landscape characteristic and the landscape character would change.*

Where the landscape in question is rare the result would be the loss of a landscape resource. However, if there are other unaffected units of this character type, this may result in only local change.¹

ANNEX 5

Comment [I117]: Jeff Stevenson: added

SNH have stated that: 'An assessment of cumulative effects associated with a specific development proposal should be limited to the effects of the proposal in combination with: existing development, either built or under construction; approved development awaiting implementation; and proposals awaiting determination within the planning process and thus for which design information is within the public domain.'²

This has been re-stated in slightly different form in para 51 of SPP6 (2007) under the heading 'Cumulative Impacts': 'In reaching decisions on individual applications, planning authorities should take account of those projects **in the vicinity** that have been built, those which have permissions and those that are currently the subject of valid but undetermined applications.' [Emphasis added.]

ANNEX 6

Comment [I118]: Jeff Stevenson: added

Text from SNH [in addition to SNH Guidance; **Cumulative Effect of Windfarms; Version 2 Revised April 2005**] which may be useful:

Scoping Issues for Wind Farm EIA; 4th Draft September 2006

¹ SNH Guidance; *Scoping Issues for Wind Farm EIA*; 4th Draft September 2006; 8.7.2

² SNH Guidance; *Cumulative Effect of Windfarms; Version 2 Revised April 2005*

8.0 Assessment of Cumulative Impacts

8.1 Introduction / General

8.1.1 It is established planning practice that the cumulative impacts likely to arise from the proposal in conjunction with other developments approved and / or in the planning system, should be assessed. The local planning authority should confirm which other developments and proposals should be considered in an assessment of cumulative impacts. SNH guidance for this aspect of assessment is available on our website: (<http://www.snh.org.uk/pdfs/strategy/cumulativeeffectsonwindfarms.pdf>). The following points should be considered as initial advice on methodology.

8.1.2 The methodology used to assess cumulative impacts should be clearly explained. It should be based on the GLVIA and, whether it follows the draft guidance here or not, the reasoning behind judgements should be made clear. This is because, as noted in section 8.2 below, there is more than one type of cumulative impact and their assessment quickly becomes complicated.

8.1.3 The purpose of a cumulative assessment is not to find whether any one of the proposals is “right” or “wrong” individually. Instead, it should be focused on the additional impact of another windfarm, assuming that the previous developments have been built. As with individual assessments, analysis of cumulative impacts should be an iterative process that informs the design of the proposed windfarm. As a generalisation, new developments should be designed to integrate with the preceding one(s), provided the initial developments correspond reasonably well to their surroundings.

8.2 Types of Cumulative Impacts

8.2.1 Cumulative effects on visual amenity consist of combined visibility and sequential effects. In more detail:-

- Combined visibility occurs where the observer is able to see two or more developments from one viewpoint, without moving his or her head.
- Successive or repetitive visibility occurs where the observer is able to see two or more windfarms from one viewpoint but has to move his or her head to do so.
- Sequential effects occur when the observer has to move to another viewpoint to see other developments, or a different view of the same development. The occurrence of sequential effects may range from frequent (the features appear regularly and / or with short time lapses between them, depending on speed of travel and distance); to occasional (long time lapses between appearances because the observer is moving slowly and / or there are large distances between the viewpoints). It may also be that sequential impacts tend to be greater where windfarms are seen from a single route, even where there are considerable distances between them, or if the windfarms are within the same landscape character type.

8.3 Zones of Theoretical Visibility

8.3.1 Where cumulative impacts need to be assessed, Zones of Theoretical Visibility should be produced for each windfarm and overlain with each other; preferably on one map but this may not be practicable or legible if too many windfarms are being assessed. The visibility of each windfarm should be clearly distinguished on the map(s). The base maps should be OS 1:50,000 scale or as otherwise decreed by the planning authority, possibly in consultation with SNH. See also Section 4 above on ZVI.

8.3.2 The radius for cumulative Zones of Theoretical Visibility should be agreed with the planning authority in consultation with SNH. An initial area of search for cumulative impacts should be twice the radius of the ZVI

for the proposed single windfarm. Within this area the study area for cumulative impacts will be determined by consideration of factors such as important viewpoints; transport routes, recreational foci etc. This should indicate how the landscape is likely to be experienced and, thereby, the area within which cumulative impacts will probably be significant.

8.4 Scale and Duration of impacts

Scale of proposal

8.4.1 The extent of key views that the windfarms will seem to occupy needs to be made clear by, say, giving an indication of the proportion of the whole view or skyline that would be affected. The cumulative visual prominence of windfarms in the view needs to be assessed, e.g. the increase in the proportion of a view that would be occupied by windfarms, and whether views to other features would be maintained or not.

8.4.2 The direction of views to the windfarms should also be described and their impacts assessed. For example, a proposal that would result in all directions from a location having views to a windfarm is likely to have a greater impact than a proposal that left arcs of the view clear of such views.

8.4.3 Distance will affect the apparent size and scale of the proposal. For this reason the distance to the nearest turbine from any assessed viewpoint should be stated. Factors such as whether the proposal would be seen “back-clothed” or skylined, the openness of the view; and its relationship to other features will also influence the perceived scale of the proposal.

8.4 Duration of effect

8.4.4 Generally, the longer a view lasts the greater the magnitude of impact. This is dependent on the speed of travel as well as the direction and openness of the view.

Thus, residents, walkers and cyclists are rated as more sensitive than drivers. Conversely, however, a sudden, surprising, or intermittent first view of a windfarm can be startling and this would increase the impact. The gap between views of the windfarms is also important when considering sequential views.

8.5 Separation

8.5.1 The amount of separation between the proposed windfarm and other windfarms is important. Separation can be real or apparent. Factors involved include the distance(s) between windfarms; whether one is clearly more dominant or distant compared to the other(s); and the effect of landform and other features. The degree of perceived separation may be affected if the windfarms convey different images or designs.

8.5.2 Separation should be detailed in terms of straightforward distance(s), and times for sequential impacts, but also analysed for how a new windfarm will appear relative to others. For example, will the windfarms seem part of one (large) development or will they be clearly separate? Details should be given of how this relationship will vary from different locations. Greater separation may be judged to be beneficial if the designs of the windfarms are very different. Conversely, for example, where the impression of one large windfarm could be gained then lesser separation may be preferable. Much of this will depend on the relationship of the windfarm(s) to character type.

8.5.3 The impact of separation on sequential cumulative impacts needs to be assessed. The amount of space or time available between windfarms views whilst travelling should be stated and analysed. For example, it should be noted whether there is time to appreciate the landscape characteristics of an area without the potential

distraction of approaching (yet) another windfarm having just passed one.

8.5.4 At one 'extreme' level of separation there could be visual overlap between windfarms. If the turbines of separate windfarms will overlap when viewed from some directions / locations this needs to be made clear. If overlap will occur then it needs to be assessed: the extent of overlap should be stated, perhaps as a percentage. It will also be important to assess how the windfarms would overlap, for example if they will be side-by-side or if one will be in the foreground of the other. The impact of any difference in layout design between the windfarms should also be assessed. For example, would overlap mean that the simplicity of one development becomes regarded as much more complex and confusing.

8.6 Design

8.6.1 Any similarities and differences between the proposed development and others need to be stated. Details should include turbine size (both tower height and blade tip height), turbine type, blade rotation speed (and direction). The design and layout of each windfarm should be described. All these attributes should then be assessed for their landscape and visual impacts. For example, a view of larger wind turbines in the foreground and smaller wind turbines in the background could exaggerate the apparent distance in a landscape.

8.7 Landscape character

8.7.1 If more than one windfarm is located within the same character type their design and relationship to the landscape should be similar. If this does not occur then a viewer is likely to question whether one or another of the windfarms is appropriately designed. Conversely, if the windfarms are of a similar and appropriate design

and relationship to the landscape, they may seem to reinforce their appropriateness for that landscape.

8.7.2 It should be assessed whether the windfarms, cumulatively, would dominate, or seem to dominate, the landscape character area. If so, they would become the key landscape characteristic and the landscape character would change. Where the landscape in question is rare the result would be the loss of a landscape resource. However, if there are other unaffected units of this character type, this may result in only local change.

8.7.3 It should be established if windfarms in a particular area would be linked to other elements in the landscape by association. For example, they may always be associated with hill tops, the coast or even particular powerline routes. Where this is the case, the character of other areas of a region may seem unaffected. However, if the windfarms seem associated with a wide range of characteristics, they may seem unpredictable in their location, and thus seem to affect the landscape experience of an entire area.

8.8 Visual impacts / considerations

8.8.1 The impact that more than one wind farm could have on the pattern of visual foci in a landscape needs to be assessed. This is because while one windfarm may create a single feature, two or more may create a different pattern or a collective linear element.

8.8.2 The degree of visual confusion or integration between windfarms should also be described and assessed (see also section 8.5 above). This would take into account aspects such as level of separation or visual overlap, and the design of individual windfarms. It also related to whether any differences are evident in windfarm design, or in the relationship between the windfarm and landscape character.

