Planning Guidance for Wind Turbine Development
Landscape and Visual Impact Assessment Requirements

DRAFT FOR CONSULTATION

Prepared by Gillespies LLP
for
The Heads of the Valleys
Landscape Officers and Planners
with support from
The South Wales Landscape Liaison Group

Introduction

The Purpose of the Guidance

Who should use this Guidance?

This guidance is intended for:

- anyone considering submitting a planning application for onshore wind turbine development (Developers); and
- Planning Authority Planning Policy and Development Management Officers (Local Planning Officers) dealing with pre-application enquiries or with planning applications for wind turbine development.

This guidance is primarily aimed at small scale wind trubine devlopment although the principles set out in the guidance apply across all scales of development, including large scale wind farms.

This guidance is only concerned with landscape and visual issues and does not address other potential environmental impacts.

Does the Development require an Environmental Impact Assessment?

Environmental assessment is a procedure that ensures that the environmental implications of proposals are taken into account before decisions are made. An Environmental Impact Assessment (EIA) assesses the possible impact that a proposed project may have on the environment and this information is submitted to the Local Planning Authority (LPA) or the Welsh Government in the form of an Environmental Statement (ES).

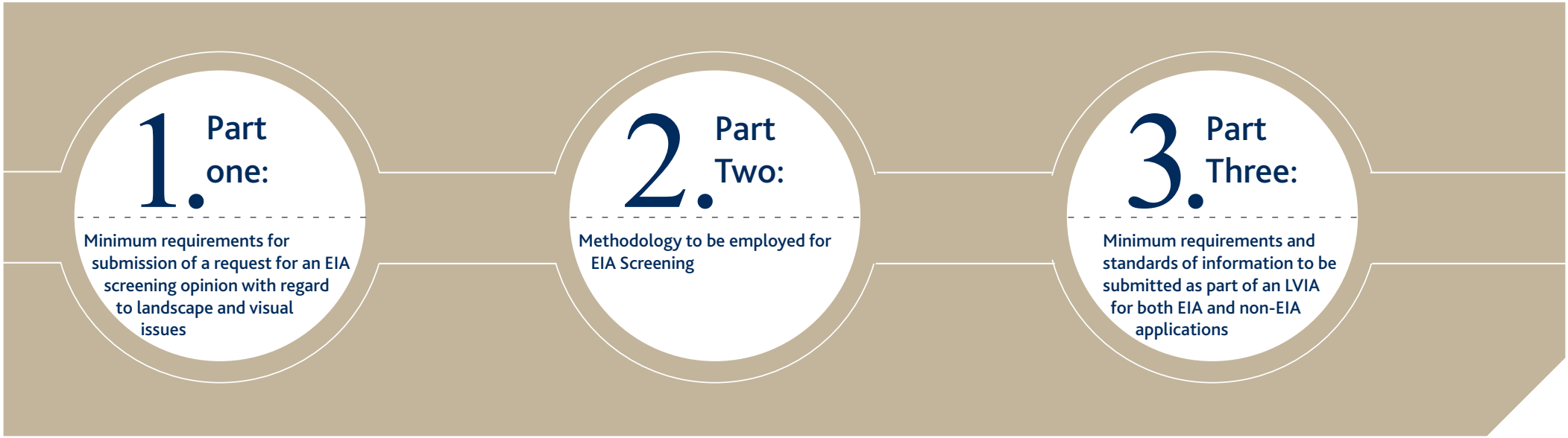
The Town and Country Planning Environmental Impact Assessment (England and Wales) Regulations 1999 (EIA Regulations) set out which developments require an EIA. An EIA is required for proposals likely to have significant effects on the environment by virtue of their nature, size or location. The National Assembly for Wales Planning Series includes a Quick Guide to Environmental Impact Assessment.

Wind turbine development which involves the installation of more than 2 turbines, or where the hub height of any turbine or height of any other structure exceeds 15 metres, is classed as a Schedule 2 development under the EIA Regulations.

A Developer of a Schedule 2 wind turbine development may:

- decide that an EIA is required and submit an ES with the planning application; or
- before submitting a planning application, request a **screening opinion** from the LPA.

There is a statutory obligation for the LPA to provide a screening opinion stating whether or not an Environmental Impact Assessment is required.



Introduction

The Structure of the Guidance

Overview

Parts 1 and 2 of this guidance are intended to help LPAs determine whether a Schedule 2 wind turbine development is likely to have significant effects on the landscape or on visual amenity by virtue of its nature, size or location. An EIA will be required if it is considered likely that significant effects may arise.

Part 3 sets out the minimum requirements and standards of information to be submitted with a landscape and visual impact assessment (LVIA). All wind turbine applications will require some consideration of landscape and visual impact.

This guidance reflects the principle that potential landscape and visual impacts from wind turbine development are related to the size and scale of the proposed development and to the sensitivity of the location. Consequently, the information sought and the level of LVIA required from Developers will be determined by:

- the scale of the proposal; and
- the sensitivity of the location.

Table 1 sets out a series of typologies for wind turbine develoment. The typologies are determined by the height to blade tip of the turbine(s) and the number of turbines. The level of LVIA required will usually be less for smaller proposals than for larger proposals.

LANDMAP is the Welsh approach to landscape assessment. All LVIAs should use LANDMAP data to inform their assessments.

Online Wind Turbine Database for South Wales

LVIAs for wind turbine development require a consideration of cumulative landscape and visual impacts (CLVIA) that may arise as a result of other wind turbine development. To assist in the preparation of CLVIAs an **Online Wind Turbine Database for South Wales** (Online Database) has been developed. The Online Database contains information on the dimensions and location of all operational and consented turbines and turbines for which a planning application has been submitted. The latter are described in this guidance as 'in planning' turbines.

For cumulative assessment purposes the typologies relate only to the height of the operational, consented and in planning turbines. Turbines within the database will be classified according to their height to blade tip only.

In the future the Online Database will also contains information on turbines for which a screening opinion has been requested and applications that have been refused or withdrawn. Details on how to access the Online Database can be found at the end of this Guidance.

Introduction

Typology

Table 1: Typologies

	Turbines development in this typology will have a blade tip height of:	and will consist of:
MICRO (Mi)	25m or less or roof mounted	Only one turbine
SMALL (S)	50m or less	Three turbines or fewer
MEDIUM (M)	80m or less	Four turbines or fewer
LARGE (L)	109m or less	Five turbines or fewer
VERY LARGE (VL)	More than 109m	Any number of turbines

Note: Any group of six or more turbines will belong to the very large typology irrespective of the height of the turbines.

To decide in which typology a development belongs it must satisfy **both** the height and the turbine numbers criteria. See the examples on page 0.5.

Introduction

The Structure of the Guidance

Part 1:
Minimum requirements for submission of a request for a screening opinion

Part 1 of the guidance sets out the minimum information that Developers should provide in order that Local Planning Officers can determine whether a particular development is likely to have a significant effects on the landscape or on visual amenity and therefore require an EIA.

Part 2:
Methodology for EIA Screening

Part 2 of the guidance contains a methodology for Local Planning Officers to use when determining whether an EIA is required. The methodology provides a clear indication of how the information required (as set out in Part 1) will be used to determine:

- the characteristics of the development; and
- the environmental sensitivity of the geographical areas likely to be most affected by the development.

This information, considered in the light of the potential impacts, will determine whether an EIA is required due to likely significant effects on the landscape or on visual amenity.

The screening criteria in Parts 1 & 2 are indicators of the key landscape and visual issues likely to arise in relation to small scale wind turbine development and include the likelihood of:

- significant impacts on sensitive landscape receptors;
- significant impacts on residential properties and other sensitive visual receptors; and
- cumulative effects with other wind turbine developments and with existing large scale infrastructure.

The screening criteria use distances, defined by the typology to indicate the potential for sensitive receptors to be significantly affected by the development. **These distances are indicative and not absolute. Each development will raise its own issues and will be considered by the LPA on a case-by-case basis**.

Sensitive landscape and visual receptors are not necessarily the same as 'sensitive areas' as defined in the EIA regulations.

Part 3:
Minimum Requirements for EIA and Non–EIA Development

Part 3 of the guidance identifies the minimum requirements for the landscape and visual information to be submitted with a planning application for wind turbine development. It is based on the different typologies and should be used to agree the scope of the LVIA with the LPA. Associated infrastructure (e.g. access tracks, and grid connection where known) should be considered as part of the assessment.

It is likely that all wind turbine development where the turbine height to blade tip is greater than 80m or where there are more than five turbines will require an EIA although if requested an LPA will provide a screening opinion. All wind turbine development of this scale will require a detailed LVIA. It is recommended that Developers proposing wind turbines of this scale should move to Part 3 of the guidance which sets out the minimum requirements and standards of information to be submitted which should be used as the basis for agreeing the scope of the LVIA with the LPA

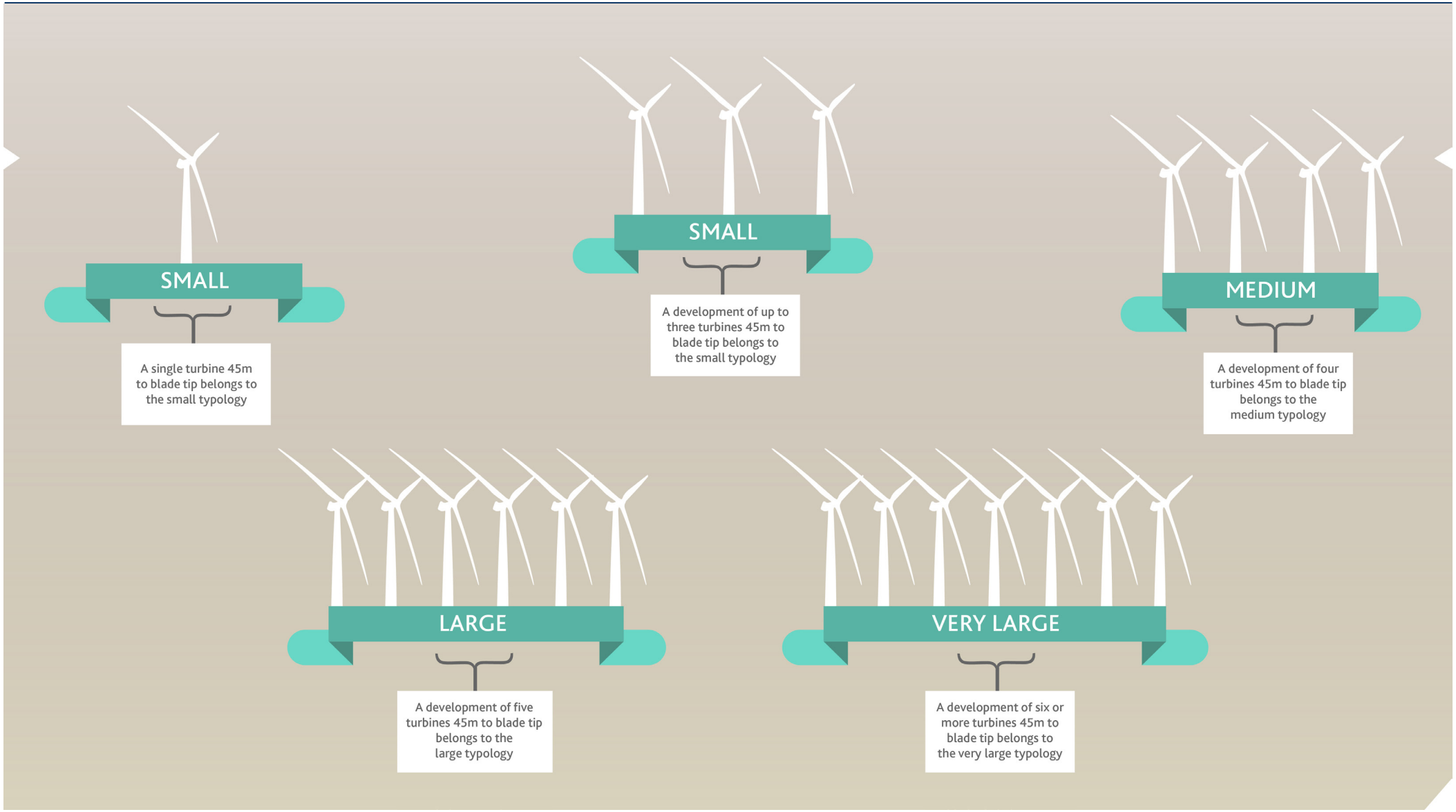
Agreeing the scope of the LVIA is important both for EIA and non-EIA development. Part 1 and Part 3 of the Guidance should be used by Developers to inform Scoping Reports for LVIA and by Local Planning Officers when agreeing the scope of the LVIA.

Throughout this guidance the information required is determined by the typology into which the development falls.

Introduction

Typologies: Illustrative Example

Figure - 1 Illustrative example of the relationship between turbine height, number and typology



1. Part one:

Minimum requirements for submission of a request for an EIA screening opinion with regard to landscape and visual issues

Part One: Minimum requirements for submission of a request for an EIA screening opinion

Introduction

Scope of this Section

This section sets out the minimum requirements for submission of a request for an EIA screening opinion with regard to landscape and visual effects only. This includes visual effects on residential properties (a residential visual amenity assessment). It does not include the requirements for a screening opinion with regard to other environmental impacts, such as ecology or cultural heritage, or for other residential amenity issues such as noise or shadow flicker.

Table 2 opposite:

- sets out the criteria for determining the typology of a development; and
- the study area required for each typology.

Part One contains four sections

Section A: Information to be provided with all requests for screening opinions

Section B: Information to be provided with requests for screening opinions for Micro developments

Section C: Information to be provided with requests for screening opinions for Small developments

Section D: Information to be provided with requests for screening opinions for Medium developments

Large and very large developments will require a detailed LVIA and Developers should refer to Part 3 of this guidance.

Table 2: Typology and Study Areas

TYPOLOGY	HEIGHT	TURBINE NUMBERS	STUDY AREA
	Turbine development in this typology will have a blade tip of:	and will consist of:	
MICRO (Mi)	25m or less or roof mounted	Only one turbine	2km
SMALL (S)	50m or less	Three turbines or fewer	5km
MEDIUM (M)	80m or less	Four turbines or fewer	8km
LARGE (L)	109m or less	Five turbines or fewer	11km
VERY LARGE (VL)	More than 109m	Any number of turbines	15km

Note: Any group of six or more turbines will belong to the very large development typology irrespective of the height of the turbines.

The study area is the minimum that will be required for a typical development.
A larger study area may be required if particularly sensitive landscape / visual receptors are located beyond the study area. This may result in an asymmetrical study area and should be agreed on a case by case basis.

Part One: Minimum requirements for submission of a request for an EIA screening opinion

Section A: Information to be provided for all screening requests

Information required	Notes
a1. Turbine Typology	From Table 2 Above
a2. Maximum height to blade tip	A dimensioned plan will be required at the application stage
a3. Height to hub	
a4. Rotor diameter	
a5. Number of turbines	A development of five turbines or more will require a detailed LVIA
a6. A six figure easting and six figure northing grid reference should be provided for each turbine.	
a7. 1:2,500 location plan	Plans to be based on an Ordnance Survey extract giving sufficient information to indicate the position of the application turbine(s) in the landscape.
a8. 1:500 site plan	Plans should provide basic topographic information for the site and its surroundings in the form of contour lines.
a9. Scaled plan showing the study area (See Table 2) on A3 sized paper.	The scale of the plan will be determined by the extent of study area required.

Part One: Minimum requirements for submission of a request for an EIA screening opinion

Section B: Information to be provided for a MICRO development

Sensitive landscape and visual receptors

Sensitive landscape and visual receptors should be identified according to the distance from the turbine as set out below. Each sensitive landscape or visual receptor should be:

- identified by name; and
- shown on one of the plans submitted.

Information regarding the distances between the receptors and the application turbine(s) should be provided in a table.

Distances given are from the application turbine or from the nearest application turbine when the proposal is for more than one turbine.

Within 10x the height to blade tip:

b1 World Heritage Site

b2 Statutorily designated landscape (National Park, Area of Outstanding Natural Beauty)

b3 Locally designated landscape (e.g. Special Landscape Area) or Heritage Coast

b4 LANDMAP aspect areas where the overall evaluation for Visual and Sensory, Historic Landscape or Geological landscape is Outstanding

b5 Land on the Register of Landscapes of Historic Interest in Wales or Land on the Register of Parks and Gardens of Special Historic Interest in Wales

b6 Residential Property

Operational, consented or in planning (OCP) turbine development:

b7 Using the Online Database identify all OCP turbines within 2km.
Each OCP turbine or group of turbines should be:

- identified by name; and
- shown on one of the plans submitted.

Information should be provided in a table regarding the distances between the OCP turbines and the turbine that is the subject of the application.

Part One: Minimum requirements for submission of a request for an EIA screening opinion

Section C: Information to be provided for a SMALL development

Sensitive landscape and visual receptors

Sensitive landscape and visual receptors should be identified according to the distance from the turbine as set out below. Each sensitive landscape or visual receptor should be:

- identified by name; and
- shown on one of the plans submitted.

Information regarding the distances between the receptors and the application turbine(s) should be provided in a table.

Distances given are from the application turbine or from the nearest application turbine when the proposal is for more than one turbine.

Within 2km:

c1 World Heritage Site

c2 Statutorily designated landscape (National Park, Area of Outstanding Natural Beauty)

Within 1km:

c3 Locally designated landscape (e.g. Special Landscape Area) or Heritage Coast

c4 LANDMAP aspect areas where the overall evaluation for Visual and Sensory, Historic Landscape or Geological landscape is Outstanding

c5 Land on the Register of Landscapes of Historic Interest in Wales or Land on the Register of Parks and Gardens of Special Historic Interest in Wales

c6 An ancient monument, listed building or conservation area

c7 National Trail

Within 10x the height to blade tip

c8 Residential Property

Operational, consented or in planning (OCP) turbine development:

c9 Using the Online Database identify:

- **all** OCP turbines within 2km; and
- **small, medium, large or very large** OCP turbines within 8km.

Each OCP turbine or group of turbines should be:

- identified by name; and
- shown on one of the plans submitted.

Information should be provided in a table regarding the distances between the OCP turbines and the turbine or nearest turbine that is the subject of the application.

c10 Other large scale infrastructure (e.g. pylons, motorways, major trunk roads and telecommunications masts) within 1km should be:

- identified by name; and
- shown on one of the plans submitted;

Information should be provided in a table regarding:

- the distances between the large scale infrastructure and the turbine or nearest turbine that is the subject of the application; and
- the heights of vertical structures such as masts and pylons.

Part One: Minimum requirements for submission of a request for an EIA screening opinion

Section D: Information to be provided for a MEDIUM development

Sensitive landscape and visual receptors

Sensitive landscape and visual receptors should be identified according to the distance from the turbine as set out below. Each sensitive landscape or visual receptor should be:

- identified by name; and
- shown on one of the plans submitted.

Information regarding the distances between the receptors and the application turbine(s) should be provided in a table.

Distances given are from the application turbine or from the nearest application turbine when the proposal is for more than one turbine.

Within 3km:

d1 World Heritage Site

d2 Statutorily designated landscape (National Park, Area of Outstanding Natural Beauty)

Within 1.5km:

d3 Locally designated landscape (e.g. Special Landscape Area) or Heritage Coast

d4 LANDMAP aspect areas where the overall evaluation for Visual and Sensory, Historic Landscape or Geological landscape is Outstanding

d5 Land on the Register of Landscapes of Historic Interest in Wales or Land on the Register of Parks and Gardens of Special Historic Interest in Wales

d6 An ancient monument, listed building or conservation area

d7 National Trail

Within 10x the height to blade tip:

d8 Residential Property

Operational, consented or in planning (OCP) turbine development:

d9 Using the Online Database identify

- **all** OCP turbines within 2km;
- **small** OCP turbines within 8km; and
- **medium, large or very large** OCP turbines within 12km.

Each OCP turbine or group of turbines should be:

- identified by name; and
- shown on one of the plans submitted.

Information should be provided, either on a plan or in a table, regarding the distance to the turbine proposed or the nearest turbine when the proposal is for more than one turbine.

d10 Other large scale infrastructure (e.g. pylons, motorways, major trunk roads and telecommunications masts) within 1.5km should be:

- identified by name; and
- shown on one of the plans submitted;

Information should be provided in a table regarding:

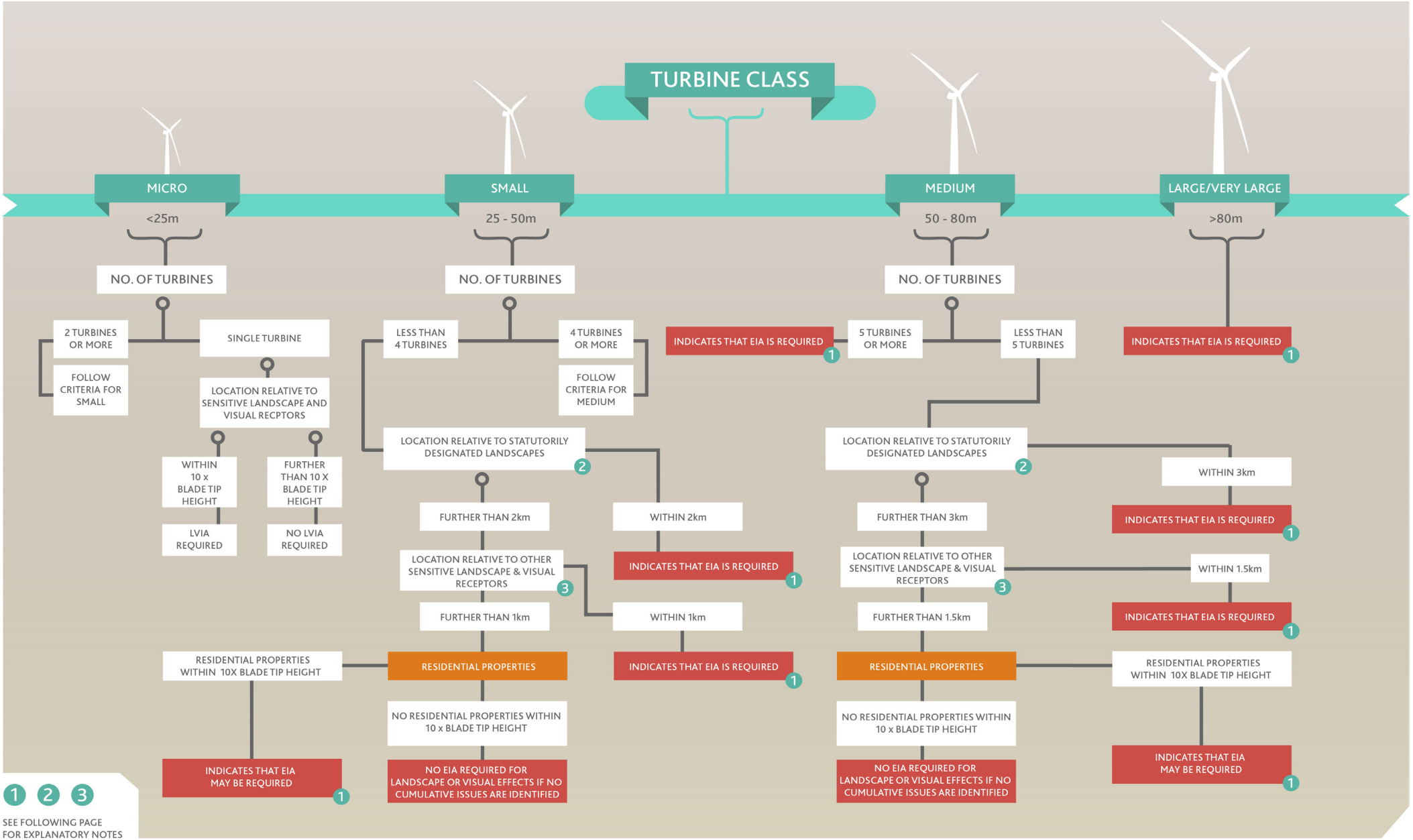
- the distances between the large scale infrastructure and the turbine or nearest turbine that is the subject of the application; and
- the heights of vertical structures such as masts and pylons.

2. Part two:

Methodology to be employed for EIA Screening with regard to Landscape and Visual Issues

Part Two: Methodology for EIA Screening

Figure 2: Methodology Flow Chart



Part Two: Methodology for EIA Screening

Explanatory notes

Note 1

Indicates that an EIA may be required

It is likely that a development that meets these criteria will require an EIA. However where the development only just meets the criteria the screening process should continue. For example where a turbine is at the lowest end of its typology (e.g. a 26m blade tip height turbine in the small typology) or is only just within the distance specified (e.g. a small turbine is 1.9km from a statutorily designated landscape) a judgement can be made to move on to the next criteria.

If the landscape and visual impact of a development is the only aspect that appears to require an EIA the scope of the EIA may be narrow. For example it could be restricted to a Residential Visual Amenity Assessment. The screening process will identify the key sensitivities that must be considered in the LVIA whether it is undertaken as part of the EIA or as a standalone assessment.

Note 2

Statutorily designated landscape

National Park,
Area of Outstanding Natural Beauty

Although not statutorily designated World Heritage Sites should be included at this stage of the screening.

Note 3

Other sensitive landscape and visual receptors

Locally designated landscape
(e.g. Special Landscape Area)

Land on the Register of Landscapes of Historic Interest in Wales

Land on the Register of Parks and Gardens of Special Historic Interest in Wales

Heritage Coasts

LANDMAP Aspect Area that has an overall evaluation of *Outstanding* for the Visual and Sensory layer, the Historic Landscape layer or the Geological layer.

Ancient monument
Listed building
Conservation area
(These will also be considered in the cultural heritage assessment)

National Trail

If a Developer considers that no significant effects are likely to arise within the specified distance a justification with supporting evidence may be submitted with the screening opinion. For example, evidence to support a claim that no residential properties within 10x the blade tip height would be subject to significant visual effects because all properties within that distance are effectively screened by existing vegetation.

It is important to note that the distances given in Part 1 and in the Methodology Flow Chart are the distances at which it is considered that the presence of a sensitive landscape or visual receptor might trigger an EIA.

The LVIA must assess all sensitive landscape and visual receptors within the study area required for the typology, with the exception of residential properties.

The study areas for residential visual amenity assessments should be 10x the blade tip height or as agreed in scoping .

Part Two: Methodology for EIA Screening

Cumulative Issues

An EIA may be required due to potential significant cumulative effects. The potential for a cumulative effect will depend on the proximity of other turbines and their typology. For example an existing micro turbine might raise cumulative issues but only if it is within 2km.

Table 3: Cumulative Search Areas sets out the distances at which the various typologies need to be considered in a CLVIA. For example an application for a medium typology development would need to consider the following operational, consented or in planning turbines:

- Micro turbines within 2km,
- Small turbines within 8km and
- Medium, large or very large turbines within 12km.

Table 3: Cumulative Search Areas

Typology of Operational, Consented or in Planning Turbine(s)	Typology of Application Turbine(s)				
	Mi	S	M	L	VL
	<25	25-50	50-80	80-109	>109
Mi	2km	2km	2km	2km	2km
S	2km	8km	8km	8km	8km
M	2km	8km	12km	12km	12km
L	2km	8km	12km	17km	17km
VL	2km	8km	12km	17km	23km

Within the Online Database the typology will be determined by the height to blade tip criteria only.

Turbines that are operational, consented or in planning (OCP) can be scoped out if they are outside the search area relevant to their typology. For example no micro turbines beyond 2km need to be considered in CLVIA. For more details on cumulative search areas see Table 7 and Figure 3 in Part 3 of this Guidance.

The distances given in Table 3 are reflected in the information requested in Part 1. OCP turbines that fall within the relevant search areas must be considered in a CLVIA.

An EIA will be required if it is considered that the number of OCP turbines, or the presence of existing large scale infrastructure is likely to give rise to significant impacts.

Table 4 sets out the thresholds at which an EIA may be required on account of potential cumulative impacts with regard to other infrastructure. Large and very large developments will always require a detailed LVIA and CLVIA.

Table 4: Cumulative Thresholds : Other Infrastructure

Typology	No. of Operational, consented and in planning turbines	Occurrence of large scale infrastructure
Micro	More than 5 turbines	2 or more within 10x blade tip height
Small	More than 10 turbines	2 or more within 1km
Medium	More than 15 turbines	2 or more within 1.5km

Part Two: Methodology for EIA Screening

Important Note

This guidance is intended to help Developers and Local Planning Authorities decide on whether an EIA is required on account of likely significant landscape and visual effects.

Where it is determined that no EIA significant effects are likely and an EIA is not required this does not automatically imply that the effects that do occur are acceptable or that an application will be approved.

Landscape and visual effects that are not considered EIA significant may still be relevant to the planning balance to be struck between the benefits of the development and any identifiable harm.

3. Part three:

Minimum requirements and standards of information to be submitted as part of an LVIA for both EIA and non-EIA applications

Part Three: Minimum Requirements and Standard of Information for LVIAs

Section A: Information to be provided for all applications

Scoping

Agreeing the scope of the LVIA is important both for EIA and non-EIA development. Parts 1 and 3 of this Guidance identify the information that will be required for each typology and should be used by Developers to inform Scoping Reports for LVIA. Parts 1 and 3 of this Guidance should also be used by Local Planning Officers when agreeing the scope of the LVIA. For ease of reference some of the Tables from Parts 1 and 2 have been repeated in Part 3.

Information	General Requirements
Details of turbine(s)	Typology (Table 2) Maximum height to blade tip Height to hub Rotor diameter Make and model of turbine where known Colour of blades, hub and tower Dimensioned elevations of the turbine A six figure easting and six figure northing grid reference for each turbine
Details of ancillary infrastructure	Details of any other structure, plant or engineering works that are proposed as part of the development including any new tracks and control buildings Details of grid connection where known
Plans	1:2,500 location plan 1:500 site plan Plans to be based on an Ordnance Survey extract giving sufficient information to indicate the position of the application turbine(s) in the landscape and its relationship with other buildings, nearby dwellings, woodland, hedges, rivers and ponds. Plans should provide basic topographic information of the site and its surroundings in the form of contour lines. Access routes from the highway, routes to connect to the electricity network/grid and any associated building should be shown. Plan showing the study area (Table 2) at A3. The scale of the plan will be determined by the extent of Study Area required.

Part Three: Minimum Requirements and Standard of Information for LVIAs

Section A: Information to be provided for all applications

Table 2: Typologies and Study Areas (repeated from Part One above)

TYPOLOGY	HEIGHT	TURBINE NUMBERS	STUDY AREA
	Turbines development in this typology will have a blade tip height of:	and will consist of:	
MICRO (Mi)	25m or less or roof mounted	Only one turbine	2km
SMALL (S)	50m or less	Three turbines or fewer	5km
MEDIUM (M)	80m or less	Four turbines or fewer	8km
LARGE (L)	109m or less	Five turbines or fewer	11km
VERY LARGE (VL)	More than 109m	Any number of turbines	15km

Note: Any group of six or more turbines will belong to the very large development typology irrespective of the height of the turbines.

The study area is the minimum that will be required for a typical development.
A larger study area may be required if particularly sensitive landscape / visual receptors are located beyond the study area.
This may result in an asymmetrical study area and should be agreed on a case by case basis.

Part Three: Minimum Requirements and Standard of Information for LVIAs

Section B: Typology Specific requirements

Table 5: Information required for each Typology

Typology	Study Area	ZTV 1	Visualisations 3	Cumulative Assessment 5	Residential Study Area 6	Application of LANDMAP Data	Seascape Assessment
Micro (Mi) <25m	2km	No 2	Not required	Location plan Written assessment	10 x blade tip height	Identification of Aspect Areas within study area.	
Small (S) 25 - 50m	5km	Yes	3-5 visualisations. If EIA is required the location and number of visualisations will be agreed in scoping. Wirelines without photomontages may be acceptable. 4	Location plan. Cumulative ZTV may be required. Cumulative wirelines / photomontages may be required. Written assessment.	10 x blade tip height	All the Aspect Areas affected by the footprint of the development shoudl be considered in detail. All other Aspect Areas within the ZTV that have Outstanding or High Evaluations should also be considered in detail. LANDMAP Guidance Note 3: Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Wind Turbines provides more detailed guidance (See Part 3: Section C of this guidance).	Where the ZTV for the study area extends across coastal areas the Seascape Assessment of Wales (CCW 2009) and any other local seascape assemsents should be taken into account
Medium (M) 50 - 80m	8km	Yes	5-7 visualisations. If EIA is required the location and number of visualisations will be agreed in scoping. Wirelines without photomontages may be acceptable.	Location plan. Cumulative ZTV likely to be required. Cumulative wirelines / photomontages likely to be required. Written assessment.	10 x blade tip height		
Large (L) 80 - 109m	11km	Yes	The location and number of visualisations will be agreed in scoping. Photomontages and wirelines required.	Location plan. Cumulative ZTV Cumulative wirelines / photomontages required. Full CLVIA.	10 x blade tip height or as agreed in scoping		
Very Large (VL) >109	15km	Yes	The location and number of visualisations will be agreed in scoping. Photomontages and wirelines.	Location plan. Cumulative ZTV. Cumulative wirelines / photomontages. Full CLVIA.	10 x blade tip height or as agreed in scoping		

Part Three: Minimum Requirements and Standard of Information for LVIAs

Section B: Typology Specific requirements

Notes

1

The **Zone of Theoretical Visibility** (ZTV) is a computer generated plan that shows the visibility of the turbine(s) in the surrounding landscape.

ZTVs are based on topography and because they do not take into account screening elements within the landscape such as trees, woodland or buildings they indicate theoretical visibility only.

Sometimes significant screening elements in the landscape, such as settlements and woodlands are mapped to give a more accurate but still theoretical zone of visibility.

2

Micro schemes within 10x blade tip height of a statutorily designated landscape or a World Heritage Site may require a ZTV and visualisations.

3

All locations chosen for visualisations must be within the area where the ZTV indicates that the turbine(s) may be visible.

Visualisations should be representative of the study area and should illustrate a range of distances from the turbine(s). However it is essential that the area closest to the turbine(s) is well represented.

Visualisations should be prepared with reference to either the current Scottish Natural Heritage Guidance or the current Highlands Council Guidance.

Single turbines and small groups of turbines will not usually require panoramic photomontages.

4

Both wirelines and photomontages must be accompanied by a photograph of the existing landscape.

Where wirelines are presented without an accompanying photomontage they should be superimposed on a photograph.

5

For cumulative search areas see Table 3.
For detailed Guidance on CLVIA see P*embrokeshire and Carmarthenshire: Cumulative Impact of Wind Turbines on Landscape and Visual Amenity guidance* prepared for Carmarthenshire County Council, Pembrokeshire Coast National Park Authority, and Pembrokeshire County Council 2013. (See Part 3: Section D of this guidance)

6

The Residential Study Area is the area within which a residential visual amenity assessment should be undertaken. If there are properties just beyond 10x the height to blade tip where clear visibility is indicated these should also be included.

Part Three: Minimum Requirements and Standard of Information for LVIAs
Section C: LVIA Guidance

Key Guidance
Where a wind turbine landscape sensitivity study has been undertaken for the area in which the turbine is proposed it must be considered in the LVIA.
Consideration must be given to the methodology used in the preparation of the relevant sensitivity study.

A range of guidance for the preparation of LVIAs and CLVIAs is available most of which is available online.
There are two key documents with regard to wind turbine development in Wales:

- *Guidelines for Landscape and Visual Impact Assessment Third Edition* (GLVIA3), Landscape Institute and IEMA,2013 (not available online) provides general guidance on best practice with regard to both LVIA and CLVIA.
- *LANDMAP Guidance Note 3: Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Wind Turbines* (Guidance Note 3) is specific to Wales and to wind turbine development.

Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA3)

Guidelines for Landscape and Visual Impact Assessment*:*

- sets out the key principles behind LVIA;
- stresses the importance of proportionality; the length and detail of the assessments should reflect the scale of the development and the sensitivity of the receptors;
- encourages the use of narrative text and analysis; and
- recommends that tables and matrices should be used to support and summarise the descriptive text not to replace it.

Scoping Reports should indicate that they have understood the principles of GLVIA3 and that these principles will be reflected in the assessment.

Establishing the baseline landscape and visual conditions is the first task of an LVIA. In Wales establishing the baseline condition will be informed by an analysis of LANDMAP data alongside any published landscape character assessments. Site survey work is essential to confirm the baseline landscape and visual conditions against which the changes will be assessed.

Landscape effects are effects on the landscape as a resource and on the character of the landscape. Landscape effects should be considered separately to visual effects, which are effects on visual amenity as experienced by people. However, the key effect of wind turbine development on the character of the landscape is as a result of visual changes and the analysis of visual change will inform both the landscape and visual assessment.

Assessing the significance of landscape and visual effects is a matter of judgement. It is essential that the basis of such judgements is clearly expressed so that the underlying assumptions and reasoning can be understood.

A step-by-step approach should be taken to making judgements of significance combining judgements about the sensitivity of the receptor and the magnitude of change.

The LVIA, the CLVIA and the residential visual amenity assessment should be prepared in a manner that will help decision makers understand the significance of proposed changes to the landscape and to visual amenity.

Part Three: Minimum Requirements and Standard of Information for LVIAs

Section C: LVIA Guidance

LANDMAP Guidance Note 3: Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Wind Turbines (Guidance Note 3)

General principles

LANDMAP consists of five spatial layers that are divided up into discrete geographical units (polygons in GIS) known as aspect areas. The five spatial layers are Cultural Landscape, Geological Landscape, Historic Landscape, Landscape Habitats and Visual & Sensory. Together they form a complete all-Wales GIS based landscape resource where landscape characteristics and qualities, and influences on the landscape are recorded and evaluated within a nationally consistent dataset.

LANDMAP Guidance Note 3:

- sets out the essential role of LANDMAP in the LVIA/ EIA process, including at the scoping stage;
- provides advice on the geographical area to assess; and
- advises that larger study areas may be required for particularly sensitive receptors such as National Parks and Areas of Outstanding Natural Beauty

Key principles that underpin the use of LANDMAP when undertaking a wind turbine development LVIA are:

- all five aspect layers should be considered in the assessment;
- the study areas for the different aspect layers will vary; and
- the ZTV and the LANDMAP database should be used to identify where turbines would be visible from aspect areas with high or outstanding overall evaluations. Other aspect areas may not require consideration in the detailed assessment.

Landscape effects on access routes should be assessed as road widening or straightening may have direct impacts on the landscape as well as effects on the existing character of the landscape.

Initial consideration

All aspect layers in which the turbine(s) is located must be considered in the assessment.

For the Cultural Landscape, Geological Landscape and Landscape Habitat aspect layers only the aspect area in which the turbine(s) is located, or immediately adjacent aspect areas, will require consideration.

For the Historic Landscape and Visual & Sensory aspect layers all aspect areas within the study area, as defined in this guidance, should be considered.

Detailed consideration

All aspect layers in which the turbine(s) is located must be considered in the detailed assessment.

A ZTV should be used to scope out aspect areas within the study area, as defined in this guidance, where there is either no visibility or very limited visibility

Aspect areas can be scoped out of the detailed assessment if they:

- do not have an overall evaluation of high or outstanding;
- do not have an evaluation of high or outstanding for scenic quality or character in the Visual and Sensory layer; and
- no turbines are located within them.

Guidance Note 3 includes a summary of the approach. Table 6 has been adapted from Guidance Note 3 but reflects the fact that this Guidance is primarily intended for small scale wind turbine development.

The LANDMAP website should be checked for the current version of Guidance Note 3.

It is essential that the LVIA analyses and interprets the LANDMAP data and does not merely quote from it.

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Table 6: LANDMAP Aspect Areas to be consider in LVIA

Aspect	Aspect areas to be considered	Typical study area radius	Identification of adjacent aspect areas for detailed assessment. All aspects areas in which the turbine(s) is located must be considered regardless of the evaluation.	Useful thematic maps to inform study (can be overlaid with ZTV)
Cultural Landscape	Aspect area in which the turbine(s) is located. Immediately adjacent aspect areas where a special relationship is identified.	>2.5km	Outstanding or high for: • Overall evaluation	Overall evaluation
Geological Landscape	Aspect area in which the turbine(s) is located. Immediately adjacent aspect areas where a special relationship is identified.	>2.5km	Outstanding or high for: • Overall evaluation	Overall evaluation Rarity/uniqueness
Landscape Habitats	Aspect area in which the turbine(s) is located. Immediately adjacent aspect area if connectivity / cohesion is identified.	>2.5km	Outstanding or high for: • Overall evaluation	Overall evaluation Connectivity/cohesion
Visual and Sensory	Aspects areas from which the development would be visible.	Study area according to typology as defined in Table 2	Outstanding or high in any of the following: • Scenic quality • Character • Overall evaluation	Overall evaluation Scenic quality Character
Historic Landscape	Aspects areas from which the development would be visible.	Study area according to typology as defined in Table 2	Outstanding or high for: • Overall evaluation	Overall evaluation

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Other useful guidance

Pembrokeshire and Carmarthenshire: Cumulative Impact of Wind Turbines on Landscape and Visual Amenity guidance
Carmarthenshire County Council, Pembrokeshire Coast National Park Authority, Pembrokeshire County Council 2013

This guidance is considered in more detail in the following section on cumulative assessments.

Designing Wind Farms in Wales
Design Commission for Wales 2012

The purpose of this document is to set out the design objectives and considerations for the sensitive development of large scale wind farms and ancillary development in Wales. This guidance is intended primarily for smaller scale developments but the principles behind it, especially the section on cumulative impacts, are generally of relevance.

Scottish Guidance

A number of guidance documents have been produced by Scottish Natural Heritage. These are specific to Scotland and the Scottish landscape and cover issues other than landscape and visual impact assessment. However, many of the principles are relevant to wind turbine development in Wales. In particular the following documents are useful:

Siting and designing windfarms in the landscape, Version 2
Scottish Natural Heritage 2014

Siting and design for small scale wind turbines between 15 and 50 metres in height
Scottish Natural Heritage 2012

Assessing the Cumulative Impact of Onshore Wind Energy Developments
Scottish Natural Heritage 2012

Photomontage Guidance

There are currently two sets of guidance with regard to the preparation of wind turbine photomontages and an advice note from the Landscape Institute on the general use of Photography and Photomontages in Landscape and Visual Assessment. The Scottish Natural Heritage guidance referenced here is currently under review and Developers should check that they are using the current guidance. Photomontages prepared according to either guidance are acceptable.

Visual Representation of Wind Farms Good Practice Guidance
Envision for Scottish Natural Heritage (2007)

To be consistent with this guidance photomontages should preferably be at least 20cm high and must not be less than 13cm high.

Visualisation Standards for Wind Energy Developments
The Highland Council (2013)

Photography and Photomontages in Landscape and Visual Assessment
Landscape Institute (2011) Landscape Institute Advice Note 01/11

Part Three: Minimum Requirements and Standard of Information for LVIAs
Section D: Cumulative Assessment

Cumulative Landscape and Visual Impact Assessment

All wind turbine development applications need to consider whether a CLVIA is required. A CLVIA will be required if there are operational, consented or in planning turbines (OCP) within the defined search areas set out in **Table 7: Cumulative Study and Search Areas.**

There are two principles underlying Table 7:

- The potential for cumulative impacts is a function of both distance and the height of the turbines. Therefore smaller turbines only need to be considered when they are close to the application turbine(s). Larger turbines potentially have a landscape and visual effect over a much greater distances and therefore it is necessary to consider larger turbines at greater distances from the application turbine(s). The Online Database should enable a quick identification of OCP turbines of different heights.
- Turbines located beyond the study area may have cumulative impacts within the study area. Therefore the area of search is larger than the study area.

Table 7 sets out the search areas for cumulative assessments. Figure 3 provides a diagrammatic representation of how developments outside the study area may give rise to cumulative impacts within it.

The methodology for undertaking a cumulative assessment should be based on the approach set out in *Pembrokeshire and Carmarthenshire: Cumulative Impact of Wind Turbines on Landscape and Visual Amenity guidance* (Pembrokeshire and Carmarthenshire CLVIA guidance) prepared for Carmarthenshire County Council, Pembrokeshire Coast National Park Authority, and Pembrokeshire County Council 2013. CLVIAs should also reflect best practice as set out in GLVIA3.

Figure 3 is derived from Figure 6 of the Pembrokeshire and Carmarthenshire CLVIA guidance.

Developers should refer to the approach adopted in that guidance when undertaking a cumulative assessment although the search and study areas considered should be as set out in this guidance.

Landscape Objectives

The Pembrokeshire and Carmarthenshire CLVIA guidance sets out a number of key objectives for the landscape which have been largely adopted for this guidance.

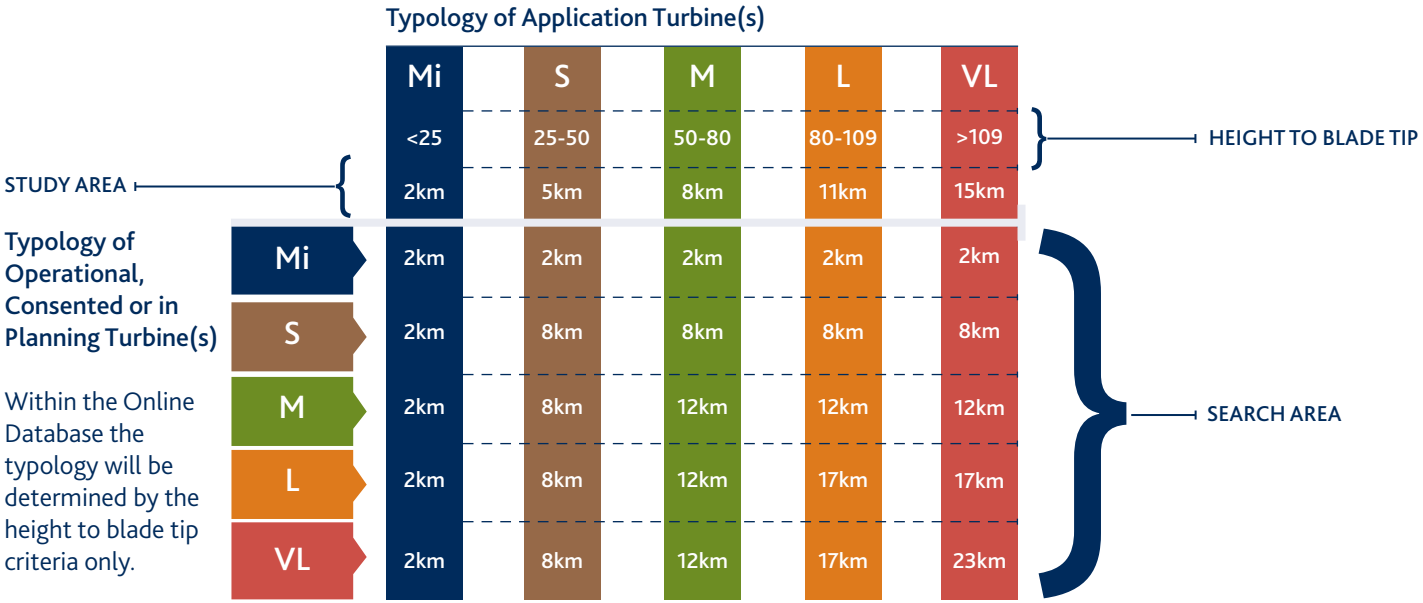
The key objectives are:

- To maintain the integrity and quality of landscape character within nationally designated landscapes:
  no significant adverse change to the special qualities and sensitive characteristics from cumulative wind turbine development. The threshold for acceptable change in these areas is likely to be low.
- In other landscapes outside the strategic search areas, to maintain the landscape character:
  no significant adverse change in landscape character from cumulative wind turbine development. Significant change here is taken to mean where wind turbines become either the dominant or a key characteristic of a landscape, depending on its sensitivity which shall be defined by the assessment.
- Within the strategic search area, to accept landscape change:
  significant change in the landscape character from wind turbine development although not all areas may be suitable and there is still a role for best positioning in the landscape.
- To avoid development which, in combination, creates the experience of a settlement being in a wind turbine landscape, such as wind turbines on two or more sides.
- To avoid development cumulatively creating significant adverse effects on sensitive landscape or visual receptors as defined in Part 2 of this guidance.
- To avoid turbines of markedly different designs or scales being located or viewed in juxtaposition with each other.
- To avoid significant adverse effects when viewed in conjunction with other types of development.

Part Three: Minimum Requirements and Standard of Information for LVIAs

Section D: Cumulative Assessment

Table 7: Study Areas and Cumulative Search Areas



Turbines that are operational, consented or in planning can be scoped out if they are outside the search area relevant to their typology.
For example:

- no micro developments beyond 2km need to be considered in CLVIA;
- no small developments beyond 8km needs to be considered in CLVIA;
- no medium turbines beyond 12km need to be considered in CLVIA.

An application for a large development would need to consider the following operational consented or in planning turbines

- micro turbines within 2km;
- small turbines within 8km;
- medium turbines within 12km; and
- large or very large turbines within 17km

The study area is the minimum that will be required for a typical development.
A larger study area may be required if particularly sensitive landscape / visual receptors are located just beyond the study area. This may result in an asymmetrical study area and should be agreed on a case by case basis.

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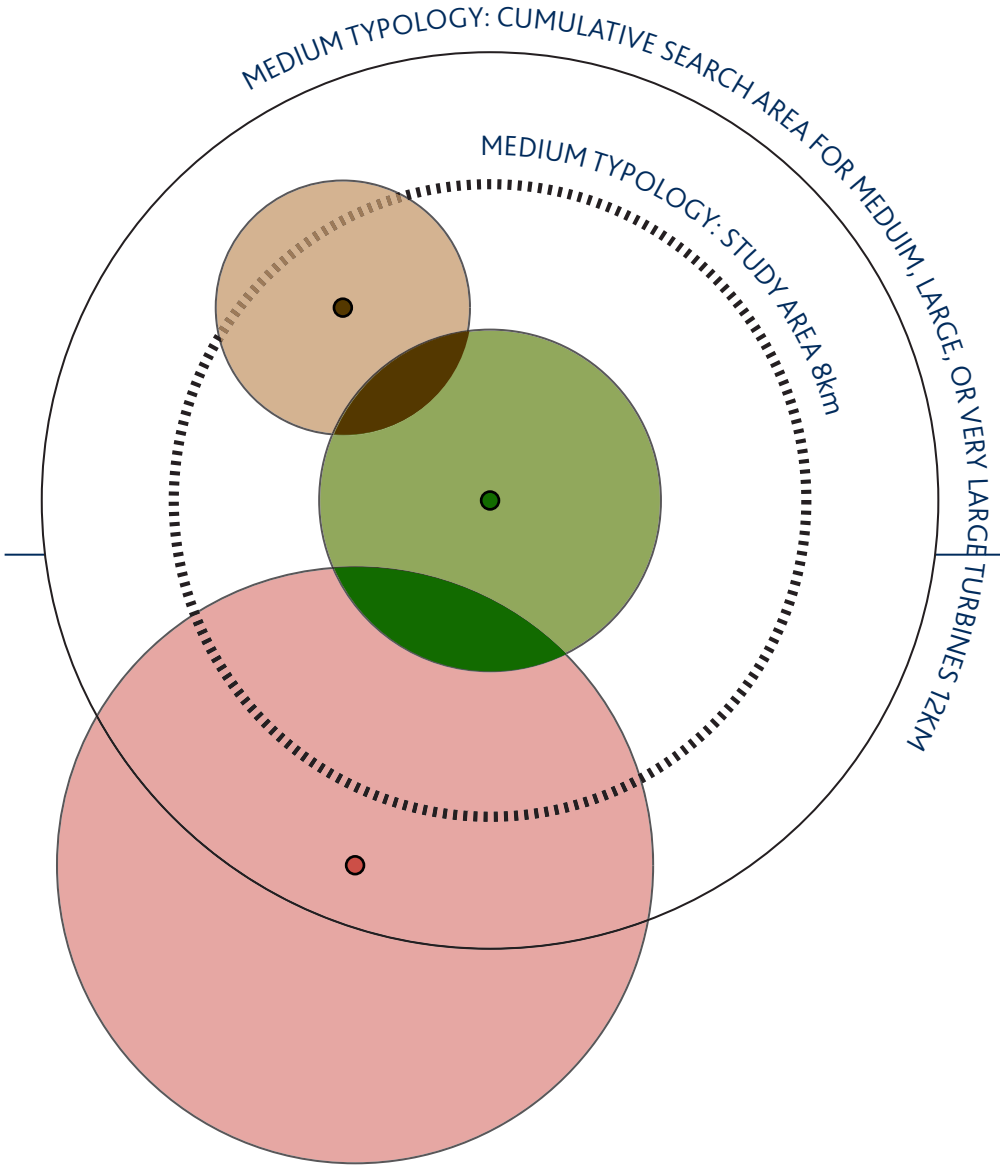
Figure 3 - Diagrammatic representation of Search and Study Areas for a medium typology



Explanatory note for Figure 3

Figure 3 is a diagrammatic representation of Search and Study Areas for a **medium** typology. The study area represents the area in which significant effects **may** occur. The coloured circle for each turbine represents the area within which the assessment has concluded that significant effects **actually** occur. The overlap between the coloured areas represents where significant cumulative effects may occur.

The assessment of effects is limited to the study area but large scale development outside the study area may have effects within it. Figure 3 presents a diagrammatic example of how when undertaking an assessment for a **medium** turbine it is possible for a very large turbine **outside** the study area to result in potential cumulative effects **within** the study area. Consequently the cumulative search area is more extensive than the study areas.

- Medium turbine subject of planning application
- Small turbine
- Very large turbine

Part Three: Minimum Requirements and Standard of Information for LVIAs

Section D: Cumulative Assessment

The cumulative landscape assessment should provide an assessment of combined and additional cumulative landscape effects focussing mainly on interaction with closest turbines. The assessment should identify:

- whether the turbines combined change the landscape character of an area and if so identify the contribution made by the application turbine(s) to that change; and
- whether the combined turbines meet the objective for the area.

Section 3 of the Pembrokeshire and Carmarthenshire CLVIA guidance provides additional guidance.

The cumulative visual assessment should provide an assessment of cumulative visual effects focussing mainly on interaction with the closest turbines. The assessment should identify:

- whether the application turbine(s) is intervisible with other turbines from key viewpoints;
- the visual effect where there is intervisibility; and
- whether the application turbine(s) with others meet the objectives for the area.

Section 4 of the Pembrokeshire and Carmarthenshire CLVIA guidance provides additional guidance.

The cumulative visual assessment should provide an assessment of sequential effects on potentially sensitive receptors, such as National Trails. The assessment should consider the effects on a journey along a sensitive receptor, where more than one wind turbine development can be seen, one after the other over a period of time. Sequential effects will concern linear receptors and these may extend beyond both the study area and the search area.

The CLVIA should include an assessment of cumulative effects that might arise from other large scale infrastructure. The following issues should be considered:

- whether there is any visual conflict or confusion with other large scale infrastructure such as pylons; and
- whether the addition of the application turbine(s) changes the character of the landscape such that large scale infrastructure, including wind turbine development, becomes the defining characteristic.

Section 6 of the Pembrokeshire and Carmarthenshire CLVIA guidance provides additional guidance.

References

How to access Online Wind Turbine Database for South East Wales

To view the Online Database map please click on the link below:
Online Wind Turbine Database for South East Wales

Please note that you require Chrome (or a browser that supports HTML 5) to view the map to ensure you have the full functionality.

If the link above does not work the Online Database map can be found on the GIScloud website, **http://www.giscloud.com/**. You will need to register to use the site but it is free.

On the home page choose *Create, upload, author, publish & share my spatial data* and click on **Start.** Search for wind turbines and you will find the Wind Turbines in South East Wales map.

The database will be updated every 3 months. In future further information on screening opinions, refusals, withdrawn and expired planning applications will be added.

Commissioning of this Guidance

This guidance was funded by the Welsh Government's Planning Improvements Fund.

The development of the project came about in the following way;
The project was raised as an issue by the South Wales Landscape Liaison Group and discussions were then developed through a Renewable Task and Finish group focusing on particular concerns raised by Heads of Valleys Landscape Officers and Planners. It was agreed that Blaenau Gwent County Borough Council would submit the application on behalf of the South Wales Landscape Liaison Group working jointly with Monmouthshire County Council to deliver the proposal..

The South Wales Landscape Liaison Group (comprising representatives of 13 local authorities, 2 National Parks and representatives of National Resources Wales (NRW)and the Welsh Government) assisted in developing the project.

This guidance was prepared by Gillespies LLP in consultation with a project team identified for the commission.

Members of the South Wales Landscape Liaison Group

Blaenau Gwent
Brecon Beacons NP
Cardiff
Merthyr Tydfil
NRW
Newport
Pembrokeshire NP
Torfaen
Bridgend
Caerphilly
Carmarthenshire
Monmouthshire
Neath Port Talbot
Pembrokeshire
Rhondda Cynon Taf
Vale of Glamorgan