Consortium of South Wales Valleys Authorities

TAN 8 Annex D study of Strategic Search Areas E and F: South Wales Valleys

Final report

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December 2006

This report takes into account the particular instructions and requirements of our client.
It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party

Ove Arup & Partners Ltd
4 Pierhead Street, Capital Waterside, Cardiff CF10 4QP
Tel +44 (0)29 2047 3727 Fax +44 (0)29 2047 2277
www.arup.com

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Executive Summary

Introduction and context

In July 2005 the Welsh Assembly Government (WAG) published the Ministerial Interim Planning Policy Statement (MIPPS) 01/2005: Planning for Renewable Energy[1] and *Technical Advice Note (TAN) 8: Planning for Renewable Energy*. This TAN indicates that there are only a few relatively unconstrained areas in Wales that are capable of accommodating large scale (>25MW+) wind power developments; these areas comprise 7 Strategic Search Areas (SSA). The availability of existing or planned electrical grid infrastructure was a significant factor in the identification of these unconstrained areas.

Two of these 7 areas are Area E "*Pontardawe*" and Area F "*Coed Morgannwg*" which the TAN suggests have an "indicative generating capacity" of 100 MW and 290MW respectively (approximately 50 and 150 modern wind turbines of 100m in height).

An extract from TAN 8 showing the extent of the published SSAs is included within the main report.

Paragraph 2.3 of TAN 8 indicates that "*Local Planning Authorities are best placed to assess detailed locational requirements within and outside SSAs in the light of local circumstances*" and that (Para 2.10) "*Local Planning Authorities should take an active approach to developing local policy for SSAs in order to secure the best outcomes. Further advice is contained within Annex D* [of TAN 8]". A consortium of South Wales Valley Planning Authorities[2] have therefore jointly commissioned consultants (Arup (with sub-consultants)) to undertake such a refinement exercise of SSA E and F which a view to providing an evidence base for subsequent planning policy formation and decision-making.

This Arup study is primarily a landscape and visual assessment exercise which seeks to identify a 'Preferred Area or Areas' for large-scale wind farms broadly within the boundaries of the Strategic Search Area(s), working within the context of the indicative capacity targets for the SSAs (identified in TAN 8 in Table 1 Page 5). The study however also uses a range of technical and other environmental data to inform its work.

No formal consultation has been undertaken with statutory bodies as part of the study; the only discussions that have taken place have been with the Planning Authorities that commissioned the study.

Approach

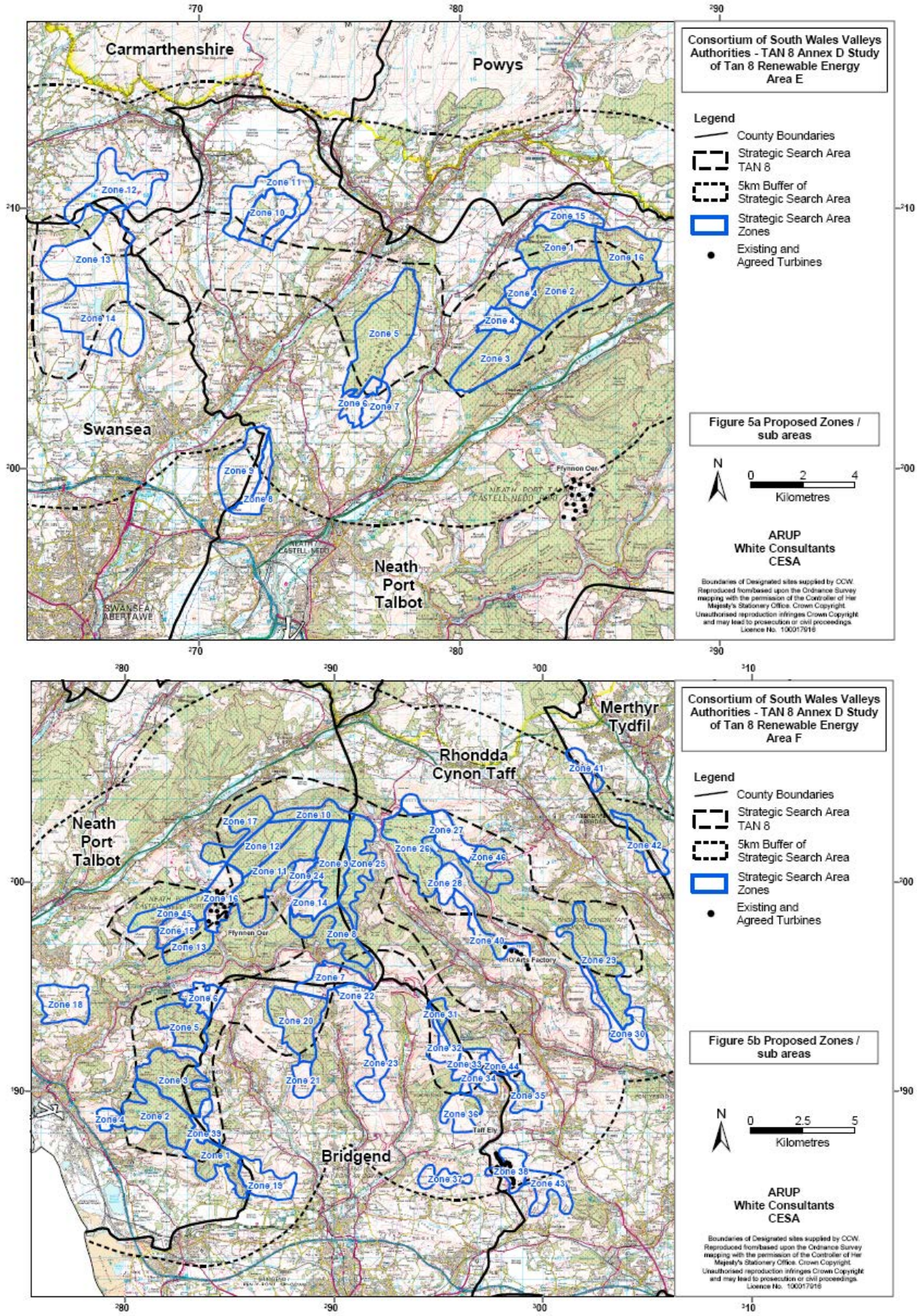
In order to assist in the discrimination of the environmental performance of the SSA as defined, the technically feasible parts of the SSA and its margins up to 5km were sub-divided into smaller spatial units, termed *zones.* The zones were derived so that they can enable discrimination between parts of the SSAs in landscape and visual terms. It follows therefore that each zone should have similar landscape and visual characteristics (i.e. they are homogeneous landscape units where possible) and are therefore based upon the units published in existing landscape assessment studies such as LANDMAP. By virtue of an initial constraint analysis, the zones coincide with areas considered both "technically feasible" for the development for larger scale wind farms and largely free of other environmental constraints. The range of constraints considered included wind speed, slopes, residential properties, Sites of Special Scientific Interest and Scheduled Ancient Monuments; the presence or absence of settlement and/or suitable wind resource has been shown to have the greatest influence on the available areas for further study.

Some 62 zones were derived, and these are shown on **Figure A** below.

[1] The MIPPS amends Sections 12.8 to 12.10 of Planning Policy Wales (PPW) (2002).

[2] Led by Neath Port Talbot County Borough Council, the consortium also comprises the City and County of Swansea, Carmarthenshire County Council, Bridgend County Borough Council and Rhondda Cynon Taff County Borough Council.

Figure A - SSA Zones derived for the study, SSAs E and F



The study first reviews the defined zones as to whether they are broadly acceptable in accordance with the following TAN 8 criteria (Para 2.9 p 6):

- Comprise an extensive area with a good wind resource
- Be an upland area (typically over 300m above ordnance datum) which contains a dominant landform that is flat (plateau) rather than a series of ridges.
- Be generally sparsely populated.
- Be dominated by conifer plantation and/or improved/impoverished moorland.
- have a general absence of nature conservation or historic landscape designations.
- Be of sufficient area to accommodate developments over 25MW, or at least in combination with other contiguous SSA parts be able to accommodate developments over 25MW

TAN 8 Annex D Para 8.6 indicates that at the local level, accepted thresholds of change, having regard to nationally developed capacity targets, can be established by more detailed assessments.

Therefore, in addition, the defined zones have been reviewed for broad acceptability in accordance with the following criteria (developed specifically for this study):-

- To have a LANDMAP visual and sensory Value aspect rating of less than 'Outstanding'
- To have a landscape sensitivity that is less that is considered 'High'
- To have visual impacts upon residential dwellings that would not cause 'dominance'
- Not to cause cumulative landscape or visual impact upon settlements within the SSA

These criteria and their explanation/justification are set out within Chapter 4 of this report : Landscape and visual analysis.

The study then ascertains the *relative* environmental and landscape performance of the SSA zones which pass the above tests (those which are "environmentally acceptable ") with respect to the following criteria:

- **LANDMAP Visual and sensory value**. This is derived largely from desk study based upon published landscape assessments. The Visual & Sensory aspect of LANDMAP identifies those landscape qualities within the zone that are perceived through the senses. It deals with the individual physical attributes of landform and land cover, as well as their visual patterns of distribution and sensory characteristics, and the relationships between them in a particular area
- **Landscape "capacity**" to large scale wind farms i.e. a physical property relating to the zone which considers whether the landform/landcover is of scale/character and thus of low enough landscape sensitivity to could accommodate large wind turbines i.e. it has a higher landscape capacity that other areas within the SSA. This factor has been derived specifically for this study following fieldwork and desk study in accordance with published landscape best practice techniques for the assessment of wind farms in the UK and a methodology developed specifically for this study
- **The potential for additional visual impact** i.e. the wider visual effects that developing a zone might have, and the degree to which sensitive receptors such as settlement, roads, National Parks, National Trails (where appropriate) and AONBs are influenced by any additional visual effects. The additional visual effects have been determined from 3-D computer modelling. The results are presented in terms of the theoretical visual effects (ZTV) of hypothetical wind turbines (located on a uniform layout within each zone) in the strategic search area when compared to any visual effects arising from existing large wind farms in and around the SSA. The results have been broadly validated by fieldwork. The detailed methodology has also been developed specifically for this study.
- **Presence/absence of designated Historic Landscape** (as defined by Cadw) and thus degree of the total historic landscape resource potentially affected within any given zone.
- **The likelihood of major effects upon visual amenity and setting, particularly cumulative effects upon valley communities**. i.e. the visual effects that developing a zone might have upon adjacent villages and settlement in terms of dominance and sense of enclosure. These visual effects (as above) have been determined from 3-D computer modelling.

The results of the *relative* environmental and landscape performance of the zones or sub-areas of SSA are then brought together in the report within a summary matrix which includes the approximate estimated capacities[3] (in MW) for the respective zones.

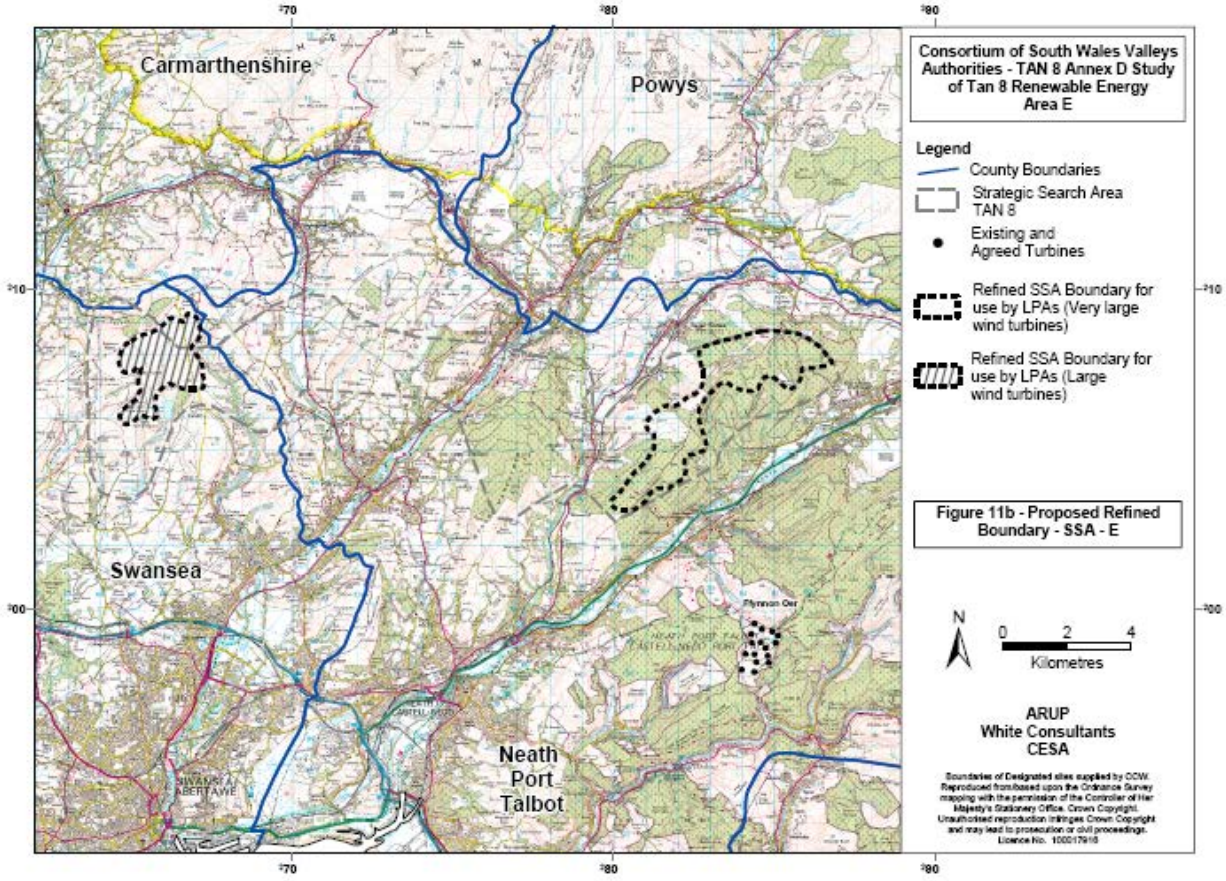
The study then goes on to consider how many "environmentally acceptable" zones are required to deliver the TAN 8 indicative targets for each strategic search area. It then develops a refined SSA boundary that encompasses these zones, making recourse in the derivation of this boundary to the constrain data prepared previously.

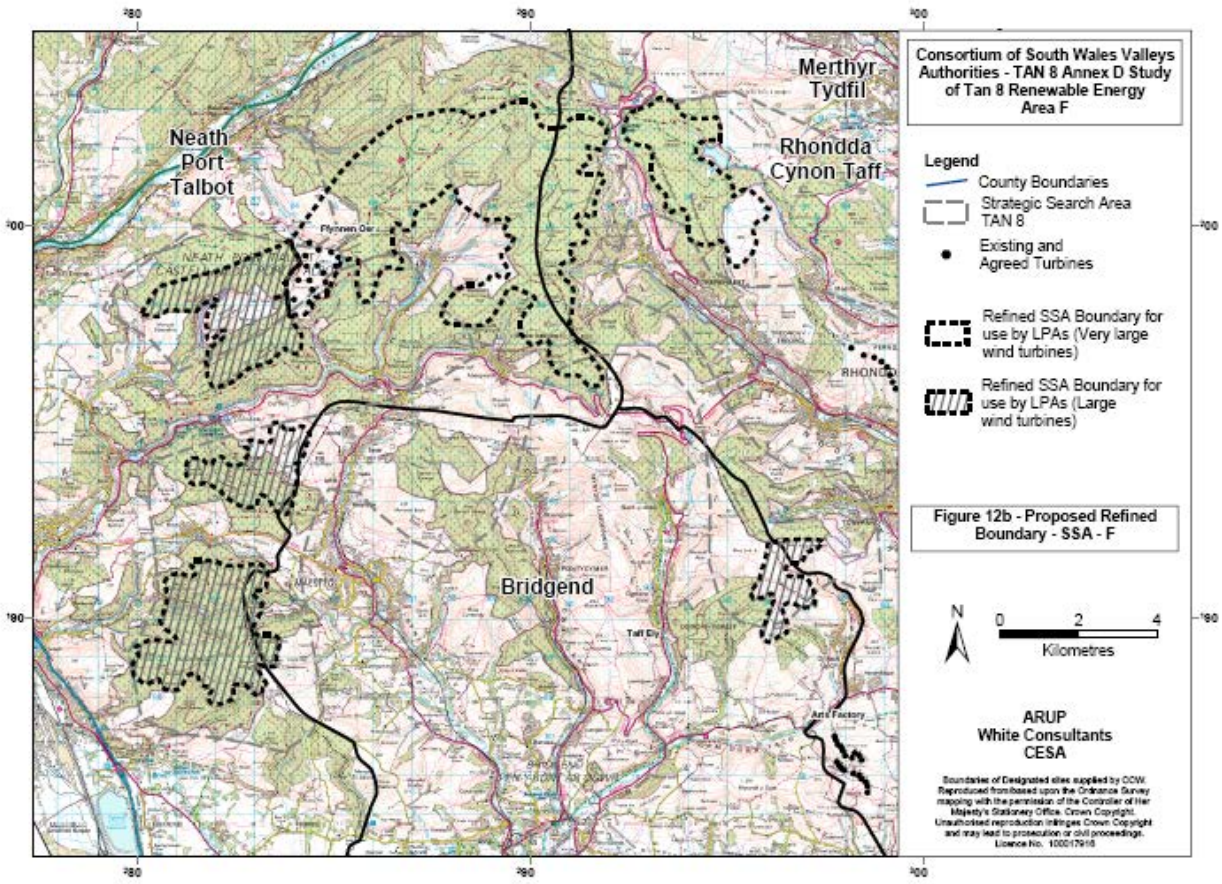
[3] The study has considered the "developable capacity" of the defined zones in terms of the amount of Megawatts (MW) of wind energy that may be possible in each, based upon a average yield of 7.5MW per sq. km (typically around 3-5 modern wind turbines) where the areas are not constrained.

Results for the SSAs

It is recommended that the TAN 8 SSA boundaries are therefore refined to remove the environmentally worst performing areas and any additional land not needed to deliver the TAN 8 indicative capacities. The recommended refined boundaries are shown on **Figure B** overleaf. The recommended refined boundaries do not accord fully with the full extent of the earlier recommended zones. This is because the opportunity has been taken, following further desk study and field work, to draw the boundaries back slightly from the zone boundaries in some cases. This is to better reflect local topography and the inherent landscape and visual benefits that this offers. This has been possible without undermining the estimated developable capacities of the zones used in the first stage of the analysis as the changes are small and at the margins of the zones.

Figure B - Refined SSA Boundaries, SSAs E and F





The refined boundaries are for subsequent transposition into the appropriate Local Development Plan(s) or any interim Supplementary Planning Guidance. They may also be used in the interim to inform development control decisions with respect to large scale wind farms in the area.

Glossary

ALV	Area of Landscape Value- a designation by a local authority for an area of landscape.
Aspect Area (LANDMAP)	A discrete geographic area of relatively homogenous character identified within a particular aspect. In GIS it will be represented as a single polygon. An [evaluated] aspect can be either *visual and sensory*, *geological landscapes*, *landscape habitats*, *historical landscape* or *cultural landscape*.
Character Area (LANDMAP)	A discrete geographic area of relatively homogenous character identified from the structured analysis of the five evaluated LANDMAP aspects.
LANDMAP	A national landscape information system in Wales. Information about the landscape is gathered, mapped, organised and evaluated through the application of a nationally consistent method.
Landscape Assessments	A structured approach to identifying the characteristics of a landscape. It provides a description of an area, defines key characteristics and in Wales is carried out using LANDMAP.
Landscape Capacity	The ability of the landscape to accommodate development of a specific type or different amounts of change.
Landscape Character	The distinct and recognisable pattern of elements, features and qualities that occur consistently within a particular landscape area.
Landscape Designations	Assignations of value to areas of landscape by national or local authorities with associated planning controls.
Landscape Sensitivity	The intrinsic sensitivity of the landscape to change including its character as a whole and individual elements and features which contribute to that character.
Landscape Effect	Change in the elements, characteristics, character and qualities of the landscape as a result of development. This can be positive or negative.
Large-scale wind farm	As per TAN 8 para 2.2, over 25MW
MW	Megawatts- a measure of electrical power output. Modern turbines are rated between 1.5 and 3MW.
ms^{-1}	Metres per second, a measure of average wind speed
Sensitive Receptor	viewer group (clarify) . A sensitive receptor is one who may be more sensitive than others because of the likely duration of the effect [eg a resident] or may be sensitised to landscape or visual quality [eg a walker].
SLA	Special Landscape Area- a designation by a local authority for an area of landscape.
SSA	Strategic Search Area (as established via TAN 8)
Strategic scale wind farm	As per TAN 8 para 2.2 and 2.9, over 25MW, but also forming part of an area which could accommodate up to 70MW
TAN	Technical Advice Note
Value	The relative value or importance of landscape through a structured assessment taking into consideration specific criteria sometimes expressing consensus, and defining whether an area is of international/national, regional/county, local or of low value.
Visual effect / influence	Change in the appearance of the landscape perceived by receptors as a result of development. This can be positive or negative.
Visual and Sensory	An evaluated aspect of LANDMAP. This is derived largely from desk study based upon published landscape assessments. The Visual & Sensory aspect of LANDMAP identifies those landscape qualities that are perceived through the senses. It deals with the individual physical attributes of landform and land cover, as well as their visual patterns of distribution and sensory characteristics, and the relationships between them in a particular area.
ZTV	Zone of Theoretical Visibility- an area in which a proposed development may be visible [based on the contours of landform only] and where there may be an effect. The term 'Zone of Theoretical Visibility' (ZTV) is used to describe the area over

	which a development can theoretically be seen, and is based on a Digital Terrain Model (DTM) and overlaid on a map base. This is also known as a Zone of Visual Influence (ZVI), Visual Envelope Map (VEM) and Viewshed. However the term ZTV is preferred for its emphasis of two key factors that are often misunderstood: • visibility maps represent where a development may be seen theoretically – that is, it may not actually be visible in reality, for example due to localised screening which is not represented by the Digital Terrain Model (DTM); and • the maps indicate potential visibility only, that is, the areas within which there may be a line of sight. They do not convey the nature or magnitude of visual impacts, for example whether visibility will result in positive or negative effects and whether these will be significant or not. Most ZTV produced are in conjunction with individual wind farm applications and are calculated by computer.

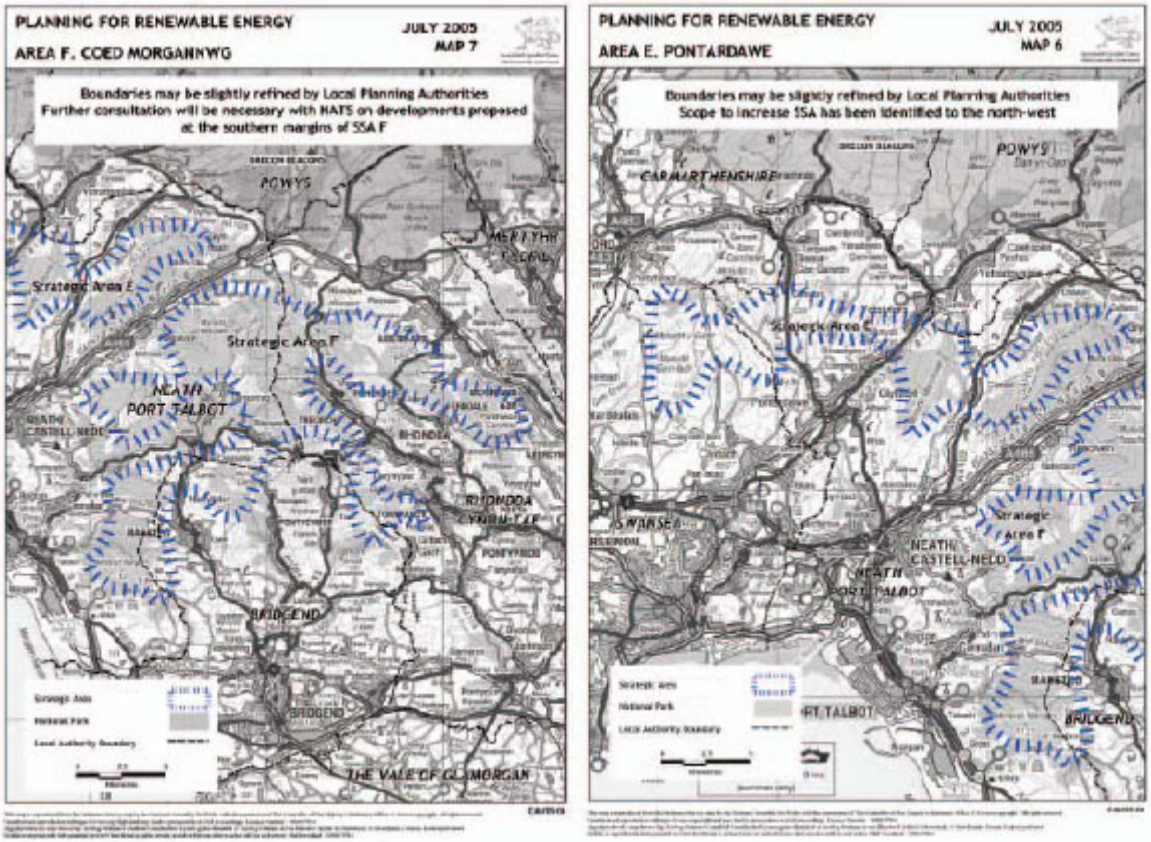
1 Introduction/Brief

1.1 Scope of Study

In July 2005 the Welsh Assembly Government (WAG) published the Ministerial Interim Planning Policy Statement (MIPPS) 01/2005: Planning for Renewable Energy[4] and *Technical Advice Note (TAN) 8: Planning for Renewable Energy*. This TAN indicates that there are only a few relatively unconstrained areas in Wales that are capable of accommodating large wind power developments. These areas make up the 7 Strategic Search Areas (SSA) capable of accommodating large (>25MW+) wind power developments.

Two of these 7 areas are Area E "Pontardawe" and Area F "Coed Morgannwg" which the TAN suggests have an "indicative generating capacity" of 100MW and 290MW respectively (approximately 50 and 150 modern wind turbines of 100m in height).– See **Figure 1**).

Figure 1 TAN 8 Strategic Search Areas E and F



Paragraph 2.10 of the TAN (and Annex D) encourages local authorities to undertake more detailed mapping and landscape assessments in order to formulate policies for on-shore wind power. This report is the output from such an exercise of SSAs E and F with the primary aim of informing the development plan through designating a 'search area' within the emerging Local Development Plan(s) (LDP) and also for informing development control purposes.

[4] The MIPPS amends Sections 12.8 to 12.10 of Planning Policy Wales (PPW) (2002).

1.2 Brief

The study was jointly funded by five local planning authorities that together comprise the "Consortium of South Wales Valleys local authorities"; Neath Port Talbot County Borough Council, Rhondda Cynon Taff County Borough Council, Bridgend County Borough Council, The City and County of Swansea and Carmarthenshire County Council. The brief follows.

The consultants will be expected to undertake a detailed assessment of the South Wales Valleys Strategic Search Area (E and F) and map the best locations for wind farm development within the SSAs in accordance with the principles of Annex D of TAN 8, having regard to landscape, environmental and technical factors. The consultants should consider the ability of the areas to deliver the TAN 8 indicative capacities and recommend refined boundaries that deliver only the indicative capacities, on the basis that these capacities are targets.

The recent experience in undertaking the equivalent studies for Denbighshire/Conwy and Powys suggests that the following small changes are needed to the approach as set out in the TAN 8 Annex. The changes are:

- Rather than identifying potential wind farm sites *per se*, the study considers hypothetical wind turbines distributed evenly across each the SSA 'sub-areas or zones' on a random grid basis of 4 turbines per km^2
- More than 5-10 SSA 'sub-areas' may be needed to aid decision making per SSA
- The study area for considering which wind farms are relevant to the visual analysis would be 30km from the TAN 8 SSA boundary
- Existing small wind farms (<5MW) will not be considered within the visual analysis as contributing to the "existing visual impact"
- An assumed turbine height of 125m to blade tip is used within the study
- Cultural heritage and nature conservation data is most likely to inform the relative ability to develop fully SSA sub-areas (and thus their likely capacity in MW for wind turbines), rather than to influence which zones should be prioritised in the overall summary matrix.

Although consideration of grid connectivity was stipulated in the study brief, this was not considered to be of critical importance to warrant extensive coverage in this report given that this has already been covered in sufficient depth within TAN 8 and the concurrent Arup supporting data (see http://www.wales.gov.uk/subiplanning/content/research/arup/index-e.htm). Grid availability and supply are essentially an economic issue and this study should establish the most suitable areas for wind development on the basis of land-use planning factors.

In addition the consideration of issues such as potential highways constraints /access, and hydrology were agreed to be beyond the scope of this exercise, given that these issues will only become a material consideration once developers begin to apply for planning permission in respect of a 'developable' area. It is not until this time that these location-specific issues can be dealt with. While land ownership is not normally a material consideration in planning matters, the potential for land ownership rights to delay implementation (ownership, leasehold, mineral rights) were recognised. Notwithstanding this, it is considered that the range of sites should broadly achieve WAG's target even if some sites take a little longer to clear these issues.

An informal consultation has been held with Forestry Commission Wales (FCW) with respect to determining those parts of its estate within South Wales that are only leasehold.

FCW have begun a National Forest Estate Wind Farm Programme[5] to allow its land to be developed for wind turbines in accordance with the strategy outlined within TAN 8. One area (Mynydd Marchywel in SSA E) is not in FCW freehold and will not be released for development under the National Forest Estate Wind Farm Programme. The landowner is also unwilling to see the area developed due to existing mineral rights. Nevertheless, this area has been considered in the analysis for this study (to provide data if this situation should change in the future).

1.3 Study Team

This study has been undertaken by Arup, with assistance from White Consultants (Landscape and Visual issues) and the University of Northumbria, Centre for Environmental and Spatial Analysis (GIS support).

1.4 Report Structure

This report is divided into the following sections

- Chapter 2 describes the methodology
- Chapter 3 covers the review of technical and environmental (i.e. non-landscape) factors which have the potential to affect the capacity of the SSA and establishes the zones of the SSA to be used in subsequent analysis
- Chapters 4 covers the landscape and visual analysis of the zones in terms of landscape value, landscape sensitivity/capacity and visual impact, respectively
- Chapter 5 contains the overall analysis and makes recommendations on the ranking of the SSA zones in terms of environmental performance.
- Chapter 6 considers the conclusions and recommendations

All mapping has been undertaken at 1:50000 scale but is reproduced at smaller scale within this report. Colour A3 Figures are contained to the end of this report.

1.5 Bibliography

The following documents have been used throughout this study in the generation of the methodology and in support of the analysis undertaken:

- Arup, June 2005, Facilitating Planning for Renewable Energy in Wales: Meeting the target. July 2004
- Arup, June 2005, Facilitating Planning for Renewable Energy in Wales: Meeting the target. Review of Final Arup Report June 2005
- Carys Swanwick, January 2004, Topic Paper 6 Techniques and Criteria for judging Capacity and Sensitivity. Countryside Agency.
- Cadw, 2001, Register of Landscapes of Special Historic Interest in Wales
- Cadw, 2001, Register of Landscapes of Outstanding Historic Interest in Wales
- Cadw, 2004, Guide to Good Practice on using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process
- Garrad Hassan, June 2005, Energy Assessment of TAN 8 Wind Energy Strategic Search Areas and Update Report dated Oct 2005.
- Landscape Institute & Institute of Environmental Management & Assessment (LI-IEMA). 2002. Guidelines for Landscape and Visual Impact Assessment. 2nd edition. Spon Press, London.

[5] http://www.forestry.gov.uk/forestry/infd-6hyjdu

- SNH Advisory Service Landscape Group, 4th Draft May 2004, Guidance for Assessment of Cumulative Landscape and Visual Impacts arising from wind farm developments, for Scottish Natural Heritage.
- SNH et al, Visual Analysis of Wind farms: Good Practice Guidance, Consultation Draft 22.7.05.
- University of Newcastle 2002 Visual Assessment of Wind farms Best Practice. Scottish Natural Heritage commissioned report F01AA303A.
- University of Newcastle and CESA May 2003, Landscape Capacity Study for Onshore Wind Energy Development in Western Isles, [Method]. For Western Isles Council.

In addition this study has acknowledged existing planning applications for wind farms within and around the SSAs, including the data prepared by developers in support of Environmental Impact Assessments.

2 Methodology

2.1 Introduction

The aim of the study is to determine the best locations for wind development in accordance with the principles Annex D of TAN 8, having a regard to landscape, environmental and technical factors.

The best locations for wind farms are those that are (amongst other factors), likely not to cause unacceptable landscape and visual impacts. However determining acceptability for a form of built development is difficult as it raises the concepts of thresholds, and who should set such thresholds.

This study is informed in its consideration of environmental acceptability by the following (broadly in order of priority):-

1. The TAN 8 characteristics of what constitutes a strategic search area for larger wind farms (Para 2.9 p6)
2. Existing Structure, Local and Unitary development plan policies for the authorities concerned relating to the protection of landscape and visual amenity (not withstanding the fact that most pre-date TAN 8 and its acknowledgement of landscape change within the SSAs).
3. UK best practice in the siting and assessment of wind farms
4. The expert view of the consultant team

This study aims to minimise the potential for substantial changes in landscape character by focusing development onto those parts of an SSA(s) most able to accommodate large scale wind farms by virtue of their topography, landscape capacity and value. It also aims to minimise the potential for additional visual impact by focusing development, where possible, onto those parts of an SSA in which large scale wind farms would be least visible from the overall surrounding area, residents and vehicle users and users of Nationally designated landscapes/National Trails, where applicable.

The starting premise to the study is that the refined TAN 8 Strategic Search area boundaries will be a material consideration and inform the plan process and to a lesser extent, inform development control decisions.

2.2 Overview

The methodology adopted generally accords with the TAN 8 Annex D “Potential Methodology for Local Planning Authorities with Strategic Search Areas” and is generally supported by Countryside Council for Wales (CCW), RSPB and other stakeholders. The study initially followed the method used in studies of the other SSAs but this was modified and enhanced as the complexity of the area’s landform and settlement pattern emerged.

The methodology for the study is primarily an *objective* landscape and visual assessment exercise which seeks both to identify a ‘Preferred Area or Areas’ for siting wind farms broadly within the Strategic Search Area boundary(s) identified in TAN 8. In so doing its also provides a broad *relative* ranking of the environmental performance of the environmentally acceptable parts of the SSA and its margins. The study also uses a range of technical and other environmental data to inform and modify the landscape work. However the study also has two other outputs, a review of the indicative generating capacity for the SSA as published in the TAN, and the determination of the likely generating capacity of the SSA

zones or sub-areas when derived[6]. Together these various components of the study are brought together to provide the local planning authority(s) affected by the SSA(s) with a refined SSA boundary which has been verified (as a minimum) still able to achieve the indicative generating capacity(s) required by TAN 8.

2.3 Qualification of methodology

It is important to stress from the outset that the methodology adopted is new, and represents a compromise between a strategic and a local approach to the planning for wind energy. It fits the aspirations of all parties for the timely and cost effective next stage refinement of an SSA, as initially defined in TAN 8, in order to inform considerable development pressures following the publication of TAN 8 in July 2005. It is *not* a comprehensive visual and landscape assessment of all parts of the SSAs similar to that which would be prepared as part of an Environmental Impact Assessment (EIA) for an individual development[7], nor does the study consider biodiversity issues in great detail as this again is best addressed at the EIA stage when site-specific data can be gathered.

The methodology relies extensively on existing published data (eg. LANDMAP landscape assessments) and quantitative visual data generated via a GIS analysis. Fieldwork is undertaken to develop key datasets to inform the GIS analysis and then to verify the results and overall findings/recommendations arising out of such an analysis. It has been possible to visit the key viewpoints within and surrounding each zone within an SSA, and to assess in the field the views in and out of each part of an SSA. No formal consultation has been undertaken with statutory bodies as part of the study; the only discussions that have taken place have been with officers of the Planning Authorities that commissioned the study and various bodies to gather factual data including RSPB Cymru and Forestry Commission Wales (FCW).

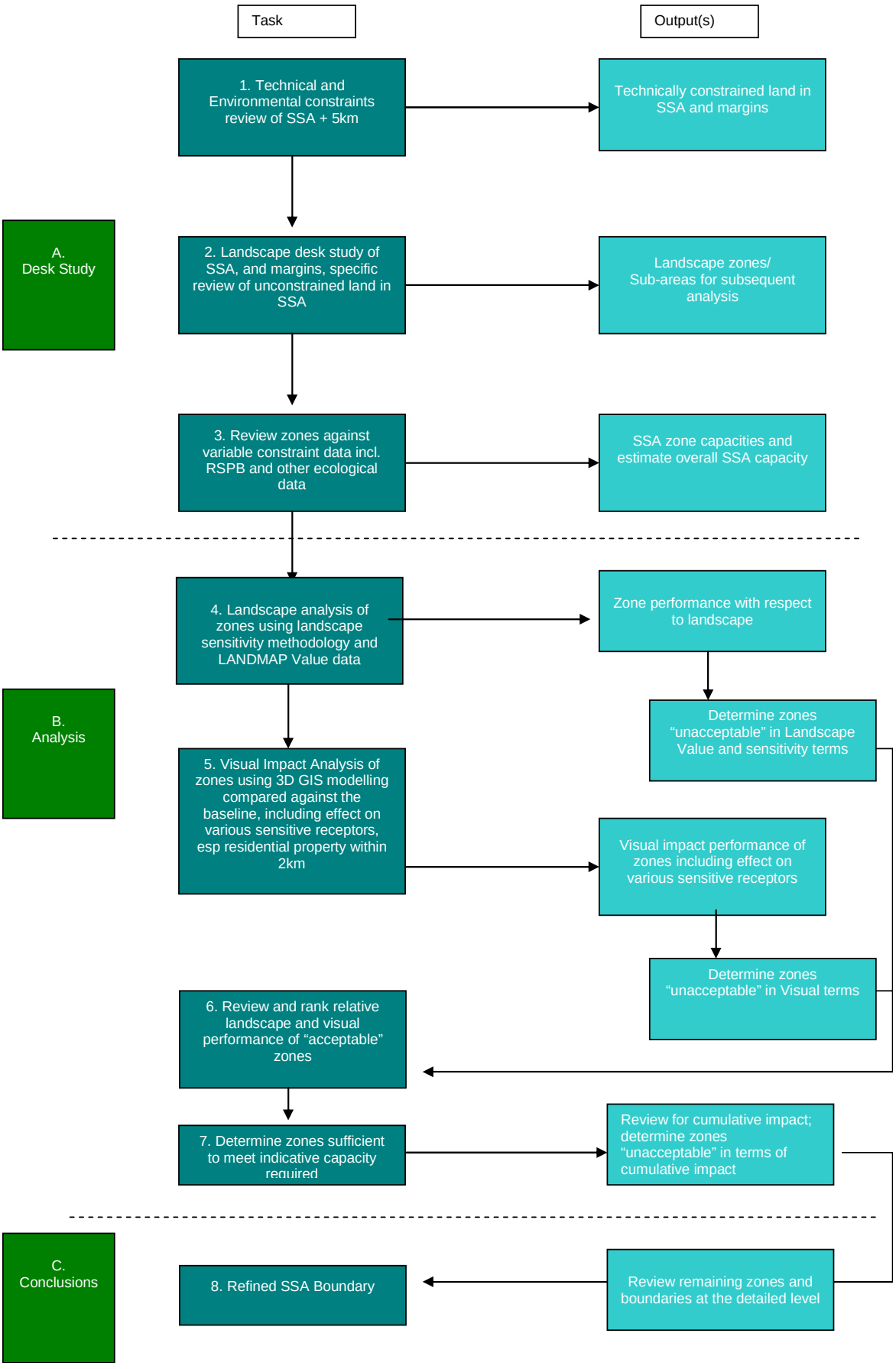
~~2.4~~ Methodological stages

The overall methodology for the study is set out in the flow chart in **Figure 2** overleaf.

[6] The likely generating capacities of the SSA zones or sub-areas are only intended to inform the study and may not reflect what development propose within the zones.

[7] All wind farms greater than 2 turbines of greater than 15m height are considered “Schedule 2 Development” under the EIA Regulations 1999 and thus must be screened for EIA. In practice all large scale (>25MW) wind farms will require an EIA.

Figure 2 – Summary methodology



The study ascertains the *relative* and *absolute* environmental and landscape performance of the zones or sub-areas of the SSA with respect to the following criteria:

• **LANDMAP Visual and sensory value**. This is derived largely from desk study based upon published landscape assessments and is independent of the type of development proposed. The Visual & Sensory aspect of LANDMAP identifies those landscape qualities that are perceived through the senses. It deals with the individual physical attributes of landform and land cover, as well as their visual patterns of distribution and sensory characteristics, and the relationships between them in a particular area.

• **Landscape "sensitivity/capacity"** to large scale wind farms i.e. a physical property relating to a zone which considers whether the landform/landcover is of scale/character that could accommodate wind turbines. This has been derived specifically for this study following fieldwork and desk study in accordance with published landscape best practice techniques for the assessment of wind farms in the UK.

• The **potential for additional visual impact** i.e. the wider visual effects developing a zone might have, and the degree to which sensitive receptors such as settlement, roads, the National Parks and AONBs are influenced by any additional visual impact. The additional visual impact has been determined from 3-D computer modelling of the maximum likely visual effects of hypothetical wind turbines located on a uniform layout within each zone in the strategic search area; the results have been validated by fieldwork.

• **the likelihood of major effects upon visual amenity and setting, particularly cumulative effects upon valley communities**. i.e. the visual effects that developing a zone might have upon adjacent villages and settlement in terms of dominance and sense of enclosure. These visual effects (as above) have been determined from 3-D computer modelling.

The results of the *relative* environmental and landscape performance of acceptable zones or sub-areas of SSA are brought together in the report within a summary matrix which includes the approximate estimated capacities (in MW) for the respective zones.

In bringing together the various landscape and visual data in arriving at the overall environmental performance of a zone, the TAN 8 Annex D studies, including this study, give slightly greater weight to the potential additional visual impacts out with the SSA upon sensitive receptors, than to the direct effects upon landscape factors *per se* within the SSA. This is for the following reasons:

- TAN 8 acknowledges (Para 2.9) that generally the SSAs have certain physical characteristics that support their development with large-scale wind farms and that within the SSAs (Para 8.4), an implicit objective of the development of SSAs is to accept a degree of change in landscape character.
- Local planning authorities throughout Wales have raised the potential for additional visual impact and its potential effects upon settlement and other sensitive receptors (on the margins of, and outside the SSA) as their major concern in the refinement exercises on the SSAs.

However SSAs E and F are materially different to other SSAs in Wales, in that close to half a million people live in and around the SSAs in areas of complex topography. Therefore this particular study has given additional weight to the effects upon the visual amenity and setting for the many valley communities that will be affected to varying degrees by the future development of the SSAs.

2.5 Acceptability Criteria

TAN 8 sets out the following criteria (Para 2.9 p 6):

- Comprise an extensive area with a good wind resource

- Be an upland area (typically over 300m above ordnance datum) which contains a dominant landform that is flat (plateau) rather than a series of ridges.
- Be generally sparsely populated.
- Be dominated by conifer plantation and/or improved/impoverished moorland.
- have a general absence of nature conservation or historic landscape designations.
- Be of sufficient area to accommodate developments over 25MW, or at least in combination with other contiguous SSA parts be able to accommodate developments over 25MW

TAN 8 Annex D Para 8.6 indicates that at the local level, accepted thresholds of change, having regard to nationally developed capacity targets, can be established by more detailed assessments.

Therefore, in addition, any part of the refined/modified strategic search area boundary has to be acceptable in accordance with the following criteria:-

- To have a LANDMAP visual and sensory Value aspect rating of less than 'Outstanding'
- To have a landscape sensitivity that is less that is considered 'High'
- To have visual impacts upon residential dwellings which would not cause 'dominance'
- Not to cause cumulative landscape or visual impact upon settlements

These criteria and their explanation/justification are set out within Chapter 4 of this report: - Landscape and visual analysis.

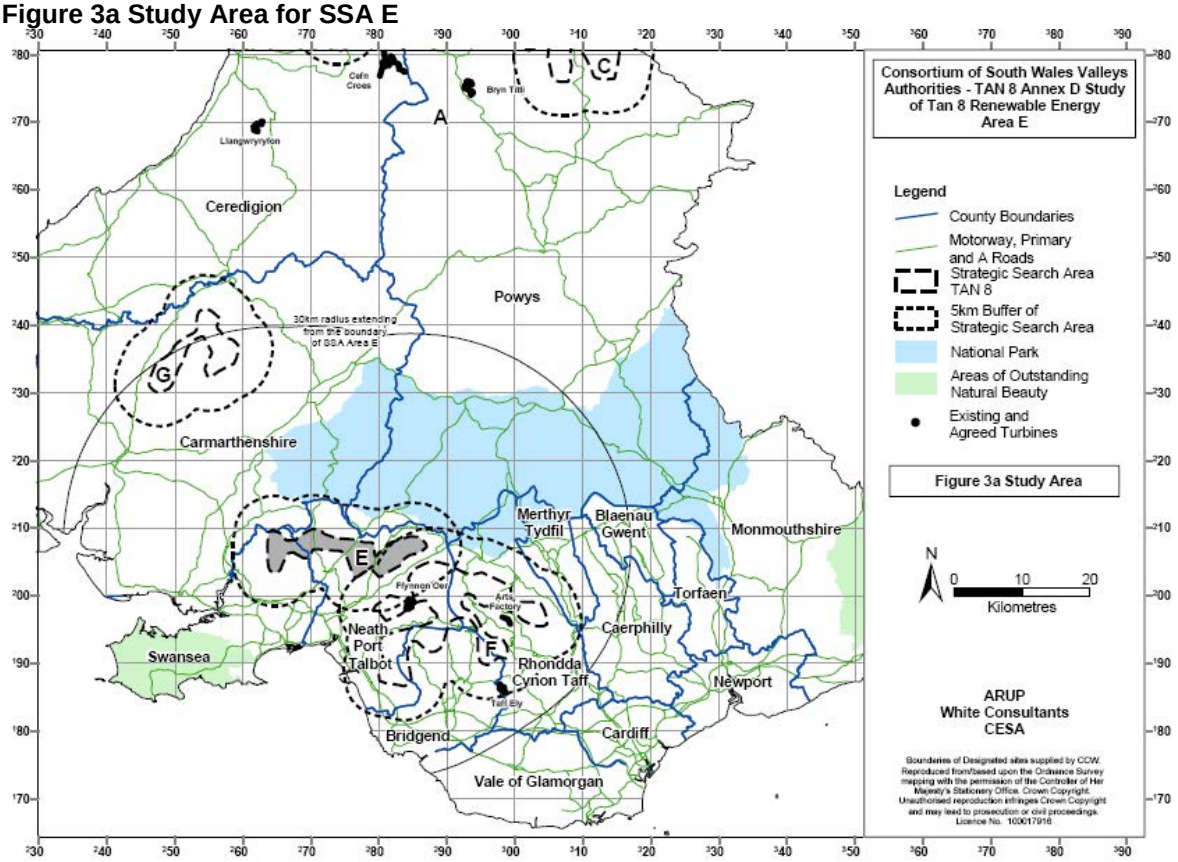
2.6 Study Area

The wider study area for the exercise is indicated in Figure 3a and 3b below. It relates to an area sufficient to encompass the potential visual effects of all existing and consented wind farms within and around the SSA(s) >5MW and to set the context. This is considered to be an area within an approximately 30km radius from the outer TAN 8 SSA boundary as published. National Parks and Areas of Outstanding Natural Beauty (AONB) are also illustrated on Figure 3a and 3b.

The SSA boundary[8] as published in TAN 8 has been buffered by 5km in all directions to allow for a review of its margins (in accordance with the guidance in TAN 8 Annex D) and is also shown on Figure 3a and 3b and subsequent figures. Other SSAs in Wales plus their 5km buffered margins are shown for context.

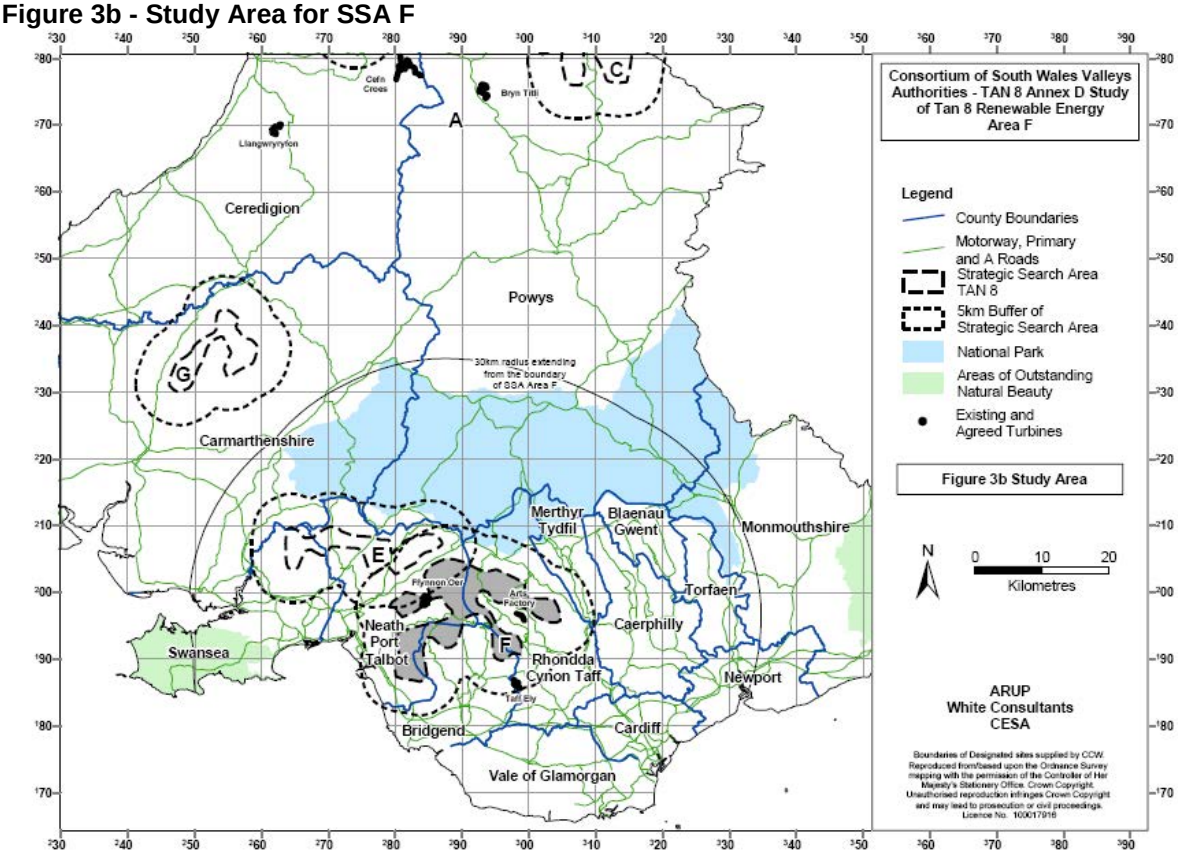
[8] All figures in this report utilise a dashed line representing the centre line of the 800m wide boundary shown in TAN 8.

Figure 3a Study Area for SSA E



Note “Existing/Agreed turbines” refers to wind farms >5MW in accordance with Appendix A.

Figure 3b - Study Area for SSA F



Please note in subsequent Figures in this report, SSAs E and F are both shown on drawings of the same size, are drawn at different scales, to aid presentation. However SSA F is approximately twice the size of SSA E

2.7 Existing/Agreed wind farms

The study adopts a baseline for landscape and visual analysis which comprises the following:-

- All wind farms which have been constructed, or are under construction or have a valid planning consent as of June 2005, but which have an output greater than 5MW i.e. they are not “small” as defined by TAN 8, para. 2.12.

The rationale is that small wind farms may be considered acceptable at locations outside the SSA(s) where those developments are considered to be in accordance with development plan policies and are materially acceptable in line with the guidance contained in TAN 8. Therefore, neither the existing or potential presence of small wind farms nor their absence should unduly influence the strategic planning of the SSAs as this addresses larger scale (over 25MW) onshore wind developments as defined in TAN 8 para.2.2. However any cumulative impact of a mixture of large and/or small developments will need to be assessed and the relevant policies of development plans and TAN 8 revisited (as appropriate) when they are reviewed. The details of the existing/agreed wind farms used in this report are included in **Appendix A.**

3 Technical and environmental constraints review

3.1 Overview

Whilst the whole SSA (s) and 5km buffered margin could be subjected to a landscape and visual analysis, this would be a resource intensive and largely academic exercise. Practically much of the land within and in the immediate surrounds of the SSA(s) lacks the features which would render it suitable for hosting large-scale (>25MW) onshore wind farms.

The first stage of the study is therefore (having eliminated land which could not be developed) to determine the least constrained/unconstrained wind resource areas within and around the SSA(s). These are then subsequently examined for their variable performance with respect to landscape, visual, ecological and other data.

This initial constraints review also permits an understanding of the likely total area of least constrained/unconstrained wind resource areas within and around the SSA.

In relation to spatial planning for onshore wind at the national level within the development of TAN 8, the decision was taken for simplicity of analysis to treat the relevant factors in just three categories. For consistency, the same approach has been adopted for the local authority-led TAN 8 Annex D studies. These were:

- Absolute constraints
- Variable constraints
- Electrical connection issues

Each of these are described and discussed in the sections below.

3.2 Absolute constraints

Absolute constraints are defined as those which would be likely to prevent large-scale wind energy developments. These constraint datasets have been used for the purposes of *eliminating land* as the initial input to the derivation of the SSA zones which then undergo further landscape and visual assessment.

Table 1 below sets out those factors considered absolute constraints for the purposes of the TAN 8 Annex D studies and gives the reasons for their inclusion within this category.

Table 1. Absolute constraints to large-scale wind energy development in Wales

Criteria / constraint	Source	Details/justification/decision
Visual / aural amenity on sensitive receptors (Settlements, isolated properties, farms etc) (+500 m radius buffer of all postal addresses)	OS Address point data	There is an emerging best practice approach within the onshore wind industry of siting development a ***minimum*** of 500m from residential properties (for noise/amenity and safety reasons). It is acknowledged that acoustic separation distances closer to 700m are now the norm for the very largest rated turbines (2-3MW turbines) and the refined boundaries (when developed) generally respond to this sort of separation distance from residential areas.
Wind speed < 6.9 ms^{-1} On 1km square	DTI/NOABL Model	Developers of large (i.e. ≥ 25MW) wind farms would typically seek sites with a minimum mean annual wind speed of 7 m/s (defined at 45m above

basis		ground level). Generally areas subject to wind speeds below this figure are not considered economically viable and this has been the case to date in Wales. With the very highest turbines some flexibility is now available on the margins of the areas of higher wind speeds.
Slope (>15 degrees)	OS Panorama Dataset	Wind farms are unlikely to be located on slopes greater than 15 degrees due to constraints of access track construction etc.
Sites of Special Scientific Interest	CCW	Wind farms generally have a very small physical footprint compared to the total area occupied by the development, since only the turbine footings and access / maintenance tracks require the disturbance of the ground surface. Nonetheless, because of the ecological importance of sites under designation such areas are now considered as absolute constraints to large-scale wind farm developments.
National Parks, Areas of Outstanding Natural Beauty (AONB), Special Protection Areas, RAMSAR, pSAC, SAC, National Nature Reserves,	CCW	Because of the landscape, cultural and ecological importance of sites under designation such areas are considered as absolute constraints to large-scale wind farm developments. The defined SSAs should exclude these (with the exception of some small spot sites) but 5km buffer may touch on some sites.
Scheduled Ancient Monuments (300m buffer around point source)	Cadw	Scheduled Ancient Monuments (SAMs) are designated by Cadw and are statutorily protected and the study has made an allowance in the density assumptions.

3.3 Variable constraints

Variable constraints are defined as those which, in general, are likely to inhibit the development of large wind energy developments but for which there is the possibility to develop within the area concerned to a reduced extent but with appropriate mitigation. Variable constraints are therefore considered mainly an influence on the capacity (in MW) of the part of the SSA concerned.

Table 2 below sets out those factors considered to be variable constraints for the purpose of the TAN 8 Annex D studies and gives the reasons for inclusion within this category.

Table 2. Variable constraints to large-scale wind energy development in Wales

Criteria / constraint	Source	Details/justification/decision
Ministry of Wales (MoD) Mid Wales Tactical Training Area / MoD Low Flying Area 7T	MOD	The MoD is a statutory consultee in any wind farm application. It is common for potential developers to contact the MoD before submitting their planning application. In the Tactical Training Area over much of Mid Wales (LFA7T) the MoD has stated with respect to

		wind development "Our area in Wales, LFA7T, in particular, appears to be approaching what we deem to be saturation point, and we are likely to resist any future proposals for development there." However, the published guidance states that "a wind farm on the edge of a [Tactical Training Area] may well be approved of as it presents little danger to training within the TTA, and several have been developed in the past" (paragraph 4.1.7.2). The MoD TTA is considered a variable constraint around its edges, where overlapped by the 5km buffer of existing SSAs.
Safeguarded Aerodromes (A line of sight *viewshed* 30km from Cardiff Airport has been used to show the interaction between the radar and local topography)	National Air Traffic Services Website	Cardiff is an officially safeguarded aerodrome. Each safeguarded aerodrome is issued with two safeguarding maps centred on the aerodrome. One map extends out to a radius of 15km and indicates the height above ground level for which proposed development is subject to consultation. The second map extends to a radius of 30km; the local planning authority is required to consult the relevant aerodrome regarding any wind turbine proposal within the radius.
Major TV Transmitter Masts (10km radius)	Website	Turbines within the proximity of major TV masts have the potential to cause interference to signals
National Trails, Cadw Historic Landscapes, Cadw Historic Parks and Gardens. RSPB Reserves *County wildlife sites/county wildlife trust sites/ Local Nature Reserves*[9] (National Trails have been buffered by 250m either side, where appropriate)	CCW, RSPB, Cadw, Local Authorities and County Wildlife Trusts	Because of the landscape, cultural and ecological importance of sites under designation such areas are considered as constraints on the scale and spatial extent of development of large-scale wind farm developments.
RSPB Bird data (1 km square basis)	RSPB	Data regarding a nationally important population of a bird species of acknowledged conservation importance[10]. If, within this 1km square, a development is proposed which is located within the relevant disturbance radius for the species, the developer will need to modify the design of the proposed development, after discussions with the RSPB. If no acceptable design modification takes place, or can take place, the RSPB has indicated that they will lodge and maintain a formal objection

3.3.1 Treatment of Biodiversity issues

In this study, a range of biodiversity sites/features have been treated as 'absolute' and 'variable' constraints as set out in **Table 1** and **Table 2** above. These sites/features are

[9] These have been considered where suitable data is available in a consistent manner across an SSA, and where not already covered by other higher level designations such as SSSI –See **Appendix K.**

[10] (Annex 1 of the EU Birds Directive, Section 74 of the Countryside and Rights of Way Act 2000, or red-listed in Wales, in "The Population Status of Birds in Wales : An analysis of Conservation Concern, 2002 - 2007" Thorpe, R and Young, A. 2002,)

those for which the appropriate datasets are available generally at an all-Wales level. They are also those for which it is considered that the nature conservation interest present and the development of wind turbines are likely to be broadly incompatible, either through:

- Policy conflict/effects with habitats of national/international ecological interest (Special Protection Areas (SPA), RAMSAR, Special Areas of Conservation (SAC and , pSAC), National Nature Reserves and Sites of Special Scientific Interest SSSI)
- tenancy agreements/ effects upon ecological interest (in the case of Local Wildlife Trust/RSPB sites),
- bird habitat disruption (in the case of RSPB data relating to Nationally important species)

With ecological habitat data of lower statutory status (Phase 1 Habitat data, County wildlife sites etc.) it may or may not present a real constraint to the development of wind turbines, depending upon the basis for the designation for the site(s) and the conservation status of the ecological resource present. Whilst guidance on this topic has historically been produced[11] it relates to the development control process and precedes the strategic approach as advocated in TAN 8, the guidance therefore offers no specific advice on the treatment of biodiversity data within a TAN 8 Annex D study.

In addition to the designated and potential sites identified on the basis of habitat quality, there are also a number of species, for which the area is important which have been listed in one or more of the following:

- The Conservation (Natural Habitats) Regulations 1994, Wildlife and Countryside Act 1981, UK Biodiversity Action Plan (UKBAP) and Local Biodiversity Action Plans (LBAPs).

It is considered that these species issues (and potential effects upon habitats identified as of potential via the Phase 1 Habitat data/effects upon county wildlife sites) can only sensibly be addressed as constraints at the EIA stage. This is when more site-specific data is available and the developer's proposals for habitat improvement/management are known; an appropriate response in a strategic/county level study where subsequent detailed studies will inevitably follow of the local biodiversity interests[12].

3.4 Electrical Connection Issues

Electrical connection issues are a key strategic constraint to the development of larger scale (>25MW) wind farms. The strategic nature of this issue means it was given extensive coverage with the research underpinning TAN 8 via the Arup supporting data (see http://www.wales.gov.uk/subiplanning/content/research/arup/index-e.htm). In particular a specialist study of the electrical supply system for Wales was previously undertaken[13] which indicated that provision to the SSAs was possible and that suitable grid capacity could be provided broadly within the 2010-2012 time period with various existing and planned reinforcement proposals to the network.

Ultimately grid connection is an economic issue to be dealt with by developers and to a certain extent its provision is linked to the successful achievement of planning permission for key large scale projects.

[11] BWEA et al (2001) Wind farm development and nature conservation
[12] All wind farms of a scale likely to contribute to the SSA indicative capacities will require an EIA under either the planning process or the Section 36 Electricity Act consenting route.
[13] Future Energy Solutions (2004), Connection Areas for Wind Energy in Wales – Grid Considerations.

3.5 Cumulative constraints review

A cumulative assessment of the land-take impact of individual absolute technical and environmental constraints within the SSA and its 5km buffer has been undertaken using a GIS. The blue colour and transparency used to indicate areas with a single absolute constraint remains consistent throughout; hence darker blue shading indicates a greater number of constraints are acting on a specific area of land. Conversely, lighter blue shading signifies the presence of fewer absolute constraints. Variable constraints are shown with a blue cross-hatch symbol overlying the absolute constraint data. White areas are those that remain completely unconstrained with respect to the constraints defined for the purposes of this exercise.

All unconstrained land under the 5km buffer to the SSA (whether masked by variable constraints such as the Cardiff Airport safeguarding zone, or whether contiguous with the SSA unconstrained land or not) will be taken forward for further landscape and visual analysis, provided:

- a significant proportion (typically upwards of 25%) of the unconstrained area lies within the 5km buffer
- the unconstrained land is generally of sufficient size to make a meaningful contribution to the original SSA.

3.5.1 Results for SSA E and F

The results for SSA E and F and the 5km buffer(s) are shown in **Figure 4a and 4b** and this represents the first completed stage of the assessment methodology.

Figure 4a - Technical and Environmental Constraints for SSA E

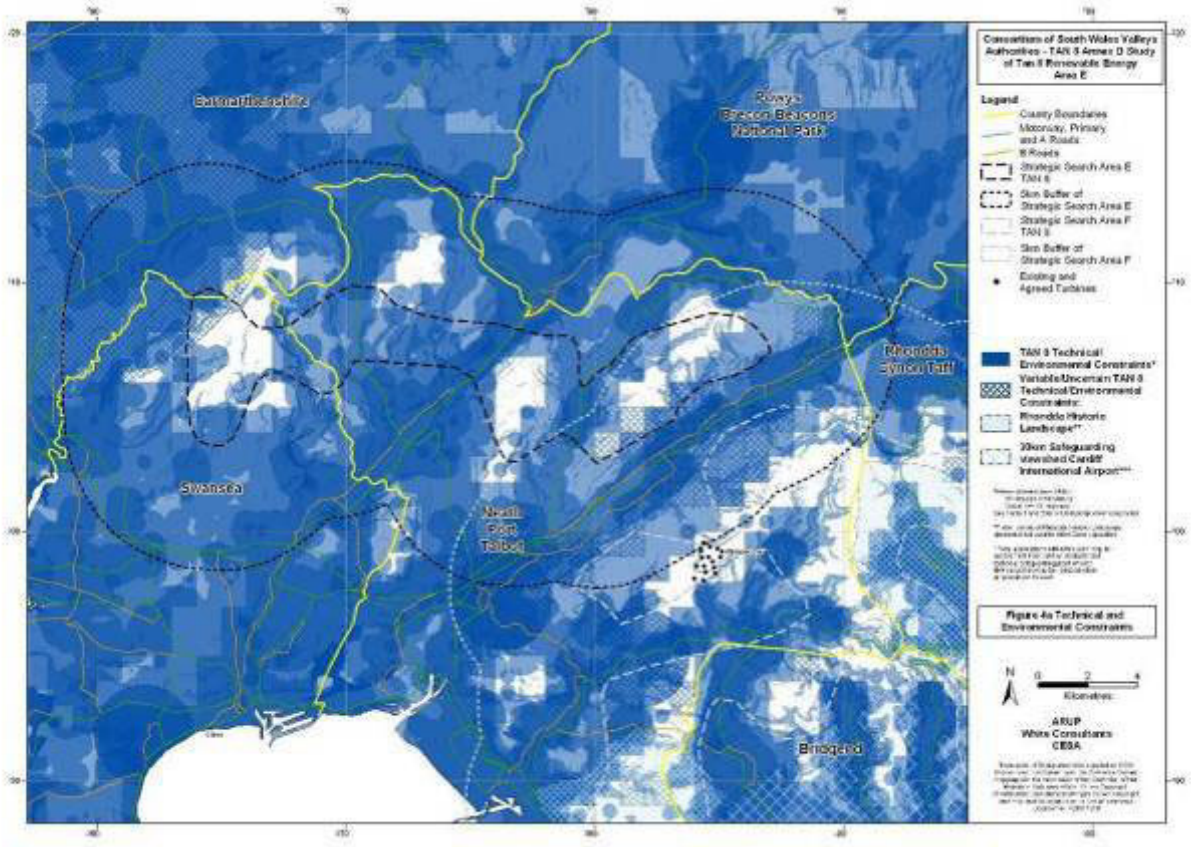
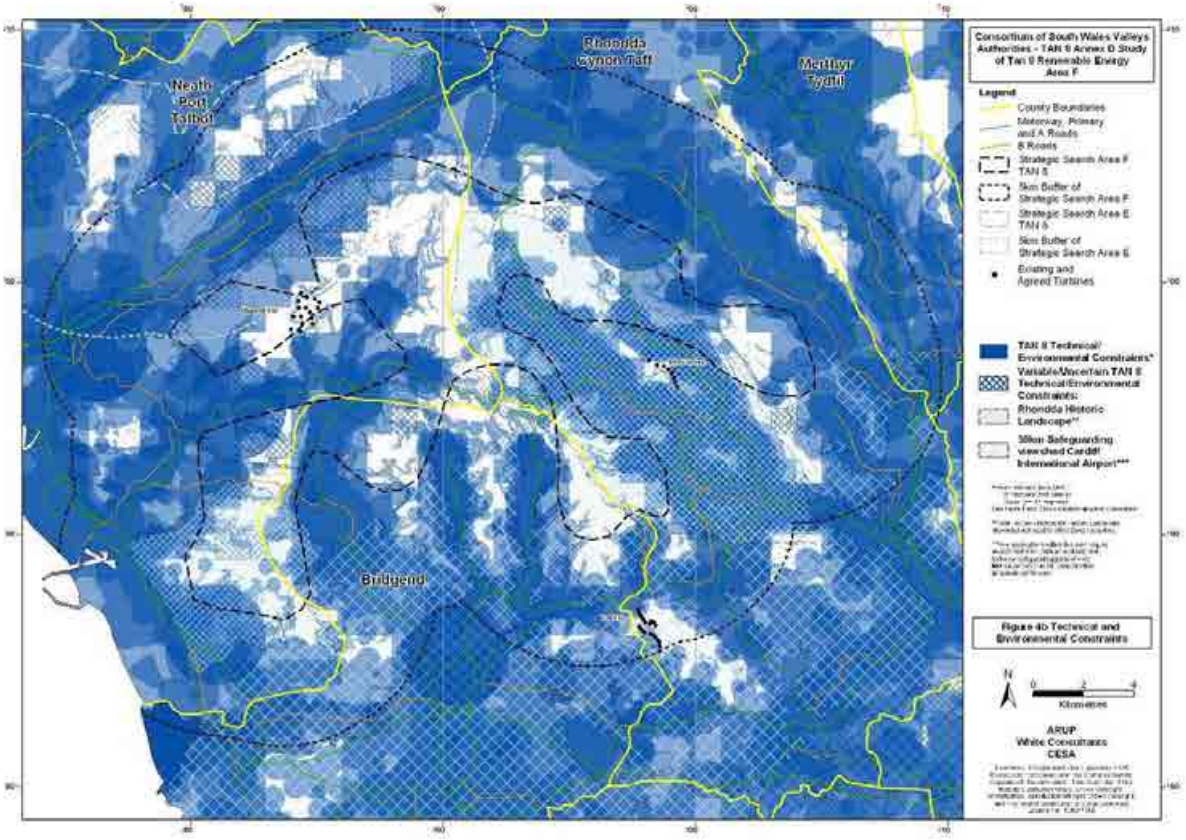


Figure 4b - Technical and Environmental Constraints for SSA F



The analysis confirms that the TAN 8 SSA boundary for SSA E includes the main areas of unconstrained resource in the area. However there are three possible additional areas identified beyond the TAN 8 SSA boundary but within the 5km buffer, as well as one area positioned on the fringe of the 5km buffer line, these are shown on **Figure 4a** and these are:

- Mynydd y Bettws (to the far north-west)
- Mynydd Uchaf – (the Aman Awel Tawe proposal site) -(to the north/north-west)
- The area north-east of Glyn-neath.
- Mynydd Drumau – which lies on the fringe of the 5km buffer line

All of the above areas have therefore been taken forward for further landscape and visual analysis, to test if the refined SSA boundary should be extended to include these potentially unconstrained areas.

The analysis confirms that in relation to area F the TAN 8 SSA boundary includes the main areas of unconstrained resource in the area. There are some possible small additional areas identified beyond the TAN 8 SSA boundary but within/on the 5km buffer, these are shown on **Figure 4b** and these are:

- A 6km long, elongated strip of land to the north east of the SSA, between the Aberdare and Merthyr valleys
- A relatively sizeable tranche of land lying to the south of the south-eastern limb of the SSA, forming an extension of the Taff Ely wind farm
- A finger of land sited a short distance to the west of the Taff Ely wind farm
- Small areas to the immediate south of the SSA boundary in the vicinity of Gilfach Goch/Tonyrefail
- Mynydd Llangeinwr

- The southern part of the St Gwynno Forest
- Mynydd Baeden near the Llynfi Valley

All of the above areas have therefore been taken forward for further landscape and visual analysis, to test if the refined SSA boundary should include these areas.

3.6 Identification of zones for further analysis

Zones or sub-areas of the SSA are necessary so that they can be used to enable discrimination between parts of the SSA and its margins in landscape and visual terms. This is in accordance with the methodology outlined within TAN 8 Annex D and also Chapter 2/**Figure 2** of this report. It follows therefore that each zone should have similar landscape and visual characteristics i.e. they are homogeneous landscape units where possible.

In addition the zones need to be:

- of similar visibility (and hence topographic) characteristics, and
- be generally unconstrained[14] with respect to absolute constraints considered above and,
- Ideally be of a size comparable with large scale wind farms (>25MW)[15]. In some cases (especially in the South Wales Valleys) however zones are smaller than this criterion, on the basis that several small zones may be aggregated together to arrive at an area comparable with a developers site of interest.

It is considered that the most logical and available data to inform the derivation of zones within the SSA and its margins is published LANDMAP assessments of the local authorities encompassing the SSA. Further explanation of LANDMAP is included in **Appendix C** and from the CCW website.

In particular it is the Visual and Sensory Aspect evaluated aspect layer which is the most applicable for this sort of study. The *visual and sensory aspect* is a process of mapping what is perceived through the senses, primarily visually, from the physical attributes of landform and land cover to their visible patterns of distribution and their consistent relationships in particular areas. The senses of hearing, smell and touch are also considered as part of the perceived characteristics of the landscape. Partly based on aesthetic and perceptual criteria, this aspect uses many descriptive terms that are similar to the Landscape Character Approach (used in England and Scotland) to ensure familiarity and consistency of application.

The LANDMAP visual and sensory aspect layer is also the only LANDMAP aspect layer available throughout Wales and which has been subject to independent quality assurance.

Where scoping studies are available for proposed wind farm developments in the SSAs, then their spatial extent is also referred to when developing zones for subsequent analysis, to ensure the coverage and choice of appropriate aspect layers matches the spatial extent of the developer proposals where possible/practical.

In all cases the LANDMAP visual and sensory aspect layer data is reviewed in the field prior to the derivation of SSA zones.

[14] The general principle has been that where the only constraint is modelled wind speed, the zones have been drawn slightly larger than the data suggests recognising the potential for errors etc. in the wind data. The wind model used considers speeds at 45m AOD. Very large turbines are able to operate successfully in some cases in some areas beyond the wind model used. The locations of these areas have been determined by recourse to the Garrad Hassan validation study of the SSAs. If land is constrained by 'absolute constraints' (including settlement data), the principle is to eliminate that land from further analysis.

[15] As a wide rule of thumb applications for wind farm developments are likely to range in capacity from between 25-50MW

The zones derived for this study are not intended as a development control tool *per se*; they are only a means to arrive at the final recommended refined boundary.

3.6.1 Results for SSA E and F

A desk study has been carried out. Data has been collected on the SSA's and surrounding areas. This includes:

- LANDMAP data for Neath Port Talbot, Bridgend Rhondda Cynon Taff, Merthyr Tydfil (Visual and Sensory, Landscape Habitats, Historical Landscape, Cultural Landscape and Geological Landscape)
- LANDMAP draft data for Swansea, (visual and Sensory, Landscape Habitats, Historical Landscape and Geological Landscape) and Carmarthenshire (visual and Sensory)
- Ffynnon Oer Windfarm Environmental Statement (Entec October 2002)
- Local authority planning policies in relation to landscape designations and policies.

The definitions of landscape character, elements and characteristics are all as per the GLVIA[16] 2002.

Extensive site visits to the areas have been carried out to verify the desk study work and to experience the character of the SSA and surrounding areas. A number of viewpoints were identified to represent a range of receptors. These included:

- Settlements eg Swansea, Neath, Port Talbot, Glyncorrwg, Croeserw, Maesteg, Treorchy, Aberdare, Hirwaun, Merthyr Tydfil and Gilfach Coch.
- Roads eg M4, A465, A4059, A4061.
- Brecon Beacons National Park
- Visitor attractions such as Margam Country Park and Afan Forest Park.
- Viewpoints eg Craig Ogwr, Mynydd Belli Glas

The zones proposed for analysis are based on these existing assessments and fieldwork and they are shown in blue on the **Figure 5a and 5b** below.

[16] Landscape Institute & Institute of Environmental Management & Assessment (LI-IEMA). 2002. Guidelines for Landscape and Visual Impact Assessment. 2nd edition. Spon Press, London

Figure 5a - Proposed Zones/Sub-areas for SSA E

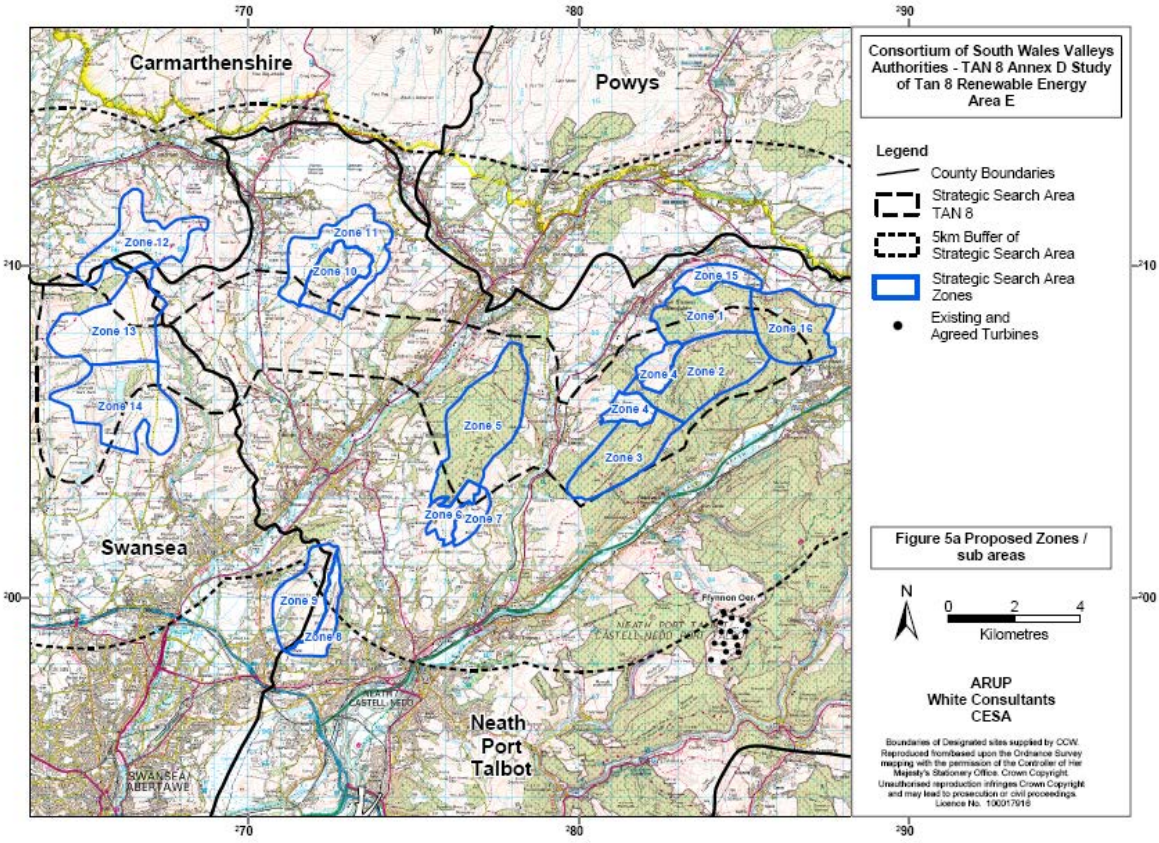
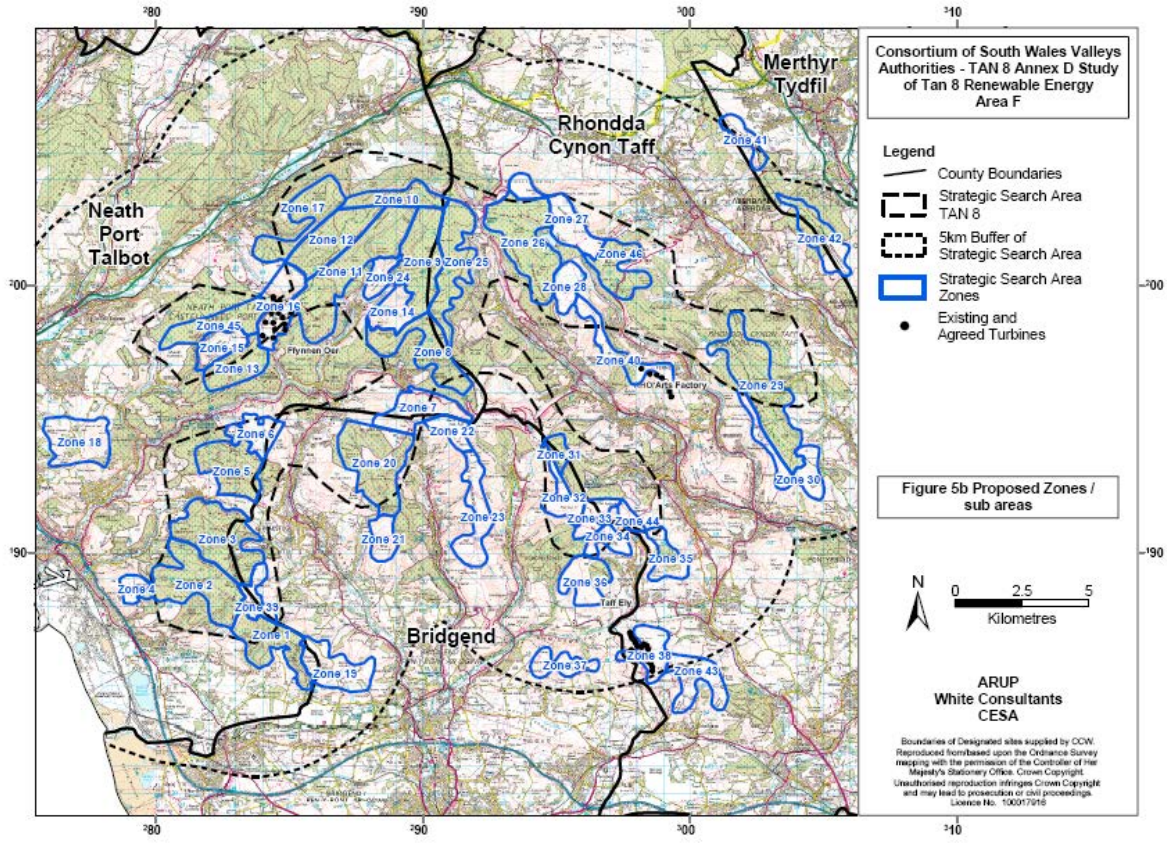


Figure 5b - Proposed Zones/Sub-areas for SSA F



3.7 Review of indicative capacity for the SSA(s)

Indicative capacities for the SSAs (and zones within the SSAs) are necessary to assist in determining the spatial extent of the refined SSA boundary. Sufficient land is sought within the refined boundary to allow delivery of the TAN 8 indicative capacities for the SSAs as set out in Table 1 of TAN 8 p5.

The indicative capacities determined as part of this study *for each zone* are not intended to set limits on the scale of development which may or may not be possible within each zone. A method for the determination of the potentially developable capacity (MW) of an SSA for wind farms follows[17].

3.7.1 Capacity determination

The capacity of an SSA can be broadly established by totalling up the number of "white" unconstrained 1km grid squares present within the SSA as shown on the cumulative constraints mapping (**Figure 4a and 4b)** and applying a representative energy yield. (White grid squares are defined as being unconstrained by the various national technical and environmental criteria and, as a result "drop out" of the sieving exercise.) This data can be combined with a lower allowance for the number of grid squares which are only overlain by variable constraints (eg.certain historic landscapes or RSPB data) and an overall total arrived at.

Grid squares occupied by existing wind turbines are assumed to have a negligible capacity for the purposes of this study (both by virtue of their physical presence and their noise effects). Re-powering of existing wind farms within the SSAs has not been taken account in the achievement of the appropriate indicative capacity for an SSA.

As a conservative rule of thumb the potential capacity of each unconstrained 1km grid square is taken as being an *average* of 8.5MW. Further justification for this figure is included in **Appendix B.**

It is acknowledged that with larger turbines (2-3MW+) higher energy yields of up to 9-12MW may be possible for individual 1km grid squares (particularly if these are within a large wind farm). It is however considered unlikely that such an intensity of development would be possible across a widespread area (such as a whole SSA) due to a range of site specific constraints (particularly noise). It also assists the planning outputs to this study to also work with a capacity estimate at the lower end of the possible range, as this ultimately encourages the inclusion of slightly more land in the refined SSA boundary and thus permits greater spatial flexibility for both developers and the local planning authority.[18]

Grid squares occupied by just variable constraints[19] are considered to have an *average* minimum capacity of 4MW.

It is acknowledged that for the Cardiff Wales Airport Safeguarding (which affects part of SSA F) this would be a crude measure, since if a site is cleared by the Cardiff Wales Airport then most likely it would be developable to a capacity of at least 8.5MW/sq. km. A decision

[17] It is recognised that developers will have more accurate capacity models based upon industry specific computer programs such as GH WindFarmer. These are able to take greater account of site-specific factors such as the noise generated by existing and proposed turbines.

[18] In deriving the capacity totals for SSA zones the assumption is made that all potential areas are developed and that each area duly accommodates the maximum number of turbines achievable, an unlikely scenario in reality. The analysis is unable to take further account of issues such as landowners who would be unwilling to offer their land up for turbine development and/or site access to these zones for turbines. The capacity figures derived from these exercises are therefore indicative only and in most cases might not all be achieved. This issue is explored further in Chapter 5 of this report in the context of the recommendations.

[19] With the exception of some Historic landscapes – see Appendix D.

has been taken therefore not to reduce the average minimum capacity beneath areas affected by the Cardiff Airport Safeguarding "surface" but just to indicate the extent of this "surface" on **Figures 6a and 6b**. The legend to these figures indicates that any applications in this area require assessment from both an obstacle and technical safeguarding point of view and that capacities (in MW) may be reduced when proposals are put forward.

3.8 Identification of zone capacities

The derived zones/sub-areas within the SSA based upon the existing LANDMAP landscape assessments are compared with the cumulative constraint analysis undertaken previously. This allows for an approximate determination of the capacities of the individual SSA zones. The zones are also given names for ease of future reference.

3.8.1 Results for SSA E and F

The overlay of the derived zones and the cumulative constraint data is shown graphically on **Figure 6a and 6b** below.

Figure 6a - Technical and Environmental Constraints with Zones and 500m grid for SSA E

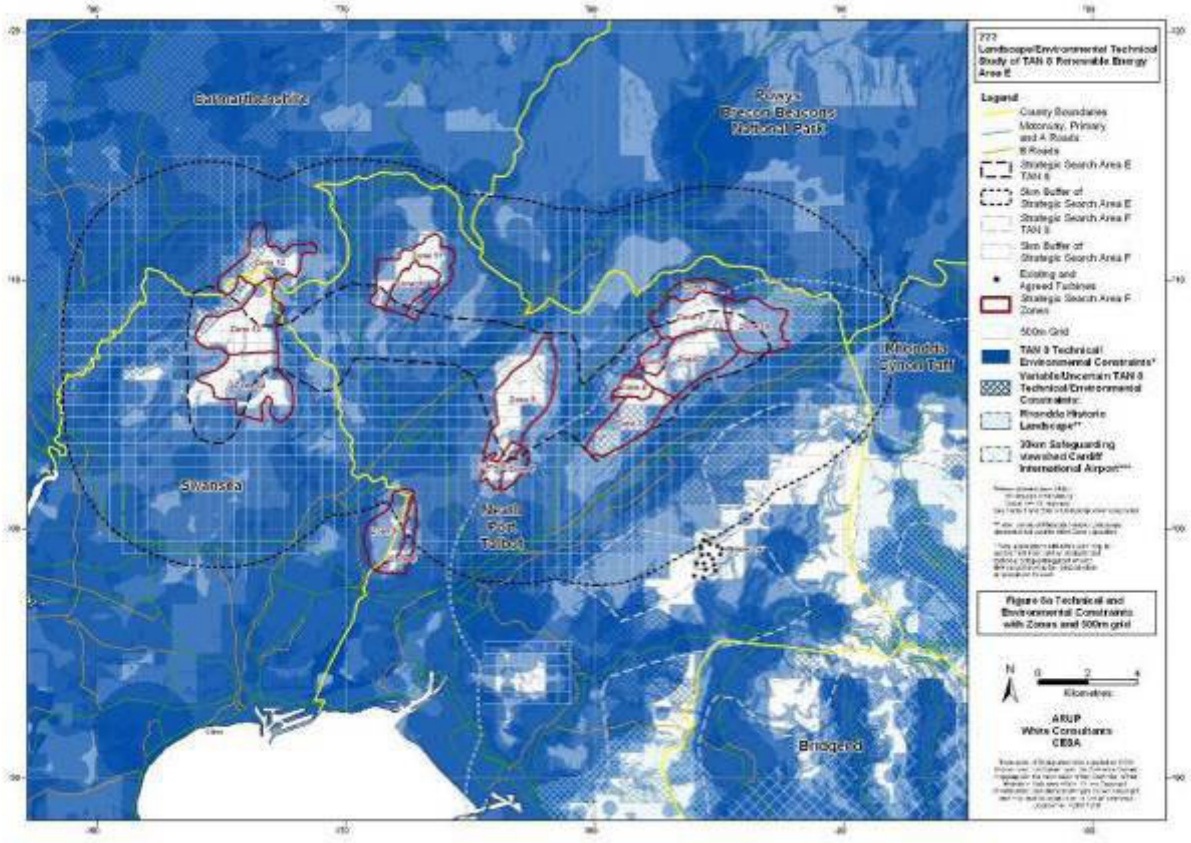
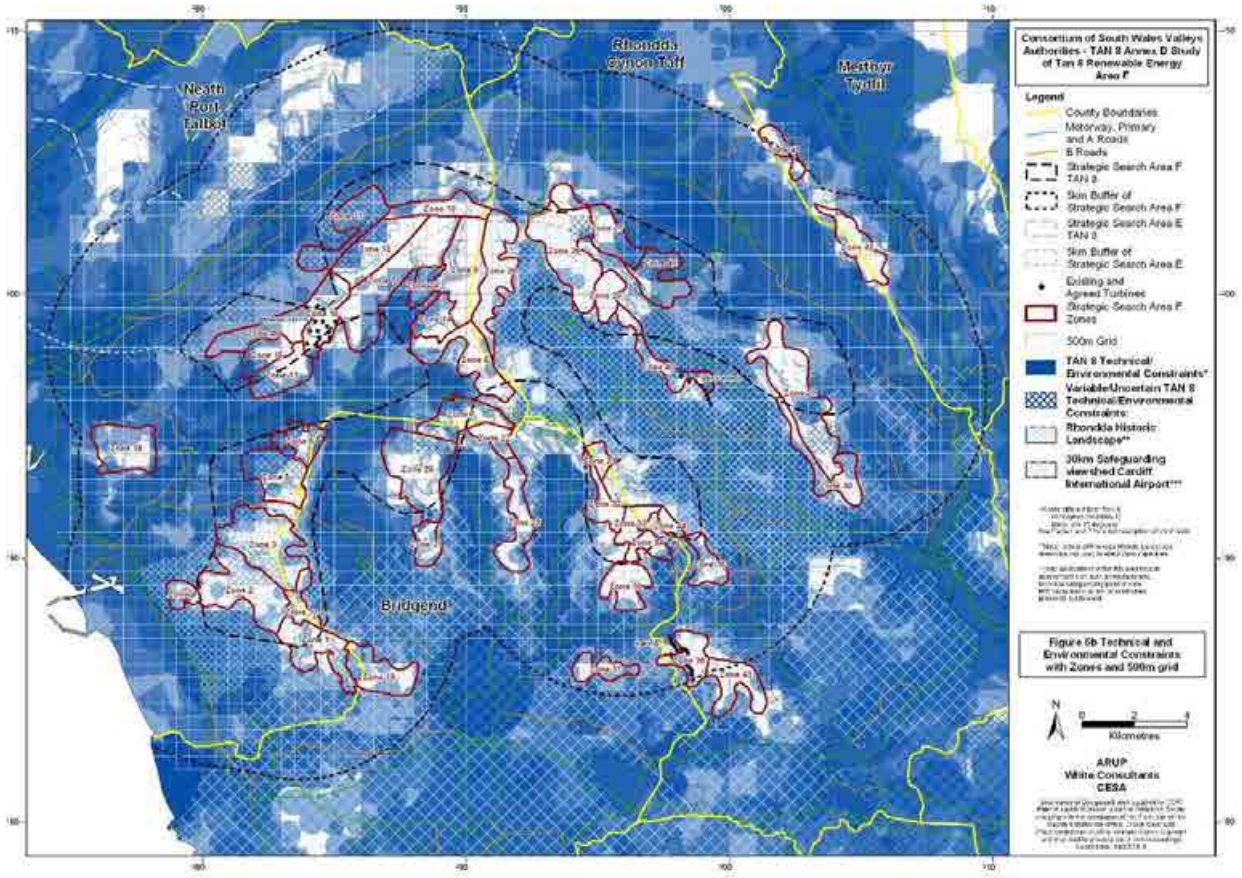


Figure 6b - Technical and Environmental Constraints with Zones and 500m grid for SSA F



The results are displayed in **Tables 3a and 3b** below.

Table 3a - Estimated Capacities (MW) of each zone in SSA E

SSA Zone E - Pontardawe

Zone names		No of unconstrained 500m sq. grid squares (approx.)	No of variable constrained 500m sq. grid squares (approx.)	Approx. Estimated Capacity - unconstrained areas(MW)	Approx. Estimated Capacity- Variable constrained areas (MW)	Total Zone capacity (MW)
1	Seven Sisters (East)	11	0	23	0	23
2	Hirfynydd (Sarn Helen)	8	0	17	0	17
3	Hirfynydd (Sarn Helen) - South West	3	8	6	8	14
4	Hirfynydd (Sarn Helen) - West	4.5	0	10	0	10
5	Mynydd Marchywel	15	0	32	0	32
6	Mynydd Marchywel South West	1	0	2	0	2
7	Mynydd Marchywel South East	1	0	2	0	2
8	Mynydd Drumau (east)	0.5	0	1	0	1
9	Mynydd Drumau (west)	0.25	0	1	0	1
10	River Egel Valley	3.25	0	7	0	7
11	Mynydd Uchaf (AAT site)	7.5	0	16	0	16
12	Mynydd y Bettws	4.25	8.5	9	9	18
13	Mynydd y Gwair	18.5	1	39	1	40
14	Upper Lliw Reservoir	13	0	28	0	28
15	Onllwyn South	0	0	0	0	0
16	Glyn Neath North	6	0	13	0	13
						223

Table 3a - Estimated Capacities (MW) of each zone in SSA F

SSA Zone F - Coed Morgannwg

Zone names		No of unconstrained 500m sq grid squares (approx.)	No of variable constrained 500m sq. grid squares (approx.)	Approx. Estimated Capacity - unconstrained areas(MW)	Approx. Estimated Capacity- Variable constrained areas (MW)	Total Zone capacity (MW)
1	Moel ton-mawr	3	3	6	3	9
2	Mynydd Margam	0	12	0	12	12
3	Mynydd Bach	0	11	0	11	11
4	Ergyd Isaf (Mynydd Margam West)	0	1	0	1	1
5	Afan Argoed South East	3	3	6	3	9
6	Foel Trawsnant	2	0	4	0	4
7	Mynydd y Gelli	3	0.5	6	1	7
8	Mynydd Blaengwynfi	12.5	0	27	0	27
9	Mynydd Blaenrhondda (West)	14.5	0	31	0	31
10	Mynydd Pen-y-Cae - Llyn Fach	5.5	0	12	0	12
11	Glyncorrwg West	19.5	0	41	0	41
12	Coed Morgannwg Way	9.5	0	20	0	20
13	Mynydd Nant-y-bar	7.5	0	16	0	16
14	Glyncorrwg East	3	0	6	0	6
15	Mynydd Fforch dwm	3.5	0	7	0	7
16	Ffynnon Oer (wind farm)	3	0	6	0	6
17	Mynydd Resolven	0	7	0	7	7
18	Mynydd-y-Gaer and Foel Fynyddau	5	0	11	0	11
19	Mynydd Baedan	3.5	0	7	0	7
20	Mynydd Caerau	8	2	17	2	19
21	Moel Cynhordy	2	0	4	0	4
22	Werfa	3.5	0	7	0	7
23	Mynydd Llangeinwyr	7.5	0	16	0	16
24	Mynydd Corrwg Fechan	0	0	0	0	0
25	Mynydd Blaenrhondda	15.5	0	33	0	33
26	Mynydd Tynewydd	19	3	40	3	43
27	Mynydd Bwllfa	3	0	6	0	6
28	Cefn y Rhondda (north)	5.5	0	12	0	12
29	St Gwynno Forest	16.5	4	35	4	39
30	St Gwynno Forest (South)	4	0	9	0	9
31	Mynydd William Meyrick (NE)	1.5	0	3	0	3
32	Mynydd William Meyrick (SW)	4	0	9	0	9
33	Mynydd Maesteg (North)	5.5	0	12	0	12
34	Mynydd Maesteg (South)	3.5	0	7	0	7
35	Mynydd y Glifach (Trane)	3	0	6	0	6
36	Mynydd Maendy Glfach Goch	7.5	0	16	0	16
37	Mynydd y Gaer	2.5	0	5	0	5
38	Mynydd Maendy (Taff Ely wind farm)	4	0	9	0	9
39	Mynydd Margam (East)	2	0	4	0	4
40	Cefn y Rhondda	1.5	0	3	0	3
41	Mynydd Merthyr (North -East)	2.5	0	5	0	5
42	Mynydd Merthyr	9	0	19	0	19
43	Mynydd Portref (Taff Ely wind farm east)	9	0	19	0	19
44	Mynydd Pwllyrhebog	2	0	4	0	4
45	Ffynnon Oer (west)	2.5	0	5	0	5
46	Mynydd Bwllfa (south east)	1.25	0	3	0	3
						564

The analysis reveals an estimated total capacity for SSA E (plus appropriate land in the 5km buffer) of 223 MW approx. The TAN 8 indicative capacity for SSA E (100MW) is therefore seen as robust and suggests that around 50 % (approximately) of the technically suitable (i.e. largely unconstrained) sites within the SSA plus 5km margin may need to be developed to meet the TAN 8 indicative capacity.

The analysis reveals an estimated total capacity for SSA F (plus appropriate land in the 5km buffer) of 564 MW approx. The TAN 8 indicative capacity for SSA F (290MW) is therefore seen as robust and suggests that around 57 % (approximately) of the technically suitable (i.e. largely unconstrained) sites within the SSA plus 5km margin may need to be developed to meet the TAN 8 indicative capacity.

As a comparison, Garrad Hassan[20] in its independent review of the draft TAN 8 study considered the capacity of SSA E and F to be approximately 152 MW and 430 MW respectively[21]. These capacities are only for the area *within* the SSA boundary(s) as published i.e. excluding the possible unconstrained resource in the 5km buffer to the SSA boundary. The Garrad Hassan study does however raise some concerns regarding the ability to achieve the full capacity indicated due to the constraints posed by the presence of large areas of coniferous forestry (which is acknowledged). The Garrad Hassan work also considers a more conservative noise approach including a buffer around residential properties of 700m and a 40dB(A) absolute limit. These issues are returned to at the end of this report.

The next chapter consider the landscape and visual performance of the defined zones.

[20] Garrad Hassan, June 2005, Energy Assessment of TAN 8 Wind Energy Strategic Search Areas
[21] Garrad Hassan Table 3.2, “Noise Constraint case scenario”

4 Landscape and Visual Analysis

4.1 Introduction: Landscape and Visual Analysis

This chapter considers the landscape and visual performance of the zones identified within the previous chapter. It establishes the terminology used in the assessment, the method and the results. As discussed previously the approach is to use nationally recognised techniques/criteria where possible, linked to existing policy documentation, to determine the relative and absolute landscape and visual performance of the different parts of the Strategic Search Areas (SSAs). This can then inform the justification for any proposed modifications to the TAN 8 SSA boundaries (as published).

Guidance on the assessment on the landscape and visual effects of individual wind farm proposals is well established via the Guidelines for Landscape and Visual Impact Assessment (GLVIA)[22] and more recent specific guidance on the visual analysis aspects.[23] There is also emerging guidance on the cumulative landscape and visual assessment of a series of wind farm proposals.[24] The cumulative landscape and visual assessment guidance is however based on the premise of a dispersal approach to the planning of wind farm developments, not the concentration approach advocated within TAN 8. TAN 8 Annex D para. 8.4 indicates that "*within and immediately adjacent to the Strategic Search Areas, the implicit* [landscape and visual] *objective is to accept landscape change i.e. a significant change in landscape character from wind turbine development*". However, in seeking the best location and minimising other harmful effects, the potential for direct and cumulative impacts is still taken into account.

The GLVIA states that the area of study should address the site itself and its wider landscape context i.e. those areas within which the development may influence character. The areas within the SSA and the adjacent areas have been looked at in some detail but also the effects on nationally designated landscapes at a greater distance have been considered.

The TAN 8 Annex D studies therefore require a modified approach to addressing the landscape and visual impacts, including the introduction of thresholds of acceptablilty.

The approach adopted is to firstly determine the *intrinsic* landscape and visual performance of the various zones/sub-areas within and adjacent to the SSA using criteria outlined in the sections which follow.

The next stage is then to determine the *relative* landscape and visual performance of the various zones/sub-areas within and adjacent to the SSA, and the potential for cumulative landscape and visual impact. This is generally in relation to any existing wind farms, such that the presence of an existing wind farm within or on the margins of an SSA should not prejudice the further development of that SSA. Indeed, the parts of the SSA that should perform well in visual terms (in particular) are those which are already heavily influenced by existing wind farms, otherwise the concentration approach advocated by TAN 8 could be undermined. This is with the acknowledgement that existing wind farms in Wales were not necessarily sited in accordance with the principles that would be used today.

This chapter considers the landscape analysis first, then the visual assessment, then presents the overall findings.

[22] Landscape Institute & Institute of Environmental Management & Assessment (LI-IEMA). 2002. Guidelines for Landscape and Visual Impact Assessment. 2nd edition. Spon Press, London
[23] SNH et al, Visual Analysis of Wind farms: Good Practice Guidance, Consultation Draft 22.7.05
[24] SNH Advisory Service Landscape Group, 4th Draft May 2004, Guidance for Assessment of Cumulative Landscape and Visual Impacts arising from wind farm developments, for Scottish Natural Heritage.

4.2 Landscape terminology/Method

UK best practice guidance suggests that there are two separate, but interrelated components to landscape assessment when assessing the ability or otherwise for an area to accommodate large-scale wind farms. These are:

a) **Landscape value** - the relative value or importance of landscape through a structured assessment taking into consideration specific criteria. This data is available through the LANDMAP visual and sensory aspect layer evaluation contained within published landscape assessments. It is independent of development type. Visual and sensory aspect value is derived from four criteria- scenic quality, integrity, character and rarity. These are measured on a four point scale, *low>moderate>high> outstanding and are justified*. These equate to low, local, county/regional and national/international importance. More detail on the method is available in Appendix C and CCW LANDMAP guidance. Value is regarded as an important element in defining where wind turbines are located as it is an indication of perceived value of a landscape resource to the area. If this is affected by wind turbine development then its value will be decreased. It is one of the factors defined by Countryside Agency Topic Paper 6 on landscape sensitivity and capacity.

b) **Landscape sensitivity/capacity** - The intrinsic sensitivity of the landscape to change including its character as a whole and individual elements and features which contribute to that character, and in particular the ability/*landscape capacity* of the landscape to accommodate in this case large-scale wind farms[25]. The landscape capacity of a particular landscape has to be specifically assessed on a case-by-case basis using appropriate criteria. The method used for the TAN 8 Annex D studies is set out in **Appendix E** and completed worksheets for each SSA zone are included in **Appendix F.**. Landscape capacity is measured on a five-point scale, *low>medium/low>medium>medium/high>high*. Where a zone exhibits more than one landscape capacity (due typically to higher sensitivity/lower capacity land on its margins) the lower landscape capacity attributable to the zone is used in the analysis. This is generally reflects typically the core areas of upland plateaux which are the most likely parts of zones to be developed.

It is important to note that *high* or *outstanding* value does not necessarily mean that a sub-area/zone has higher sensitivity to, and lower capacity for, wind farm development. For example, a large scale rolling but simple landscape may be highly valued by virtue of its landscape qualities, cultural and biodiversity associations, yet its very scale and simplicity may render it able to accommodate (in landscape capacity terms), a series of large structures such as 125m high wind turbines.

4.3 Landscape Value/Sensitivity and visual thresholds

4.3.1 TAN 8 criteria

TAN 8 indicates that any part of the refined/modified strategic search area has to be acceptable in accordance with the following TAN 8 criteria (Para 2.9 p 6):

- Comprise an "*extensive area with a good wind resource*"

[25] In determining the landscape capacity of any given area for wind turbine development we have taken into consideration the Countryside Agency 2004 Topic Paper 6: Techniques and Criteria for judging Capacity and Sensitivity. In this publication, landscape character sensitivity, visual sensitivity and landscape value are combined to define landscape capacity (Figure 1B, p6). The method devised for this study builds on this guidance (which it is acknowledged relates to England) and uses LANDMAP information to provide value and inform landscape sensitivity, and combines this with visibility in a structured and reasoned way.

- Be an "*upland area (typically over 300m above ordnance datum) which contains a dominant landform that is flat (plateau) rather than a series of ridges*".
- Be "*generally sparsely populated*."
- Be "*dominated by conifer plantation and/or improved/impoverished moorland*".
- have "a *general absence of nature conservation or historic landscape designations*".
- Be of "*sufficient area to accommodate developments over 25MW" to achieve at least 70MW installed capacity",* or it is considered at least in combination with other contiguous SSA parts be able to accommodate developments over 25MW

TAN 8 Annex D Para 8.6 indicates that at the local level, accepted thresholds of change, having regard to nationally developed capacity targets, can be established by more detailed assessments.

Therefore, in addition, any part of the refined/modified strategic search area boundary has also be acceptable at least in accordance with the following criteria:-

- To have a LANDMAP visual and sensory Value aspect rating of less than 'Outstanding'
- To have a landscape sensitivity that is less than is considered 'High'
- To have visual impacts upon residential dwellings which would not cause 'dominance'
- Not to cause cumulative landscape or visual impact upon settlements

4.3.2 Landscape thresholds

Landscape thresholds relate both to the TAN 8 definitions, the general aspirations for the protection of the best areas of landscape and the wish to direct large-scale wind farms to the landscapes most able to accommodate the large structures, so minimising the degree of landscape change within and around the SSAs.

The most highly valued landscapes [of national importance] are National Parks and Areas of Outstanding Natural Beauty. These areas are substantially equivalent to 'outstanding' value in LANDMAP. There may be aspect areas outside these designations which are also 'outstanding' in terms of LANDMAP visual and sensory value. Development of large scale wind farms in these areas is considered unacceptable.

In directing large-scale wind farms to the landscapes most able to accommodate the large structures, reference has to be made to the landscape sensitivity and thus landscape capacity of an area.

An area will be generally unacceptable for large scale wind turbines if it has a high landscape sensitivity/low capacity for development. These are generally areas which intrinsically have some, or all, of the following characteristics:

- Fine grain landscapes of small scale with a relatively complex landcover, where large structures (>100m in height) would dominate or even overwhelm the features present (eg. pastures of small to medium size, farmsteads, areas with deciduous trees in hedgerows, boundary walls and valley side/fridd landscapes).
- Edge landscapes, where there is a sharp change in level and again, the structures would be over dominant.
- Outlier hills or small scale narrow single ridges
- Rock outcrops/cliffs/cwm, whose sense of scale and dramatic nature would be affected by large man-made structures
- Have a complex skyline

- Have some or all of the above and have a very sensitive relationship to other areas within the SSA with similar sensitive characteristics.

4.3.3 Visual Impact Thresholds

There have been many studies relating to the potential visual effect of windfarm development, the methodologies for which are brought together in the publication 'Visual assessment of windfarms: Best practice'[26]. Many of these studies have been carried out in Scotland to inform policymaking. Though not applicable in policy terms in Wales, the principles are still relevant as the development types and the landscapes (particularly within the Southern Uplands) have many similarities with Wales. 'PAN 45: Renewable Energy Technologies'[27] suggest the following perception for a windfarm[28] in an open landscape (**Table 4a**):

Table 4a –Perceptual distances for Windfarms

Distance	***Perception***
0-2km	Likely to be a prominent feature
2-5km	Relatively prominent
5-15km	Only prominent in clear visibility -- seen as part of a wider landscape
15-30km	Only seen in very clear visibility -- a minor element in the landscape

The 'Visual assessment of windfarms: Best practice'[29] suggests, based on this and other research that the size classes, names and descriptions of visual effect should be modified. This study does not come to a view on significance which is related to the sensitivity of the receptor. In **Table 4b** below the University of Newcastle data is taken and a view is developed on distance and significance of effect for 125m to blade tip turbines depending on sensitivity of receptor as the basis of the calibration of effects for visual impact assessment.

[26] produced for Scottish Natural Heritage by the University of Newcastle 2002
[27] produced by the Scottish Executive in 2002
[28] [without relating this to tower height, but having earlier referred to turbines of tower height >70m and rotor diameters of >80m ie height to blade tip of up to 110 m]
[29] produced for Scottish Natural Heritage by the University of Newcastle 2002

Table 4b – Calibration of significance of visual effects with distance for windfarms

University of Newcastle criteria				*This study calibration*				
						Sensitivity of Receptor		
					Distance range	**High Sensitivity**	**Moderate sensitivity**	**Low sensitivity**
Size class *[Magn-itude]*	**Name**	**Descriptors - appearance in central vision field**	**Modifying factors**	**Magnitude of Effects**		**Likely significance of effect**		
Very large	Dominant	Commanding, controlling the view	Few	**Substantial adverse**	Up to 2 km	*Severe*	*Major*	*Moderate*
Large	Prominent	Standing out, striking, sharp, unmistakable, easily seen	Few	**Substantial/Moderate**	2 to 5 km	*Severe. Major in some situations*	*Major. Moderate in some situations*	*Moderate*
Medium	Conspicuous	Noticeable, distinct, catching the eye or attention, clearly visible, well-defined	Many: Limit of potential visual signific-ance	**Moderate**	4- 10 km	*Major*	*Moderate*	*Minor*
Very small	Inconspicuous	Lacking sharpness of definition, not obvious, indistinct, not clear, obscure, blurred, indefinite	Many Limit of ZVI	**Minor**	9-20km	*Moderate*	*Minor*	*Minor*
Negligible	Faint	Weak, not legible, near limit of acuity of human eye	Few	**Negligible**	15km-30km	*Negligible*	*Negligible*	*Negligible*

The sensitivity of receptors is based on commonly accepted standards derived from the Guidelines for Landscape and Visual Assessment [GLVIA 2002].

The total angle of view where turbines are visible due to intervening landform or vegetation will also have an important influence on magnitude of effect. It is therefore also considered in the cumulative impact assessment (next chapter refers).

The most significant i.e. “severe to moderate significance of effects” are shown highlighted in **Table 4b** namely:-

- All sensitive receptors within 20km eg Open Access land, public footpaths, other outdoor recreational users, residential.
- Settlements – effects within 2km, 5km and 10km (acknowledged double counting – distance band tends to highlight most significant effects where potential for inter-visibility screening would be less)
- National Park/National Trails – effects within 20km to give appropriate emphasis to outdoor sensitive receptors
- Roads within 5km (lower sensitivity users)

The data for the effects within these distance bands for each of the zones with the study area has therefore been generated and is discussed in the sections which follow.

It is considered that substantial adverse effects upon high sensitivity receptors should be avoided i.e. are unacceptable. It is at this distance that large wind turbines will become dominant. Zones that perform the worst with respect to these criteria are not therefore taken forward for analysis.

4.3.4 Cumulative Impact thresholds

Cumulative landscape and visual impact between wind farm proposals within and around the SSAs is generally given less weight under TAN 8 as the strategy adopted (TAN 8 Annex D Para 8.5) "*is a means of concentrating the impact of wind turbines in a relatively small proportion of the country in areas that are, on balance, technically, practically and environmentally better able to accommodate such impacts than other parts of Wales*".

The MIPPS (para 12.8.13) indicates that local planning authorities should ensure that any potential detrimental effects on local communities are minimised [in facilitating the development of all forms of renewable energy] . Zones/parts of an SSA which give rise to unacceptable cumulative landscape and visual effects, particularly on residential properties, are those which, if developed, would surround communities. This could be defined as affecting over 180 degrees of the field of view from a settlement to major to severe significance of effects (as established in Table 4 above).

4.4 Landscape Value Analysis

4.4.1 Landscape value results for SSA E and F

Landscape assessments

The existing Development Plans identify special landscape areas, or landscape policies that identify significant landscape types.

The most recent assessments have been carried out as part of the LANDMAP process and have been quality assessed. This has been carried out for all aspects in Neath Port Talbot, Rhondda Cynon Taff, Bridgend, Swansea, Merthyr Tydfil although the Cultural aspect was not available for Swansea during the study period. Quality Assurance for RCT is underway but not completed. . Carmarthenshire has also recently carried out a LANDMAP assessment for the visual and sensory aspect although this is not quality assured.

Overall, the assessments are considered of fine enough grain with enough information to be helpful in defining character and sensitivity and to have a degree of consistency. Brecon Beacons National Park has been assessed as part of the Brecknockshire LANDMAP study.

A qualitative description of the landscape sensitivity of the SSA zones, together with the completed landscape sensitivity worksheet for each zone, is included in **Appendix F,** together with the support for their landscape value assessment.

It is considered (as previously discussed) that the LANDMAP Visual and Sensory assessment offers the best potential comparison of landscape value. The LANDMAP Visual and Sensory values for the various zones in SSA E and F are shown in **Table 4c and 4d** below and on **Figure 7a and 7b.**

Table 4c Landscape Value of the SSA E zones from LANDMAP Visual and Sensory data

Zone	Zone Name	Visual and Sensory value	Visual and Sensory as numerical Value	Ranking : LANDMAP Visual and Sensory
1	Seven Sisters (East)	Moderate	2	2
2	Hirfynydd (Sarn Helen)	Moderate	2	2
3	Hirfynydd (Sarn Helen) - South West	Moderate	2	2
4	Hirfynydd (Sarn Helen) - West	Moderate	2	2
5	Mynydd Marchywel	Moderate	2	2
6	Mynydd Marchywel South West	Moderate	2	2
7	Mynydd Marchywel South East	Moderate	2	2
8	Mynydd Drumau (east)	High	3	11
9	Mynydd Drumau (west)	Moderate	2	2
10	River Egel Valley	High	3	11
11	Mynydd Uchaf (AAT site)	High	3	11
12	Mynydd y Bettws	High	3	11
13	Mynydd y Gwair	High	3	11
14	Upper Lliw Reservoir	High	3	11
15	Onllwyn South	Low	1	1
16	Glyn Neath North	Moderate	2	2

Table 4d Landscape Value of the SSA F zones from LANDMAP Visual and Sensory data

Zone	Zone Name	Visual and Sensory value	Visual and Sensory as numerical Value	Ranking : LANDMAP Visual and Sensory
Zone 1	Moel ton-mawr	Moderate	2	1
Zone 2	Mynydd Margam	Moderate	2	1
Zone 3	Mynydd Bach	Moderate	2	1
Zone 4	Ergyd Isaf (Mynydd Margam West)	Moderate	2	1
Zone 5	Afan Argoed South East	Moderate	2	1
Zone 6	Foel Trawsnant	Moderate	2	1
Zone 7	Mynydd y Gelli	High	3	34
Zone 8	Mynydd Blaengwynfi	Moderate	2	1
Zone 9	Mynydd Blaenrhondda (West)	Moderate	2	1
Zone 10	Mynydd Pen-y-Cae - Llyn Fach	Moderate	2	1
Zone 11	Glyncorrwg West	Moderate	2	1
Zone 12	Coed Morgannwg Way	Moderate	2	1
Zone 13	Mynydd Nant-y-bar	Moderate	2	1
Zone 14	Glyncorrwg East	Moderate	2	1
Zone 15	Mynydd Fforch dwm	Moderate	2	1
Zone 16	Ffynnon Oer (wind farm)	Moderate	2	1
Zone 17	Mynydd Resolven	Moderate	2	1
Zone 18	Mynydd-y-Gaer and Foel Fynyddau	Moderate	2	1
Zone 19	Mynydd Baedan	High	3	34
Zone 20	Mynydd Caerau	Moderate	2	1
Zone 21	Moel Cynhordy	Moderate	2	1
Zone 22	Werfa	High	3	34
Zone 23	Mynydd Llangeinwyr	High	3	34
Zone 24	Mynydd Corrwg Fechan	Moderate	2	1
Zone 25	Mynydd Blaenrhondda	Moderate	2	1
Zone 26	Mynydd Tynewydd	Moderate	2	1
Zone 27	Mynydd Bwllfa	High	3	34
Zone 28	Cefn y Rhondda (north)	Moderate	2	1
Zone 29	St Gwynno Forest	Moderate	2	1
Zone 30	St Gwynno Forest (South)	Moderate	2	1
Zone 31	Mynydd William Meyrick (NE)	Moderate	2	1
Zone 32	Mynydd William Meyrick (SW)	High	3	34
Zone 33	Mynydd Maesteg (North)	High	3	34
Zone 34	Mynydd Maesteg (South)	High	3	34
Zone 35	Mynydd y Glifach (Trane)	Moderate	2	1
Zone 36	Mynydd Maendy Glfach Goch	Moderate	2	1
Zone 37	Mynydd y Gaer	High	3	34
Zone 38	Mynydd Maendy (Taff Ely wind farm)	High	3	34
Zone 39	Mynydd Margam (East)	High	3	34
Zone 40	Cefn y Rhondda	Moderate	2	1
Zone 41	Mynydd Merthyr (North -East)	Moderate	2	1
Zone 42	Mynydd Merthyr	Moderate	2	1
Zone 43	Mynydd Portref (Taff Ely wind farm eas	High	3	34
Zone 44	Mynydd Pwllyrhebog	High	3	34
Zone 45	Ffynnon Oer (west)	Moderate	2	1
Zone 46	Mynydd Bwllfa (south east)	Moderate	2	1

Figure 7a - LANDMAP Visual and Sensory value of zones in SSA E

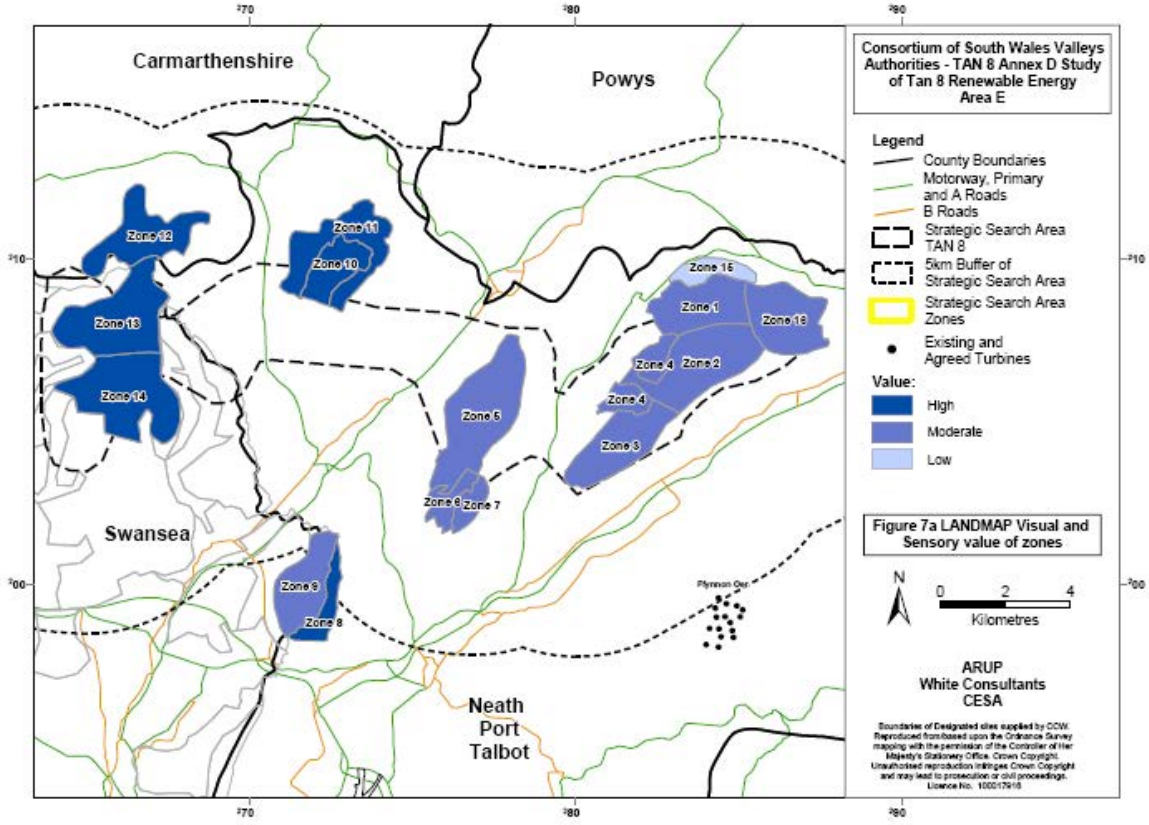
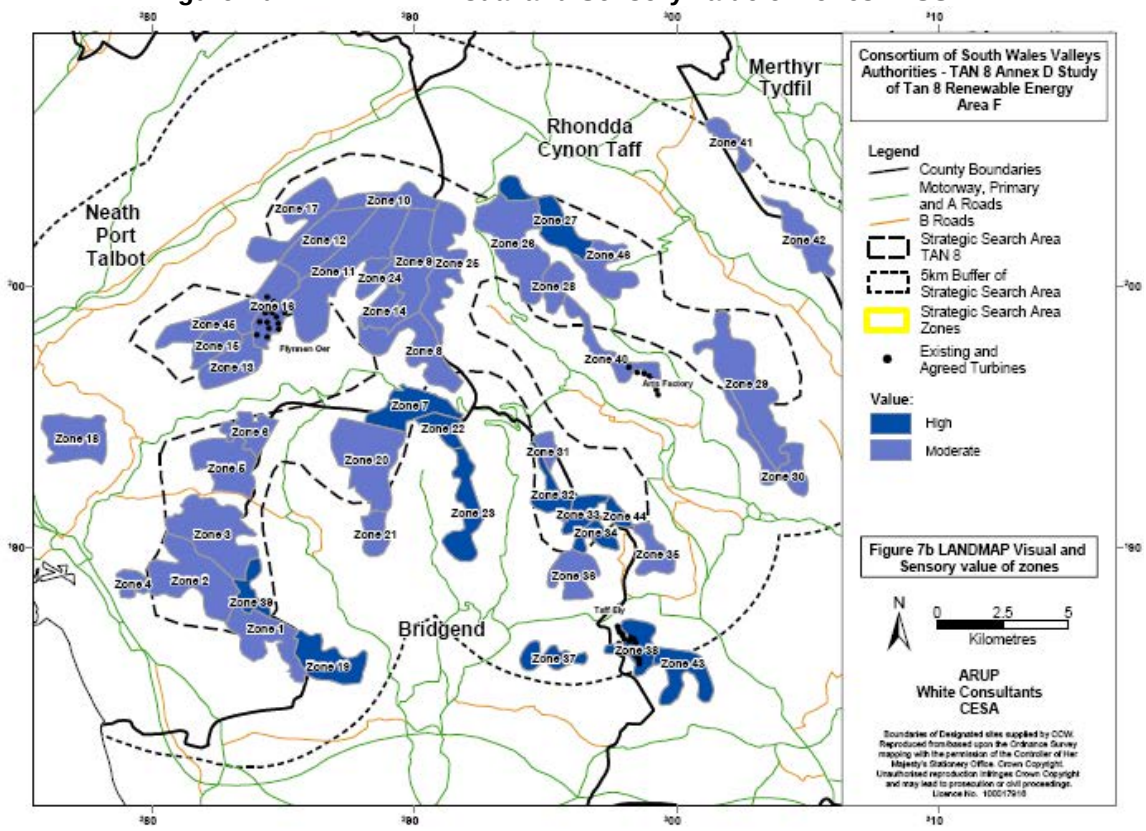


Figure 7b - LANDMAP Visual and Sensory value of zones in SSA F



In accordance with the criteria outlined within Section 4.3 of this report (landscape value/sensitivity and visual thresholds), none of the zones in SSAs E or F are unacceptable as parts of a strategic wind farm zone on the basis of their landscape value alone.

4.5 Landscape Capacity Analysis

4.5.1 Landscape capacity results for SSA E and F

The resulting zone performance is summarised in **Table 5a and 5b** below and on **Figure 8a and 8b.**

Table 5a Summary landscape sensitivity of the SSA zones in SSA E

Zone	Zone Name	Lowest Landscape Sensitivity	Landscape Sensitivity as numerical value	Ranking: Landscape sensitivity
1	Seven Sisters (East)	Medium High	4	2
2	Hirfynydd (Sarn Helen)	Medium High	4	2
3	Hirfynydd (Sarn Helen) - South West	Medium High	4	2
4	Hirfynydd (Sarn Helen) - West	Medium High	4	2
5	Mynydd Marchywel	Medium High	4	2
6	Mynydd Marchywel South West	Medium High	4	2
7	Mynydd Marchywel South East	High	5	13
8	Mynydd Drumau (east)	High	5	13
9	Mynydd Drumau (west)	High	5	13
10	River Egel Valley	High	5	13
11	Mynydd Uchaf (AAT site)	Medium-high	4	2
12	Mynydd y Bettws	Medium-high	4	2
13	Mynydd y Gwair	Medium	3	1
14	Upper Lliw Reservoir	Medium-high	4	2
15	Onllwyn South	Medium-high	4	2
16	Glyn Neath North	Medium High	4	2

Table 5b Summary Landscape Sensitivity of the zones in SSA F

Zone	Zone Name	Landscape Sensitivity	landscape Sensitivity as numerical value	Ranking : landscape sensitivity
Zone 1	Moel ton-mawr	High	5	40
Zone 2	Mynydd Margam	Medium-high	4	26
Zone 3	Mynydd Bach	Medium	3	13
Zone 4	Ergyd Isaf (Mynydd Margam West)	High	5	40
Zone 5	Afan Argoed South East	Medium	3	13
Zone 6	Foel Trawsnant	Medium	3	13
Zone 7	Mynydd y Gelli	Medium	3	13
Zone 8	Mynydd Blaengwynfi	Medium-low	2	3
Zone 9	Mynydd Blaenrhondda (West)	Low	1	1
Zone 10	Mynydd Pen-y-Cae - Llyn Fach	Medium-high	4	26
Zone 11	Glyncorrwg West	Medium-Low	2	3
Zone 12	Coed Morgannwg Way	Medium-Low	2	3
Zone 13	Mynydd Nant-y-bar	Medium-Low	2	3
Zone 14	Glyncorrwg East	Medium	3	13
Zone 15	Mynydd Fforch dwm	Medium-Low	2	3
Zone 16	Ffynnon Oer (wind farm)	Low	1	1
Zone 17	Mynydd Resolven	Medium-high	4	26
Zone 18	Mynydd-y-Gaer and Foel Fynyddau	High	5	40
Zone 19	Mynydd Baedan	High	5	40
Zone 20	Mynydd Caerau	Medium	3	13
Zone 21	Moel Cynhordy	Medium-high	4	26
Zone 22	Werfa	Medium-high	4	26
Zone 23	Mynydd Llangeinwyr	Medium-high	4	26
Zone 24	Mynydd Corrwg Fechan	Medium-high	4	26
Zone 25	Mynydd Blaenrhondda	Medium-low	2	3
Zone 26	Mynydd Tynewydd	Medium-low	2	3
Zone 27	Mynydd Bwllfa	Medium	3	13
Zone 28	Cefn y Rhondda (north)	Medium-low	2	3
Zone 29	St Gwynno Forest	Medium	3	13
Zone 30	St Gwynno Forest (South)	Medium-high	4	26
Zone 31	Mynydd William Meyrick (NE)	Medium	3	13
Zone 32	Mynydd William Meyrick (SW)	Medium	3	13
Zone 33	Mynydd Maesteg (North)	Medium	3	13
Zone 34	Mynydd Maesteg (South)	Medium	3	13
Zone 35	Mynydd y Glifach (Trane)	Medium-high	4	26
Zone 36	Mynydd Maendy Glfach Goch	Medium-high	4	26
Zone 37	Mynydd y Gaer	High	5	40
Zone 38	Mynydd Maendy (Taff Ely wind farm)	High	5	40
Zone 39	Mynydd Margam (East)	Medium-high	4	26
Zone 40	Cefn y Rhondda	Medium-high	4	26
Zone 41	Mynydd Merthyr (North -East)	Medium-high	4	26
Zone 42	Mynydd Merthyr	Medium-high	4	26
Zone 43	Mynydd Portref (Taff Ely wind farm eas	High	5	40
Zone 44	Mynydd Pwllyrhebog	Medium	3	13
Zone 45	Ffynnon Oer (west)	Medium-low	2	3
Zone 46	Mynydd Bwllfa (south east)	Medium-low	2	3

Figure 8a Landscape sensitivity Data for the zones in SSA E

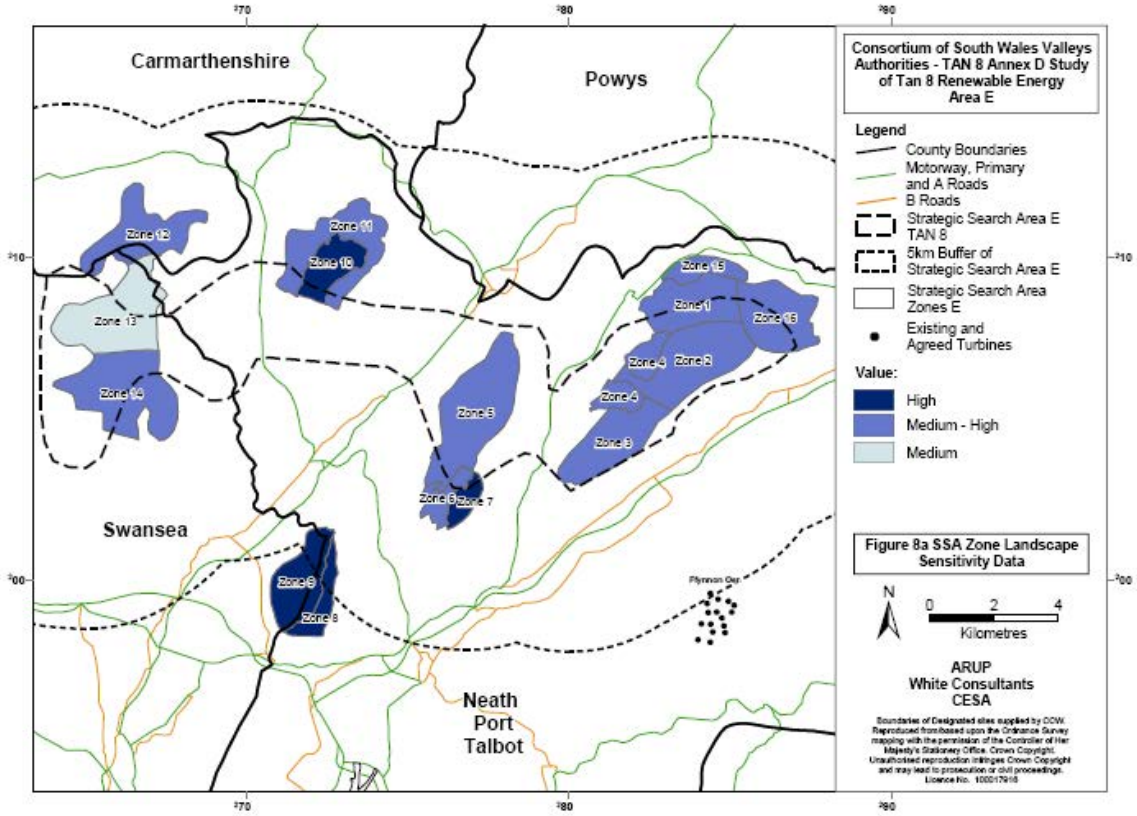
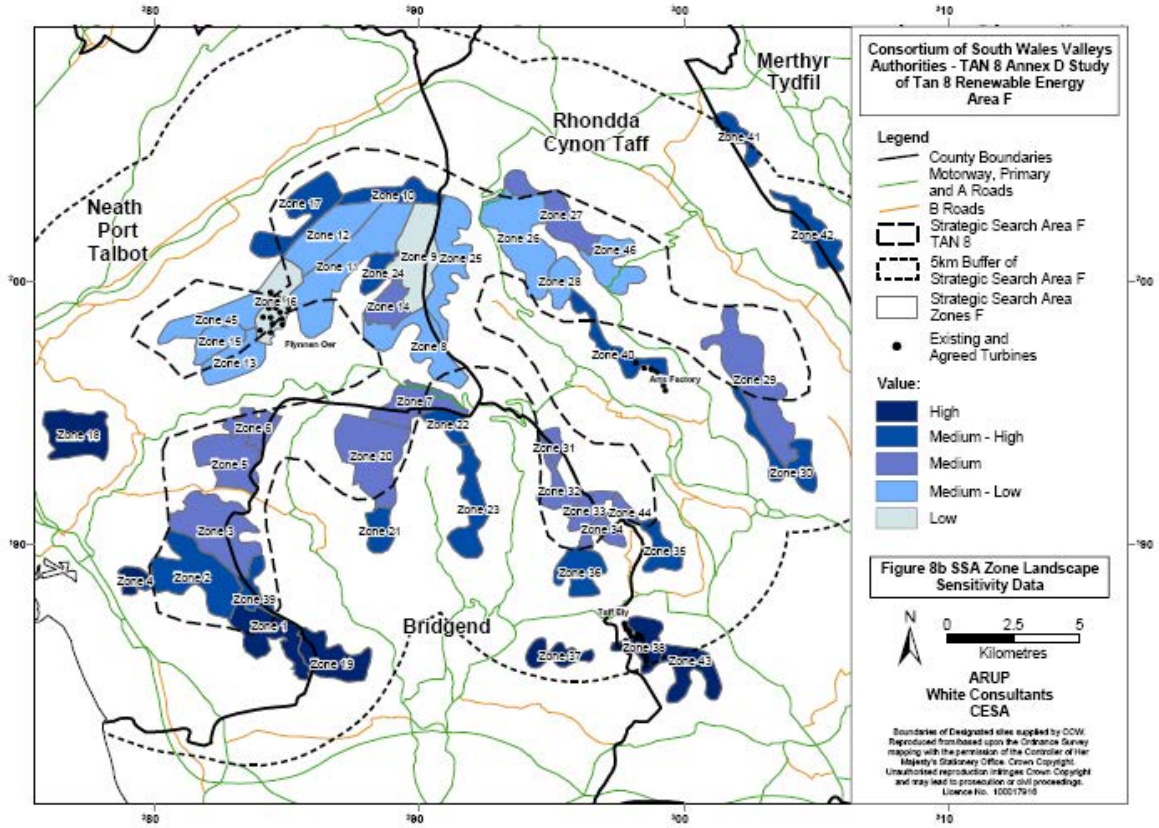


Figure 8b Landscape sensitivity Data for the zones in SSA F



4.5.2 Landscape sensitivity analysis: implications for wind farm type

The data presented within **Figures 8a and 8b** above has two functions. It assists in the relative ranking of zones in terms of "environmental performance" and in determining those zones which are intrinsically unsuitable by virtue of their landscape sensitivity. However importantly within the South Wales Valleys the landscape sensitivity concept also assists in the broad determination of the likely acceptable wind farm typologies per landscape zone/zones.

In accordance with the criteria outlined within Section 4.3 of this report (landscape value/sensitivity and visual thresholds), those areas classified as high sensitivity are intrinsically not suitable for strategic scale wind farm development and include:

Within SSA E, Zones 7, 8, 9 and 10.

Within SSA F, Zones 1,4, 18, 19, 37, 38, 43.

These are therefore excluded from the final analysis in Section 5.0.

Though those zones which are of medium-high landscape sensitivity are less desirable they have been taken forward. They may be able to accommodate a limited number of wind turbines in limited parts of their area with very careful site design as part of a larger wind farm site.

Landscape sensitivity analysis for wind farms suggests that generally the less sensitive the landscape unit, the more able it is to accommodate large-scale structures such as wind turbines. There is some correlation between the five point sensitivity scale adopted for this study and wind turbine size, such that generally:

- a low sensitivity[30] landscape could best accommodate the largest types of wind turbines
- a highly sensitive landscape might only be able to accommodate the smaller types of wind turbines (or none at all) There is clearly a continuum between these two extremes.

Within the South Wales Valleys the distribution of landform and topography is such that the more robust, lower sensitivity landscapes are located:-

- Within the uplands to the north of Glyncorrwg in SSA F, Zones 8, 9, 11, 12, 13,15, 16, 25, 26, 28,45, and 46). (Medium-low and some low)
- Within the western part of SSA E - Zone E13 (medium) – Mynydd-y-Gwair

The landscape sensitivities generally in SSA E are higher (i.e. more sensitive) that those in SSA F.

It should be noted that generally the landscape sensitivities are generally lowest within the northern parts of SSA F where the landform is between 400-500mAOD and where the plateau width is such that wind turbines do not need to be located close to the valley edge or scarp slope. The conclusion is that the very largest types of wind farms could best be accommodated only within these areas. Such large structures would otherwise start to dominate the landforms to the south-west, south and south-east of both SSA's with their heights significantly in excess of one third of the height of the landform onto which they would be placed.

4.6 Visual Impact Analysis

4.6.1 Visual Terminology/Method

Visual Impact Assessment forms the second part of the landscape and visual assessment of a development proposal. A visual analysis in turn forms part of the visual impact

[30] when this judgement is based upon a specific assessment for wind farm developments

assessment and this uses the 'Zone of Theoretical Visibility' (ZTV) for each part of the SSA zone[31].

The purpose of the TAN 8 Annex D studies is to determine the *relative* visual impact between parts of the SSA (Para 6.4 first bullet). It is therefore necessary to develop a ZTV for turbines placed in each of the SSA zones/sub-areas, review the data in the field and then compare the results. However in order to further inform the relative visual impacts of each part of the SSA it is considered not only necessary to look at the relative ZTVs for each zone, but to also consider what sensitive receptors are affected by the various ZTVs. This gives a greater appreciation of the likely magnitude and significance of the visual impact associated with developing different parts of the SSA.

This study is not able to formally consider the influence of inter-visibility within the ZTV work but the team consider this aspect during fieldwork and when arriving at the conclusions of the study.

The approach adopted is to not only determine the relative visual performance of the various zones/sub-areas within and adjacent to the SSA, but to do this as a *comparison* to the existing situation. It is therefore also necessary to generate a cumulative ZTV for all of the existing/agreed wind farms[32] within and surrounding the SSA (as shown in the examples -**Figure 9a and 9b** below).

In addition to existing/agreed wind farms, SSA E and F have the potential to be affected by the development of the consented offshore wind farm at Scarweather Sands, near Porthcawl. The ZTV of this development has therefore been added to **Figures 9a and 9b**. However the ZTV for Scarweather has not been used in the quantitative analysis as to do so would favour development in the SSA F zones which are affected by the offshore development (since these zones would perform well with respect to the 'existing/agreed wind farms indicators'). It is considered that the seascape and landscape impacts are quite distinct from onshore windfarms and should not be aggregated. The Scarweather data has therefore been used qualitatively to comment on the likelihood of cumulative visual impact between on and offshore wind proposals for visual receptors

[31] The term 'Zone of Theoretical Visibility' (ZTV) is used to describe the area over which a development can theoretically be seen, and is based on a Digital Terrain Model (DTM) and overlaid on a map base. This is also known as a Zone of Visual Influence (ZVI), Visual Envelope Map (VEM) and Viewshed. However the term ZTV is preferred for its emphasis of two key factors that are often misunderstood:
• visibility maps represent where a development may be seen theoretically – that is, it may not actually be visible in reality, for example due to localised screening which is not represented by the Digital Terrain Model (DTM); and
• the maps indicate potential visibility only, that is, the areas within which there may be a line of sight. They do not convey the nature or magnitude of visual impacts, for example whether visibility will result in positive or negative effects and whether these will be significant or not.
Most ZTV produced are in conjunction with individual wind farm applications and are calculated by computer.

[32] Existing/Agreed wind farms as detailed in Appendix A.

Figure 9a Visual Impact - Existing Wind Farms – SSA E

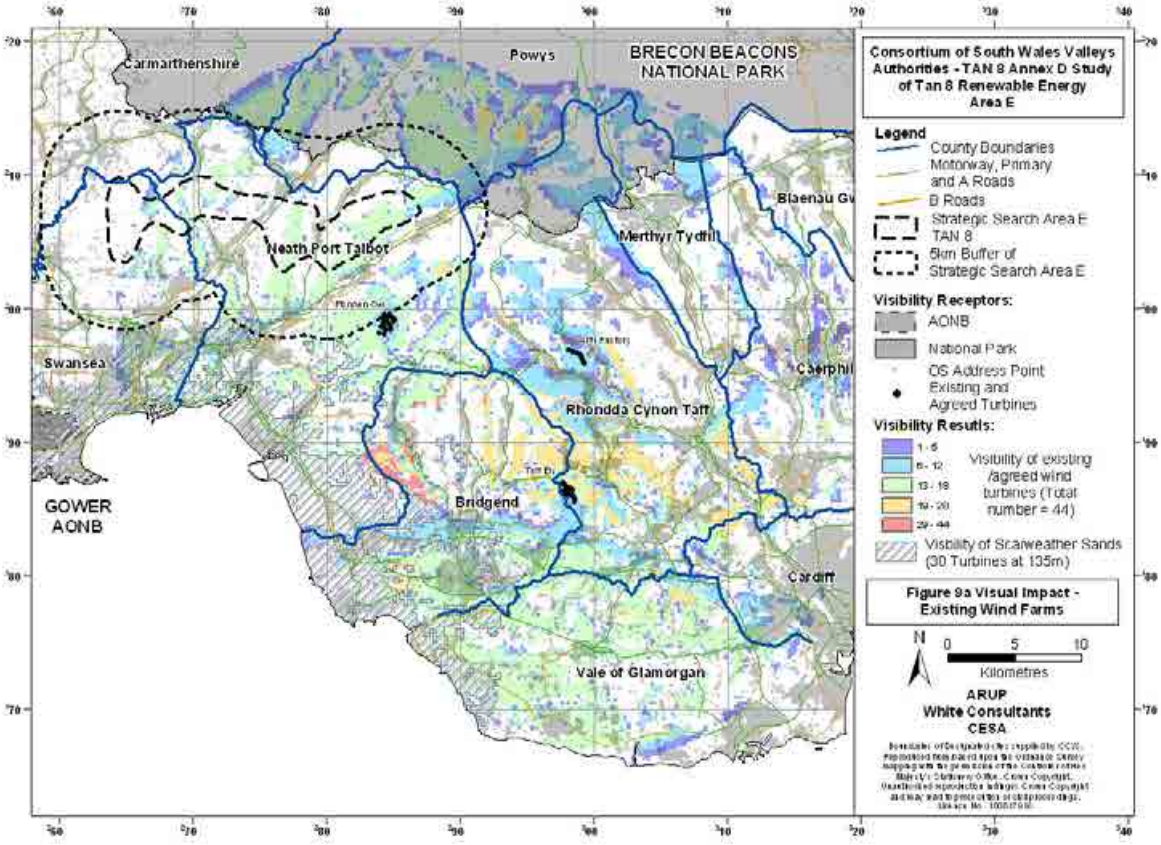
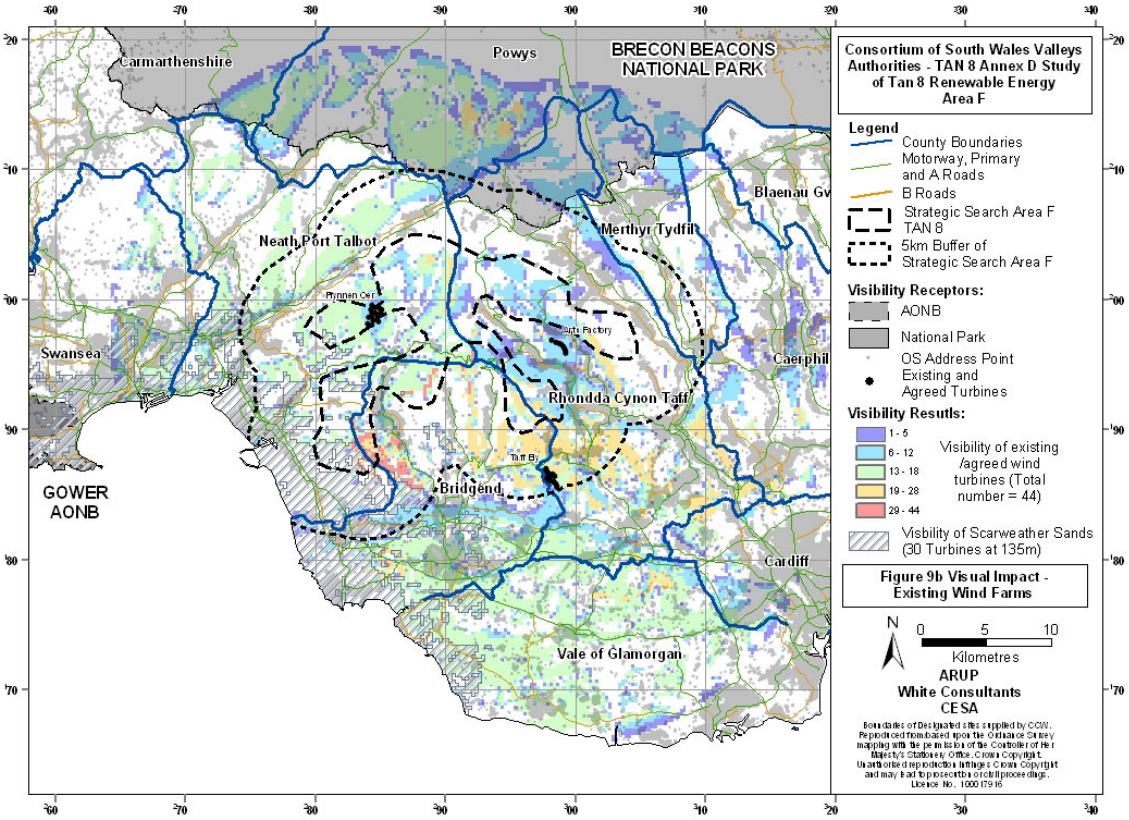


Figure 9b Visual Impact - Existing Wind Farms – SSA F



The ZTV results for each zone are therefore compared to the cumulative ZTV of the existing wind farms and the difference noted. It is this difference data that is used to rank the performance of the SSA zones in visual impact terms. This is shown graphically in **Figure 10a and 10b** below.

Figure 10a- Example ZTV for Zone 1 in SSA E compared to existing situation - spatial extent of additional visibility

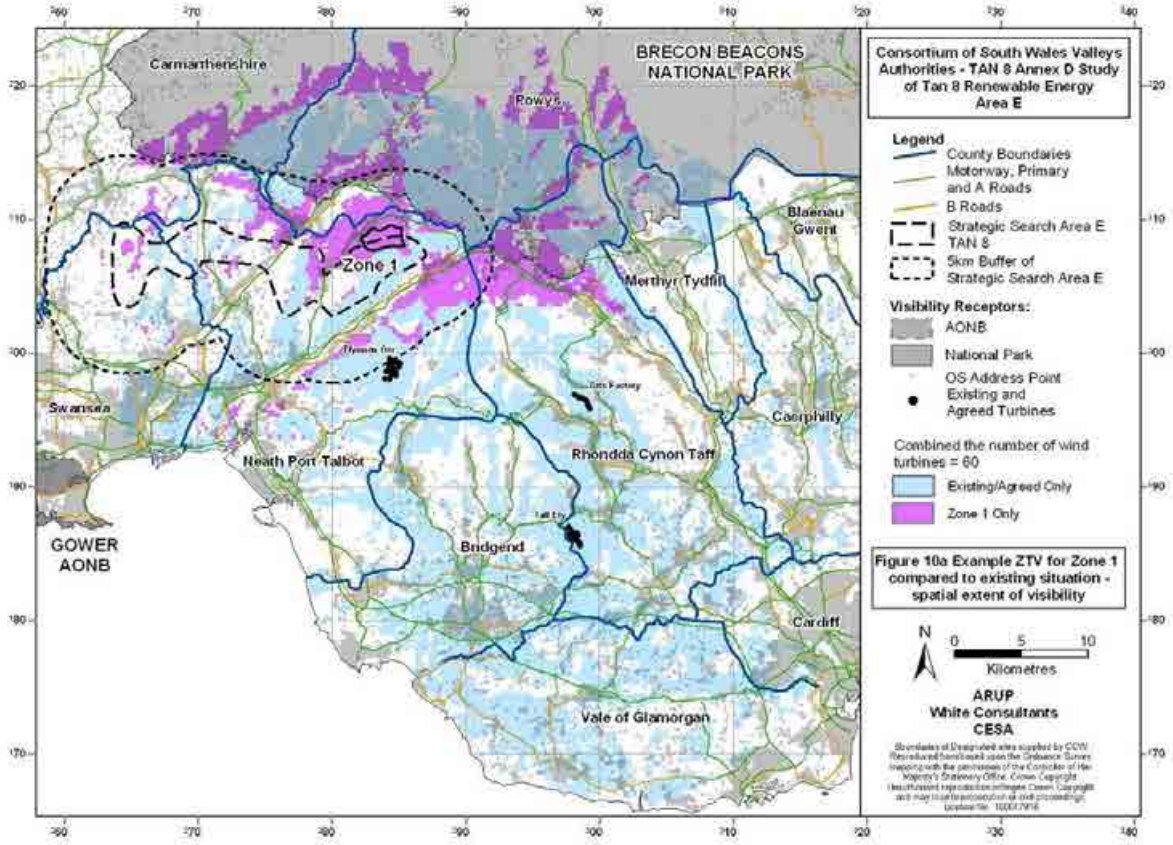
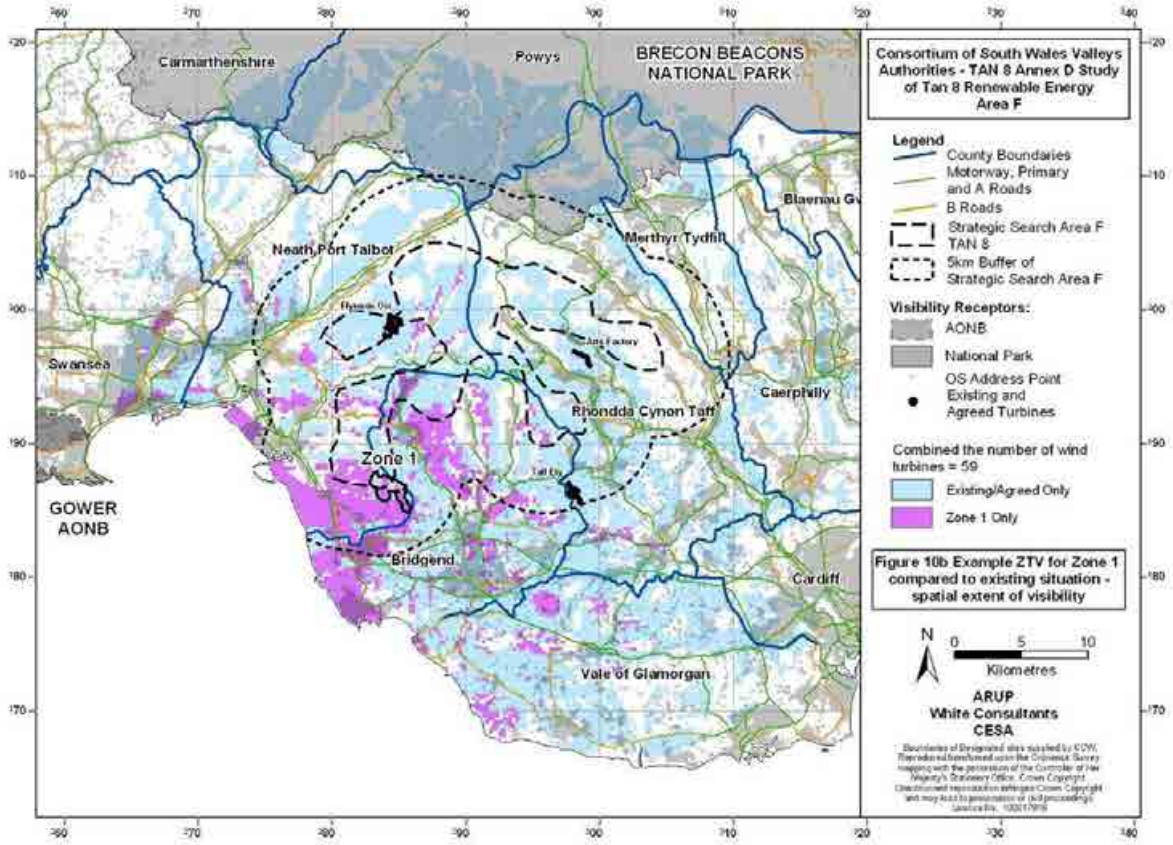


Figure 10b- Example ZTV for Zone 1 in SSA F compared to existing situation - spatial extent of additional visibility



Full details of the Methodology used for the GIS and Visual Analysis is included in **Appendix G**, however key parameters are outlined below in **Table 6**.

Table 6 – Key parameters used in the generation of the relative visual analysis

Turbine height	125m to blade tip (an average between 130m in forested areas and 110/120m in open moorland). It should be stressed that using height to blade-tip in the ZTV presents a conservative approach to the analysis; many individual EIA ZTV studies for wind farms consider height to hub as well as to blade tip.
Turbine density in zones	4 No. placed within each OS grid square within the zone on a grid basis. Note this turbine distribution does not relate to the likely developable capacity (MW) available per zone as no constraints are taken into account.
Grid size used in ZTV	250m square
Extent of ZTV	20km from edge turbines in the zone. Whilst it is acknowledged that 30-35km represents the ZTV in many cases, the study is concerned with *moderate adverse* visual impacts and greater only (reference **Table 4**). For 100-130m turbines these impacts are considered to occur within 20km of the SSA zone.
Existing/agreed wind farms	All wind farms which have been constructed, or are under construction or have a valid planning consent as of June 2005, but which have an

	output greater than 5MW (i.e. they are not "small" as defined by TAN 8, para. 2.12.) and they are within 30km of the boundary of the TAN 8 SSAs. See **Appendix A** for details. 30km is justified as it places an existing wind farm on average 40km from a wind farm in the centre of an SSA, such that each wind farm is within the moderate adverse visual impact distance (20km) of each other.

The visual impact data represented by the total ZTV for each zone (over and above that related to the existing situation) is then disaggregated by the following sensitive receptors:

- The **overall visual effects** (to determine likely effects to general users of the study area utilising access land, footpaths, bridleways, minor roads etc.). A distance of 20km is used to cover the range of sensitivity of receptors.
- **People day to day -** Specific visual effects upon residents and vehicle users (incl. users of A and B-roads). Distances of 5 and 10km respectively are used.
- **Landscape/sensitive outdoor recreation receptors -** Specific visual effects upon users of Nationally designated landscapes/National Trails (National Parks and Areas of Outstanding Natural Beauty (AONB) and any appropriate National Trails. A distance of 20km is used.
- The likelihood of **severe effects upon visual amenity and setting, particularly cumulative effects upon valley communities**. i.e. the visual effects that developing a zone might have upon adjacent villages and settlement in terms of dominance and sense of enclosure. The number of residents able to theoretically see turbines within a zone within a distance of 2km is used.

In arriving at an overall summary of the *visual* performance of an SSA zone/sub-area, the disaggregated visual impact data is brought together as follows:

- Overall visual effects data (ranked) + effects upon people day to day data (ranked)+ landscape/sensitive outdoor receptors data (ranked)+effects on settlements within 2km data (ranked).

This process ensures that each of the above factors is given equal weight. The visual data is then supplemented by a qualitative analysis undertaken following fieldwork.

Within the complex incised plateau nature of the South Wales Valleys Coalfield it was felt necessary to further modify the way the above data were combined. The effects on settlements within 2km were increased by 100%. The justification for this was that unlike other SSAs, over 0.5 million people live within or close to SSAs E and F and up to 10,000 people live within 2km of some of the zones (and would potentially be able to see turbines located within those zones). Regardless of whether turbines are viewed as positive or negative elements in the landscape, the potential for significant visual dominance over valley settlements given the scale of the proposed structures (125m+ to blade tip) is very high.

Further justification for the ZTV parameters and the way they are grouped together is set out in **Appendix H**.

The results of the qualitative visual assessment of each SSA zone are included within **Appendix I** – Visual Effects Commentary.

4.6.2 Visibility analysis for SSA E and F

There are two national landscape designations which are potentially affected by development of the SSA's. These are the Brecon Beacons National Park (BBNP) and

Gower Area of Outstanding Natural Beauty (AONB). Planning Policy Wales states that these areas are of equal status in terms of landscape and scenic beauty and both designations shall be afforded the highest status for protection from inappropriate developments. There is a duty to have regards to activities affecting these areas, whether those activities lie within or outside the designated areas.

The BBNP is located outside the SSAs to the north, running as close as 1km, and due to its elevation, parts look down onto and across to the SSAs. The Gower AONB is however around 15-20km to the south west of SSA E with very long distance views taking in Swansea's western outskirts including Gorseinon, Penllergaer and Fforestfach in the middle ground. See **Figure 3a**. For this reason the Gower AONB is not explicitly brought into the quantitative analysis as effects within this distance range (given the intermediate presence of Swansea) are not considered sufficiently significant. This issue however should be returned to and carefully examined in the subsequent development of SSA E.

In addition, Margam Mountain and the Rhondda Historic Landscapes are potentially affected by the development of the SSA(s) as discussed in the next section.

The detailed results analysing the various ZTV data for potential turbines in each zone are included in **Appendix H**. A summary is presented in **Table 7a and 7b** below.

Table 7a- Visibility Analysis for the zones in SSA E

Zone	Zone Name	Ranking: Overall visual effects	Ranking : Landscape/Sensitive outdoor receptors visual effects	Ranking: People day by day sensitive receptors	Ranking: Visual Dominance on settlement X2	Total Visibility Score	Ranking of total visibility
1	Seven Sisters (East)	2	15	2	8	27	1
2	Hirfynydd (Sarn Helen)	4	16	8	10	38	7
3	Hirfynydd (Sarn Helen) - South West	2	12	6	14	34	5
4	Hirfynydd (Sarn Helen) - West	9	14	2	24	49	12
5	Mynydd Marchywel	4	10	11	16	41	9
6	Mynydd Marchywel South West	12	8	9	26	55	13
7	Mynydd Marchywel South East	7	3	5	12	27	1
8	Mynydd Drumau (east)	15	1	15	32	63	16
9	Mynydd Drumau (west)	12	2	16	30	60	15
10	River Egel Valley	8	7	7	6	28	3
11	Mynydd Uchaf (AAT site)	9	9	9	18	45	10
12	Mynydd y Bettws	15	6	13	22	56	14
13	Mynydd y Gwair	14	5	14	2	35	6
14	Upper Lliw Reservoir	11	4	12	4	31	4
15	Onllwyn South	6	11	1	28	46	11
16	Glyn Neath North	1	13	4	20	38	7

Table 7b- Visibility Analysis for the zones in SSA F

Zone	Zone Name	Ranking: Overall visual effects	Ranking : Landscape/Sensitive outdoor receptors visual effects	Ranking: People day by day sensitive receptors	Ranking: Visual Dominance on settlement X2	Total Visibility Score	Ranking of total visibility
Zone 1	Moel ton-mawr	24	1	38	12	75	10
Zone 2	Mynydd Margam	27	1	41	26	95	17
Zone 3	Mynydd Bach	19	1	36	40	96	19
Zone 4	Ergyd Isaf (Mynydd Margam West)	42	1	34	86	163	40
Zone 5	Afan Argoed South East	10	1	22	48	81	12
Zone 6	Foel Trawsnant	11	1	13	70	95	17
Zone 7	Mynydd y Gelli	11	25	18	44	98	20
Zone 8	Mynydd Blaengwynfi	7	31	10	22	70	9
Zone 9	Mynydd Blaenrhondda (West)	27	42	25	10	104	22
Zone 10	Mynydd Pen-y-Cae - Llyn Fach	43	46	33	14	136	35
Zone 11	Glyncorrwg West	15	38	21	16	90	14
Zone 12	Coed Morgannwg Way	23	39	16	6	84	13
Zone 13	Mynydd Nant-y-bar	6	22	6	18	52	5
Zone 14	Glyncorrwg East	3	27	3	28	61	8
Zone 15	Mynydd Fforch dwm	2	21	2	2	27	1
Zone 16	Ffynnon Oer (wind farm)	3	32	4	4	43	3
Zone 17	Mynydd Resolven	30	37	26	38	131	33
Zone 18	Mynydd-y-Gaer and Foel Fynyddau	44	28	43	84	199	45
Zone 19	Mynydd Baedan	22	1	40	36	99	21
Zone 20	Mynydd Caerau	9	18	31	50	108	23
Zone 21	Moel Cynhordy	14	1	24	74	113	24
Zone 22	Werfa	35	23	12	60	130	32
Zone 23	Mynydd Llangeinwyr	16	20	29	62	127	30
Zone 24	Mynydd Corrwg Fechan	1	18	1	32	52	5
Zone 25	Mynydd Blaenrhondda	31	41	26	20	118	27
Zone 26	Mynydd Tynewydd	34	44	39	34	151	38
Zone 27	Mynydd Bwllfa	41	45	36	24	146	37
Zone 28	Cefn y Rhondda (north)	31	35	14	52	132	34
Zone 29	St Gwynno Forest	36	34	45	66	181	43
Zone 30	St Gwynno Forest (South)	39	29	41	78	187	44
Zone 31	Mynydd William Meyrick (NE)	36	26	19	82	163	40
Zone 32	Mynydd William Meyrick (SW)	38	24	23	54	139	36
Zone 33	Mynydd Maesteg (North)	21	17	15	64	117	26
Zone 34	Mynydd Maesteg (South)	17	1	8	68	94	15
Zone 35	Mynydd y Glifach (Trane)	17	1	19	90	127	30
Zone 36	Mynydd Maendy Glfach Goch	7	1	10	42	60	7
Zone 37	Mynydd y Gaer	19	1	28	30	78	11
Zone 38	Mynydd Maendy (Taff Ely wind farm)	13	1	8	72	94	15
Zone 39	Mynydd Margam (East)	40	1	35	46	122	28
Zone 40	Cefn y Rhondda	26	33	17	88	164	42
Zone 41	Mynydd Merthyr (North -East)	45	40	44	76	205	46
Zone 42	Mynydd Merthyr	45	43	46	80	214	47
Zone 43	Mynydd Portref (Taff Ely wind farm east)	27	1	30	58	116	25
Zone 44	Mynydd Pwllyrhebog	24	1	7	92	124	29
Zone 45	Ffynnon Oer (west)	5	30	5	8	48	4
Zone 46	Mynydd Bwllfa (south east)	33	36	32	56	157	39

Most zones in SSA E have a mixed performance but by considering the overall visual performance some trends start to emerge (such as the generally poor performance of E6 and 12 – Mynydd Marchywel south west and Mynydd y Bettws). Zone 15, Onllwyn South performs particularly poorly in relation to effects on settlement within 2km. In accordance with the criteria outlined within Section 4.3 of this report (landscape value/sensitivity and visual thresholds), it is proposed that this zone is not suitable for strategic windfarm development and should not be taken forward in the final analysis in Section 5.0.

Zone 1 Seven Sisters appears to perfom relatively well because it is not visible over a wide area but parts are very close to Seven Sisters so any SSA refined boundary should be kept well away from this settlement. Zone 13 and 14 Mynydd y Gwair appears to perform relatively well as does the southern extent of the Hirfynydd Ridge.

None of the zones in SSA E are affected by a 20km ZTV from Scarweather Sands.

For SSA F, there is again a wide spread in visual performance, ranging from the relatively good performance of F15 and some of the other zones around Glyncorrwg (which are very visually contained) to poor performance in the outliers located to the North-East of the SSA (such as zones F41 and F42 above Aberdare).

Generally, zones to the north perform less well in relation to effects on sensitive receptors being visible from the Brecon Beacons National Park (eg Zone 10). Those to the south or on narrow ridges tend to have more effects on settlements (eg Zone 40). Some have effects on both.

Zones 30, 31, 35, 40, 41, 42 and 44 perform particularly poorly in relation to effects on settlement within 2km. In accordance with the criteria outlined within Section 4.3 of this report (landscape value/sensitivity and visual thresholds), it is proposed that these zones are not suitable for strategic windfarm development and should not be taken forward in the final analysis in Section 5.0.

Zones 2,3,5 and 6 (Mynydd Margam and margins) are also affected by the ZTV for Scarweather Sands offshore wind farm, which, whilst not directly affecting this analysis, is a factor that should be considered for any detailed proposals within these zones.

4.7 Historic landscape analysis

In addition to Landscape Value and Landscape Capacity, in some parts of Wales the SSA's coincide with landscapes designated by Cadw/CCW/COMOS as being of Special or Outstanding Historic Interest i.e. they are "**historic landscape**".

Historic landscape was not considered a constraint in the National TAN 8 analysis, it was considered more appropriate that each historic landscape was considered on its merits and its effects considered at a more local level. Cadw stresses in the introduction to the published register(s)[33] that the historic landscapes are advisory and non-statutory, yet also indicates that historic landscapes will have to be given 'due consideration' alongside all other development issues.

The rationale for the treatment of historic landscape in the TAN 8 Annex D studies is set out in **Appendix D**. In summary the decision has been made to use historic landscape to a degree in the analysis, but not to treat all historic landscapes in the same way. Some have features which are more sensitive to large-scale wind energy developments than others. The issues are therefore two fold, the magnitude of the effect on the particular historic landscape resource (i.e. how much of it is affected by the SSA/SSA zone) and the impact, i.e. how sensitive to this particular development type is the historic landscape in question.

It is acknowledged that more detailed consideration will be necessary when any specific proposals are considered.

4.7.1 Results for SSA E and F

SSA E is not affected by any historic landscape(s).

The central/south-eastern part of SSA F is affected by The Rhondda Historic Landscape, whilst the Mynydd Margam area in the south-west of SSA F is affected (as the name suggests) by Margam Mountain historic landscape.

The Merthyr Mawr Kenfig and Margam Burrows Outstanding Historic Landscape is located some 5km from the south-western margins of SSA F and therefore has not be considered further in the analysis/assessment.

[33] Cadw, 2001, Register of Landscapes of Special Historic Interest in Wales and Cadw, 2001, Register of Landscapes of Outstanding Historic Interest in Wales

The Rhondda historic landscape potentially affects zones 25,26,28,40, 30, 31, 33 and 44. Based upon the criteria used as the basis of its designation, outlined in **Appendix D**, the Rhondda historic landscape[34] is considered to have an only limited influence on the strategic planning of wind farms and has not affected significantly the analysis. It should however be borne in mind when considering applications for development in these zones and reference should be made to the current Cadw guidance on the topic referenced in **Appendix D**.

The Margam Mountain[35] historic landscape potentially affects zones 2, 3, 4, 39 and 1 (in part). This designation reflects criteria which are more sensitive to wind farm developments and thus assumptions on the potential capacities (in MW) that might be developed in these zones have been moderated accordingly (to 4MW/km^2) (See Chapter 3 and **Figure 4b**). This allows for considerable micro-siting to respect specific features in the historic landscape and the setting of Margam Park, if any zones in this area are included within the final refined boundary. Again this should however be borne in mind when considering potential applications for development in these zones and reference should be made to the current Cadw guidance on the topic referenced in **Appendix D.**

4.8 Overall landscape and visual performance

The summary visibility performance data is brought together with the landscape character data to arrive at an overall performance rating for the SSA zone/sub-area in landscape and visual terms.

4.8.1 Overall landscape and visibility analysis for SSA E and F

The full results based upon individual criteria are included in **Appendix H.** A summary of the grouped data per each of the six assessment criteria categories is presented below in **Table 9a and 9b**. These six factors are (as previously indicated) :-

- LANDMAP Visual and Sensory value
- Landscape sensitivity to wind farm development
- The overall visual effects
- People day to day.
- Landscape/sensitive outdoor recreation receptors
- The likelihood of severe effects upon visual amenity and setting, particularly cumulative effects upon valley communities.

[34] **The Rhondda**, comprising the valleys of the Rhondda Fawr and Rhondda Fach in the Glamorgan uplands, contains one of the largest and best known mining conurbations and coalfield communities in Britain. Although devoid of its former mining and industrial base, the area retains intact its supporting infrastructure, and is the most important industrial and cultural landscape of its kind in Wales. The area includes: communities of distinctive terraced housing, public and municipal buildings, Anglican churches, Nonconformist chapels, cemeteries, breweries, public houses, shops and schools, most retaining their original architectural characteristics; important and significant historic and continuing social, political, spiritual, educational and cultural associations.

[35] **Margam Mountain** is a discrete block of the South Wales uplands situated at the south west fringe of the historical Glamorgan Blaenau, displaying continuity, density and diversity of human occupation from the prehistoric period to the recent past. The area includes: Bronze Age ritual and funerary monuments; large Iron Age hillforts, settlements, enclosures and trackways; a Roman road, a large and important group of Early Christian Inscribed Stone monuments and associations; medieval defensive works; Margam Abbey, later a site for gentry residences, a landscaped park, pleasure gardens and a magnificent Georgian orangery; Second World War defensive installations.

Table 9a Summary Visual and Landscape ranking for SSA E

Zone	Ranking: LANDMAP visual and sensory value	Ranking: Landscape sensitivity	ranking: Overall visual effects	Ranking : Landscape/Sensitive outdoor receptors visual effects	Ranking: People day by day sensitive receptors	Ranking: Visual Dominance on settlement X2	Sum of Ranks	Summary rank	Capacity (MW)
1	2	2	2	15	2	8	31	1	23
2	2	2	4	16	8	10	42	3	17
3	2	2	2	12	6	14	38	2	14
4	2	2	9	14	2	24	53	11	10
5	2	2	4	10	11	16	45	7	32
6	2	2	12	8	9	26	59	13	2
7	2	13	7	3	5	12	42	3	2
8	11	13	15	1	15	32	87	16	1
9	2	13	12	2	16	30	75	15	1
10	11	13	8	7	7	6	52	10	7
11	11	2	9	9	9	18	58	12	16
12	11	2	15	6	13	22	69	14	18
13	11	1	14	5	14	2	47	8	40
14	11	2	11	4	12	4	44	6	28
15	1	2	6	11	1	28	49	9	0
16	2	2	1	13	4	20	42	3	13

Table 9b - Summary Visual and Landscape ranking for SSA F

Zone	LANDMAP visual and sensory value	Landscape sensitivity	ranking: Overall visual effects	Ranking : Landscape/Sensitive outdoor receptors visual effects	Ranking: People day by day sensitive receptors	Ranking: Visual Dominance on settlement	Sum of Ranks	Summary rank	Capacity (MW)
Zone 1	1	40	24	1	38	12	116	15	9
Zone 2	1	26	27	1	41	26	122	16	12
Zone 3	1	13	19	1	36	40	110	14	11
Zone 4	31	40	42	1	34	86	234	44	1
Zone 5	1	13	10	1	22	48	95	10	9
Zone 6	1	13	11	1	13	70	109	13	4
Zone 7	31	13	11	25	18	44	142	22	7
Zone 8	31	3	7	31	10	22	104	11	27
Zone 9	1	1	27	42	25	10	106	12	31
Zone 10	31	26	43	46	33	14	193	40	12
Zone 11	1	3	15	38	21	16	94	9	41
Zone 12	1	3	23	39	16	6	88	8	20
Zone 13	1	3	6	22	6	18	56	4	16
Zone 14	1	13	3	27	3	28	75	5	6
Zone 15	1	3	2	21	2	2	31	1	7
Zone 16	1	1	3	32	4	4	45	2	6
Zone 17	1	26	30	37	26	38	158	26	7
Zone 18	1	40	44	28	43	84	240	45	11
Zone 19	31	40	22	1	40	36	170	31	7
Zone 20	1	13	9	18	31	50	122	16	19
Zone 21	1	26	14	1	24	74	140	21	4
Zone 22	31	26	35	23	12	60	187	36	7
Zone 23	31	26	16	20	29	62	184	35	16
Zone 24	1	26	1	18	1	32	79	6	0
Zone 25	1	3	31	41	26	20	122	16	33
Zone 26	1	3	34	44	39	34	155	25	43
Zone 27	31	13	41	45	36	24	190	38	6
Zone 28	1	3	31	35	14	52	136	19	12
Zone 29	1	13	36	34	45	66	195	41	39
Zone 30	1	26	39	29	41	78	214	42	9
Zone 31	1	13	36	26	19	82	177	32	3
Zone 32	31	13	38	24	23	54	183	34	9
Zone 33	31	13	21	17	15	64	161	27	12
Zone 34	31	13	17	1	8	68	138	20	7
Zone 35	1	26	17	1	19	90	154	24	6
Zone 36	1	26	7	1	10	42	87	7	16
Zone 37	31	40	19	1	28	30	149	23	5
Zone 38	31	40	13	1	8	72	165	29	9
Zone 39	31	26	40	1	35	46	179	33	4
Zone 40	1	26	26	33	17	88	191	39	3
Zone 41	1	26	45	40	44	76	232	43	5
Zone 42	1	26	45	43	46	80	241	46	19
Zone 43	31	40	27	1	30	58	187	36	19
Zone 44	31	13	24	1	7	92	168	30	4
Zone 45	1	3	5	30	5	8	52	3	5
Zone 46	1	3	33	36	32	56	161	27	3

On the basis of the data presented above, plus the detailed justifications included in **Appendices F and I,** the following zones are considered unacceptable in *landscape* terms in accordance with the criteria outlined within Section 4.3 of this report (landscape value/sensitivity and visual thresholds),:

Zones E7,E8, E9,E10, F1,F4, F18, F19, F37, F38, F43

On the same basis the following zones are considered unacceptable in *visual* terms:

Zones E15, F30, F31, F35, F40, F41, F42, F44.

The remaining zones are taken forward to be assessed alongside further issues of cumulative effects and contribution to a rational approach to concentration of the SSA in the next chapter.

5 Overall Analysis

5.1 Introduction

This chapter brings together the results of the landscape and visual assessment outlined in the previous chapter and the technical capacity data for each zone (i.e. how much each can potentially deliver in terms of MW output) to arrive at a recommended refined boundary for each Strategic Search Area.

5.2 Context/other factors

TAN 8 (Table 1) establishes indicative capacities for the SSAs in order to assist in delivering an established target of 800MW of installed onshore wind capacity by 2010. In line with the approach in TAN 8, the areas could contribute to an indicative 1120 MW capacity (Table 1). Part of the study brief and the philosophy behind the TAN 8 Annex D studies is to identify sufficient land to allow the delivery of the TAN 8 indicative capacity targets[36]. The key question is how much land is required?

This study has used moderate to low wind energy capacity estimates (in terms of MW/km^2) when determining the extent of developable land within the various SSA zones which encourages slighter larger areas of land to be included in any refined SSA boundaries. Set against these two factors, a number of constraints may affect deliverability. They include:

- Noise impacts (this study has used a minimum 500m buffer around residential properties, in practice with 100m+ high, 2MW+ output turbines, separation distances greater than these may be needed (eg. 700m). Existing or planned wind farms in the area may also raise the ambient noise level, effectively restricting the scope available for new developments.)
- Lack of site access (this study has not considered the feasibility of getting wind turbines to the various zones)
- Forestry constraints (some of the land within the zones lie within the areas of coniferous forest and therefore developers will have to work with the forest owners in the implementation of any proposals)
- Land ownership (this study presumes that all landowners[37] are accepting of the need to site turbines on their land, this is unlikely to always be the case)
- Site specific ecological, hydrological and archaeological constraints, unsuitable ground conditions etc. which will only be known about when Environmental Impact Assessments of proposals in the zones are undertaken.
- Developers may not come forward for some or all of the land within a zone within the time period required by the TAN (2010) or that not all planning permissions granted will be implemented within the same time period
- There is a need for micro-siting/design flexibility to minimise further landscape and visual impacts which will become apparent only when Environmental Impact Assessments of proposals in the zones are undertaken.
- Many developers may also favour the DTI Section 36 application route[38], by proposing sites larger than 50MW; as a result of this developers may choose larger

[36] TAN 8 Annex D Para 1.2 – "*The purpose of the local planning exercise is to achieve a finer grain of development allocation within the SSA, taking into account landscape, visual and cumulative impacts. It is not intended for use in the negotiation of the SSA capacities indicated in the Final TAN* 8."
[37] With the exception of Mynydd Marchwyel in SSA F.

sites that the zones comprise or combine zones together when submitting proposals. Some parts of zones may not therefore be developed when this occurs.

TAN 8 para 2.5 indicates that "there may be practical, technical and/or environmental reasons why the capacity may be more or less that that indicated" and para 8.6 "At the local level, accepted thresholds of change, having regard to nationally developed energy capacity targets, can be established by more detailed assessments".

The recommendations of this study are therefore reflect this position.

5.3 Zones required in SSA E

The final ranking of the zones developed for the study, and the indicative capacities for each of the zones is presented in **Table 10a** below. The zones are presented in descending order, with the highest ranked (and thus best performing) zones shown first[39]. The tables also contain a cumulative capacity (MW) column.

Table 10a - SSA E - Ranked Zones with cumulative estimated zone capacities (MW)

Zone		Summary rank	Approx. Capacity (MW)	Cumulative Capacity (MW)
1	Seven Sisters (East)	1	23.4	23
3	Hirfynydd (Sarn Helen) - South West	2	14.4	38
2	Hirfynydd (Sarn Helen)	3	17.0	55
16	Glyn Neath North	3	12.8	68
14	Upper Lliw Reservoir	6	27.6	95
5	Mynydd Marchywel	7	0.0	95
13	Mynydd y Gwair	8	40.3	135
4	Hirfynydd (Sarn Helen) - West	11	9.6	145
11	Mynydd Uchaf (AAT site)	12	15.9	161
6	Mynydd Marchywel South West	13	2.1	163
12	Mynydd y Bettws	14	17.5	181

TAN 8 contains an indicative target of installed capacity of 100MW for SSA E, *Pontardawe.* The implications of the data presented in **Table 10a** are that an area ***comprising*** the 4 lowest ranked zones need not be developed, and these are highlighted.

Development of these lowest ranked zones would not be necessary to meet the TAN 8 indicative capacities (and thus the National target), and if developed would give rise to greater environmental harm in landscape and visual terms that the zones above. However it is acknowledged that there is a continuum in environmental performance between the zones in the table and that the distinction between zones above and below the line is subtle; they all pass both sets of acceptability criteria outlined in Section 4.3.1.

5.4 Development of the refined boundary for SSA E

Within the required zones in SSA E which contribute to the SSA indicative capacity, there are parts of many zones which are likely to be unacceptable for development. These mainly

[38] Applications for power generation of greater than 50MW are determined at present by the DTI, with the local planning authority reduced to the role of a consultee to the application. This process is established via the Electricity Act 1989.

[39] This ranking order *does not imply a sequential approach to the release of land within any refined SSA boundary* (that would be impractical to implement); it is a tool to broadly ascertain which are the preferred areas to include within the minor refinement of the TAN 8 SSA boundary in accordance with the TAN 8 Annex D Methodology.

comprise the edges, close to changes in level such as near to the rock cliffs in Zone E2, or close to settlement such as Zone E1. This means that the capacity of the refined SSA could be less than the overall figure of 135MW in **Table 10a** above.

The area recommended for inclusion within the refined boundary comprises the most environmentally acceptable parts of zones E1,E2, E3, and E16 (the Hirfynydd ridge above the Neath Valley), E13 (Mynydd y Gwair)and the northern part of zone E14. It should be noted that biodiversity issues may influence the capacity on and around the Hirfynydd ridge.

5.4.1 Cumulative impacts and effect on zones

Mynydd Marchywel is a single ridge with medium-high landscape sensitivity located to the west of the Dulais valley. If wind turbine development was permitted in this zone, there would be a likelihood of significant cumulative effects on settlement in the valley at Crynant as turbines would need to be located on the relatively narrow ridgetops on both sides [in Zone E3]. This would be likely to be unacceptable. In accordance with the criteria outlined within Section 4.3 of this report (landscape value/sensitivity and visual thresholds) it is therefore recommended that this zone is not taken forward as part of the refined SSA.

Because of this reduced capacity it is necessary to include Zone 4 in the revised SSA boundary keeping development back from the ridge edge to avoid effects on Crynant and the Dulais valley.

5.4.2 Overall classification of SSA Zones

In accordance with the above analysis, each part of an SSA by definition now falls into one of the following categories, as set out in **Table 10b** below. There is a continuum between the “GREEN” and “YELLOW” categories which reflects a general decrease in environmental performance.

Table 10b – Classification of SSA constituent parts

Category	Description
Comprises a zone but acceptable (2010) (GREEN)	Zone (or part of a zone) is part of the best environmentally performing group of zones in terms of either intrinsic landscape sensitivity, value or visual characteristics as per criteria outlined in Section 4.3 & 4.5 of this report. This zone is needed to contribute to the 2010 indicative capacity for the SSA as established by TAN 8.
Comprises a zone (YELLOW)	Zone (or part of a zone) is part of the less environmentally performing group of zones in terms of either intrinsic landscape sensitivity, value or visual characteristics as per criteria outlined in Section 4.3 & 4.5 of this report. This zone is not needed to contribute to the 2010 indicative capacity for the SSA as established by TAN 8.
Comprises a zone but unacceptable (ORANGE)	Zone unacceptable due to cumulative landscape and visual impact as per criteria outlined in Section 4.3 & 4.5 of this report.
Comprises a zone but unacceptable (RED)	Zone unacceptable due to intrinsic landscape sensitivity, value or visual characteristics as per criteria outlined in Section 4.3 & 4.5 of this report.

The summary of the environmental performance of the SSA zones for SSA E is shown on **Figure 11a** below, whilst the recommended refined boundary for SSA E, derived from this data is therefore shown on **Figure 11b** below.

Figure 11a - Summary of Zone Environmental Performance

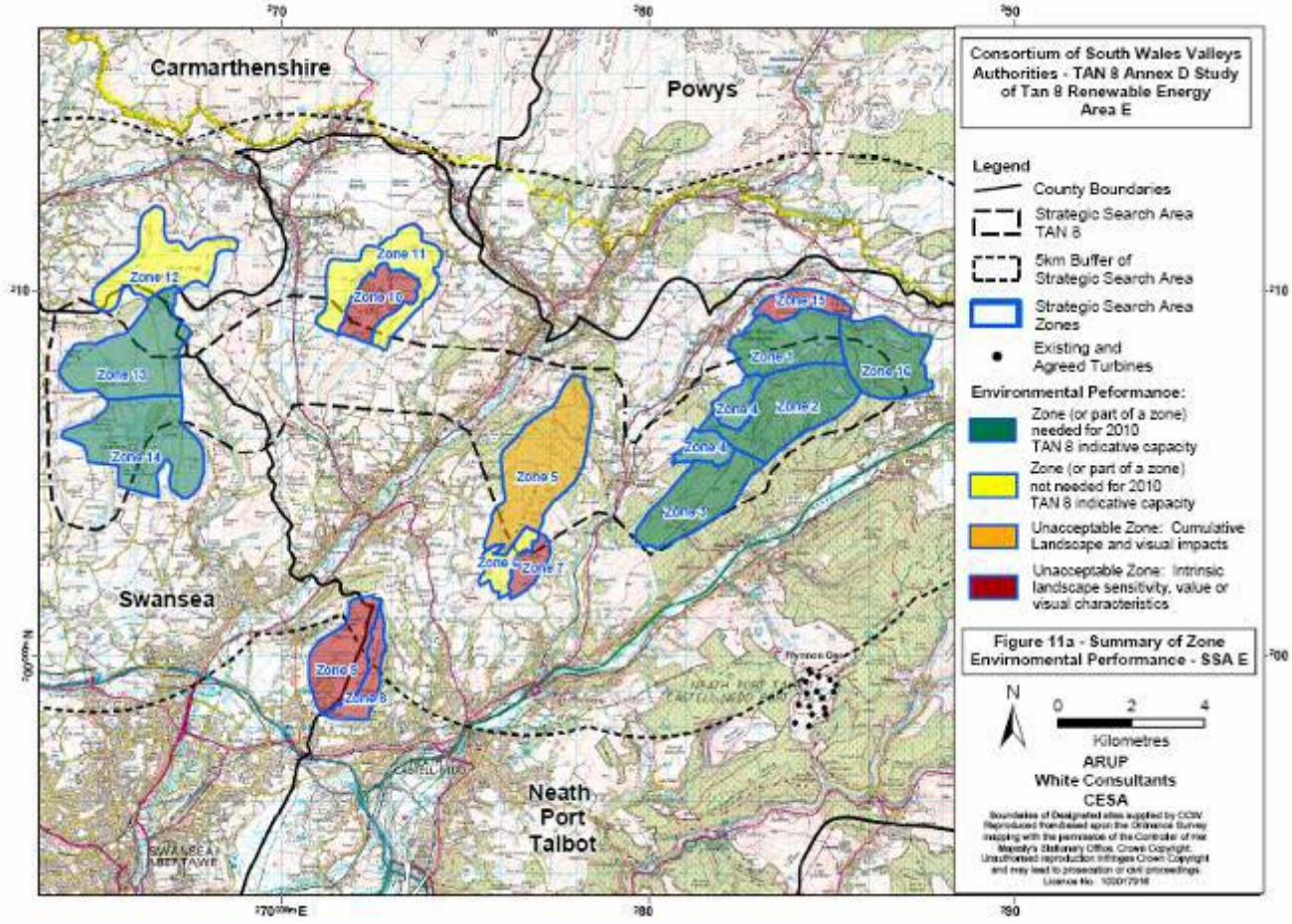
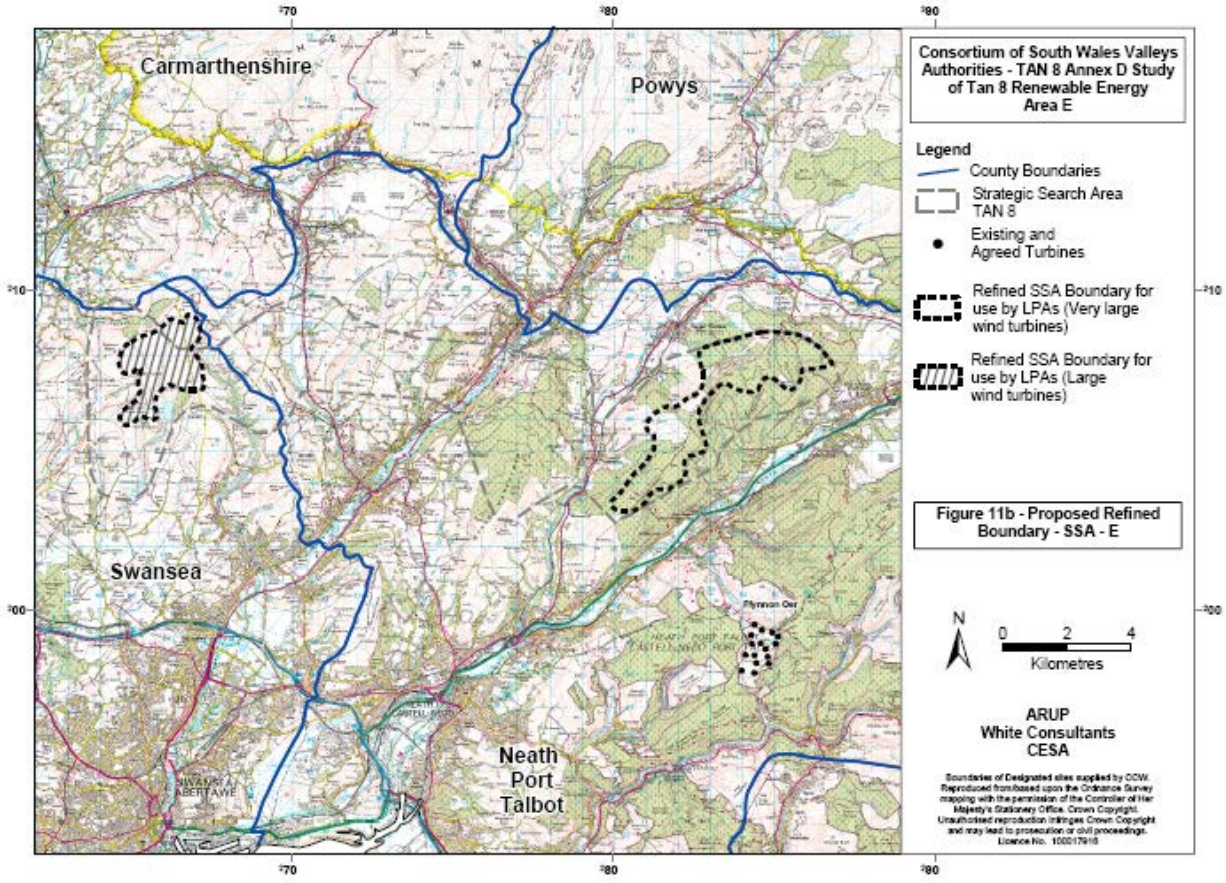


Figure 11b - Proposed Refined SSA boundary



The refined boundary comprises two areas with the following estimated capacities for development;

- Mynydd y Gwair (and environs) – 35-40 MW
- Hirfynydd ridge (and environs) – 60-65 MW

5.4.3 Other comments

With reference to Section 4.3 of this report (landscape sensitivity and typology), it is considered that whilst it has been demonstrated that a refined SSA boundary for E can support around 100MW of wind turbines, the scale and type of landform within the refined SSA boundary is not ideal for large scale wind farms. This is as demonstrated by most landscape sensitivity ratings being high or medium-high. Zone E13/E14 [with medium sensitivity] is best able to accommodate larger turbines as it comprises plateaux rather than ridge and is a very simple landform, although it is of relatively small extent/scale. The Hirfynydd Ridge (Zones E1,2,3,4 and 16 in part) is a single ridge with complex topography to the east, only partially masked by the presence of the coniferous forestry. Nevertheless, it is the largest landform within SSA E and of a height (400m+AOD) and scale (7km in length) that could accommodate some of the largest turbines, although the ridge makes the landform far from ideal.

This differentiation is reflected on **Figure 11b**.

Particular attention should also be given in any EIA for development in Zone E14 to ensure that the setting of the Upper Lliw Reservoir is protected as far as is possible. It is for this reason that only part of Zone E14 is shown as encompassing the refined boundary.

5.5 Zones required in SSA F

The final ranking of the zones developed for the study, and the indicative capacities for each of the zones is presented in Table 10b below. The zones are presented in descending order, with the highest ranked (and thus best performing) zones shown first[40]. The tables also contain a cumulative capacity (MW) column.

Table 10b - SSA F - Ranked Zones with cumulative estimated zone capacities (MW)

Zone		Summary rank	Approx. Capacity (MW)	Cum Cap
Zone 15	Mynydd Fforch dwm	1	7	7
Zone 16	Ffynnon Oer (wind farm)	2	6	14
Zone 45	Ffynnon Oer (west)	3	5	19
Zone 13	Mynydd Nant-y-bar	4	16	35
Zone 14	Glyncorrwg East	5	6	41
Zone 24	Mynydd Corrwg Fechan	6	0	41
Zone 36	Mynydd Maendy Glfach Goch	7	16	57
Zone 12	Coed Morgannwg Way	8	20	78
Zone 11	Glyncorrwg West	9	41	119
Zone 5	Afan Argoed South East	10	9	128
Zone 8	Mynydd Blaengwynfi	11	27	155
Zone 9	Mynydd Blaenrhondda (West)	12	31	186
Zone 6	Foel Trawsnant	13	4	190
Zone 3	Mynydd Bach	14	11	201
Zone 2	Mynydd Margam	16	12	213
Zone 20	Mynydd Caerau	16	19	232
Zone 25	Mynydd Blaenrhondda	16	33	265
Zone 28	Cefn y Rhondda (north)	19	12	277
Zone 34	Mynydd Maesteg (South)	20	7	284
Zone 21	Moel Cynhordy	21	4	288
Zone 7	Mynydd y Gelli	22	7	295
Zone 26	Mynydd Tynewydd	25	43	339
Zone 17	Mynydd Resolven	26	7	346
Zone 33	Mynydd Maesteg (North)	27	12	357
Zone 46	Mynydd Bwllfa (south east)	27	3	360
Zone 39	Mynydd Margam (East)	33	4	364
Zone 32	Mynydd William Meyrick (SW)	34	9	373
Zone 23	Mynydd Llangeinwyr	35	16	389
Zone 22	Werfa	36	7	396
Zone 27	Mynydd Bwllfa	38	6	402
Zone 10	Mynydd Pen-y-Cae - Llyn Fach	40	12	414
Zone 29	St Gwynno Forest	41	39	453

TAN 8 contains an indicative target of installed capacity of 290MW for SSA F, *Coed Morgannwg.* The implications of the data presented in **Table 10b** are that an area ***comprising*** the 12 lowest ranked zones need not be developed, and these are highlighted.

As per SSA E, development of these lowest ranked zones would not be necessary to meet the TAN 8 indicative capacities (and thus the National target), and if developed would give rise to greater environmental harm in landscape and visual terms that the zones above.

[40] This ranking order *does not imply a sequential approach to the release of land within any refined SSA boundary* (that would be impractical to implement); it is a tool to broadly ascertain which are the preferred areas to include within the minor refinement of the TAN 8 SSA boundary in accordance with the TAN 8 Annex D Methodology. The zones in themselves are also not intended as a development control tool, they are a means to an end to help justify any boundary refinements.

However it is acknowledged that there is a continuum in environmental performance between the zones in the table and that the distinction between zones above and below the line is subtle; they all pass both of the acceptability criteria outlined in Section 4.3.1.

5.6 Development of the refined boundary for SSA F

5.6.1 Cumulative Impacts and effect on zones

Within the necessary zones implied by the analysis presented in Table 10b above, there are still issues of cumulative landscape and visual impact. In accordance with the criteria outlined within Section 4.3 of this report (landscape value/sensitivity and visual thresholds) issues affect the following zones:

***Zones 3 and 5**: Mynydd Bach and Afan Argoed South East: These two zones when developed have the potential to cause cumulative visual effects upon the settlement of Bryn, located on the B4282. It is therefore recommended that the north-western part of Zone 3 is not developed and that the potential for cumulative visual effects are carefully examined in any EIA prepared for proposals either north or south of the settlement. Within these two zones keeping development above the 250m-275m contour should help minimise the potential for dominance of the settlement by wind turbines.*

***Zone 14:** Glyncorrwg East consists of large scale open convex slopes which fall towards Glyncorrwg. The area is well contained and only affects the one village which is why it scores well in the ranking. However, potential visual effects of development on the settlement could be severe, dominating the settlement and whilst the upper slopes to the extreme east /south east of the area may be suitable dependent on visibility from the village, the majority of the area is unlikely to be acceptable. This reduces the probable capacity significantly.*

***Zone 24:** Mynydd Corrwg Fechan is a small hill at the head of the valley overlooking the settlement of Glyncorrwg. As it is surrounded by higher ground visual effects are limited to the village and to the valley to the south. This means that the area performs well in the rankings despite its landscape sensitivity. However, wind turbine development on the southern/middle of the area would dominate the village and would be likely to cause severe adverse visual effects. Therefore any development would need to be limited to the northern part of the area and designed to minimise effects on the settlement. This will reduce the area's capacity.*

***Zone 36:** Zone 36 differs in character from other plateau/ridge top areas inasmuch as it gently slopes down from 390mAOD to around 250mAOD rather than having a relatively level top and steep valley sides. Indeed, the area is outside the SSA boundary. Windfarm development on these slopes would be highly prominent to the south from Glynogwr and beyond. Whilst the valley is relatively sparsely populated views would be open and uninterrupted and the effects significantly adverse. It is therefore recommended that development is located only on the northern quarter of the zone if acceptable in terms of a detailed EIA.*

***Zones 20 and 21:** The cumulative effects of the remaining zones need to be considered carefully. Zones 2, 3, 5 and 6 form a major block which will deliver upto 46MW. They lie on the western side of the Llynfi valley. To the east of the Llynfi valley are Zones 20 and 21. They are ranked lower than zones 2, 3, 5 and 6 and would deliver upto 23MW. Developing both sides of the valley would be likely to result in unacceptable cumulative visual impact on Maesteg and other settlements in the valley bottom and sides. It is therefore recommended that Zone 20 and 21 are not taken forward. The conical nature of the Mynydd Caerau to the north of Zone 20 and the prominence of the ridge in Zone 21 make them sensitive to windfarm development (see Landscape Sensitivity assessment sheets).*

Zone 34: *Wind turbines on Mynydd Maesteg (South) may have an adverse effect on Evanstown/Gilfach Goch. The eastern part of the zone is outside the SSA boundary in any case. This would reduce the overall capacity of the area with turbines limited to the western part of the area. It is therefore recommended that development is located only on the north-western quarter of the zone if acceptable in terms of a detailed EIA.*

5.6.2 The need for further zones

When the above zones are partially or totally removed from the refined boundary they reduce the potential developable capacity by some 40-50MW approximately. The above recommendations therefore mean that less environmentally acceptable zones require consideration from "below the line" in **Table 10b** in order to demonstrate delivery the target capacity. These are considered below. The comments form a summary of landscape sensitivity and visual effects comments found in the Appendices.

Zone 7*: Mynydd y Gelli forms an open upland landscape sloping north and west from Werfa. There is potential for significant adverse effects on the settlement of Blaengwnfi within 2km which, with Abergwnfi, may suffer unacceptable cumulative effects with the development of Zone 8 to the north. To the west, the zone forms the northern slopes of the conical Mynydd Caerau which is sensitive to windfarm development. To the east the area impinges on the setting of the highpoint at Werfa and is outside the SSA boundary. Therefore this zone should not be developed.*

Zone 26: *This area extends the core plateau area to the east linking it to Zone 28 on large scale forested landform and is acceptable provided turbines are kept away from the northern scarp edge.*

Zone 17: *This hill has medium-high landscape sensitivity and is highly visible to the north as a separate hill from the main plateau mass to the east. Effects on settlements in the Neath valley at Resolven and Glyneath are likely to be significantly adverse. Therefore this zone should not be developed.*

Zone 33: *This zone would extend the relatively small outlying area formed by Zones 34 and 36 further onto the relatively simple dissected plateau ridge further away from the settlement of Gilfach Goch. On this basis, it is recommended as being included in the revised SSA area.*

Thus from the next four zones "below the line" zones F26 and F33 are recommended for taking forward as part of the refined SSA boundary for SSA F. With the two additional zones a further 50MW approximately is added to the refined boundary, bringing the total back to the 290MW indicative capacity.

In accordance with the above analysis, each part of an SSA by definition now falls into one of the categories as set out in **Table 10c** above.

The summary of the environmental performance of the SSA zones for SSA E is shown on **Figure 12a** below, whilst the recommended refined boundary for SSA E, derived from this data is therefore shown on **Figure 12b** below.

Figure 12a - Summary of Zone Environmental Performance

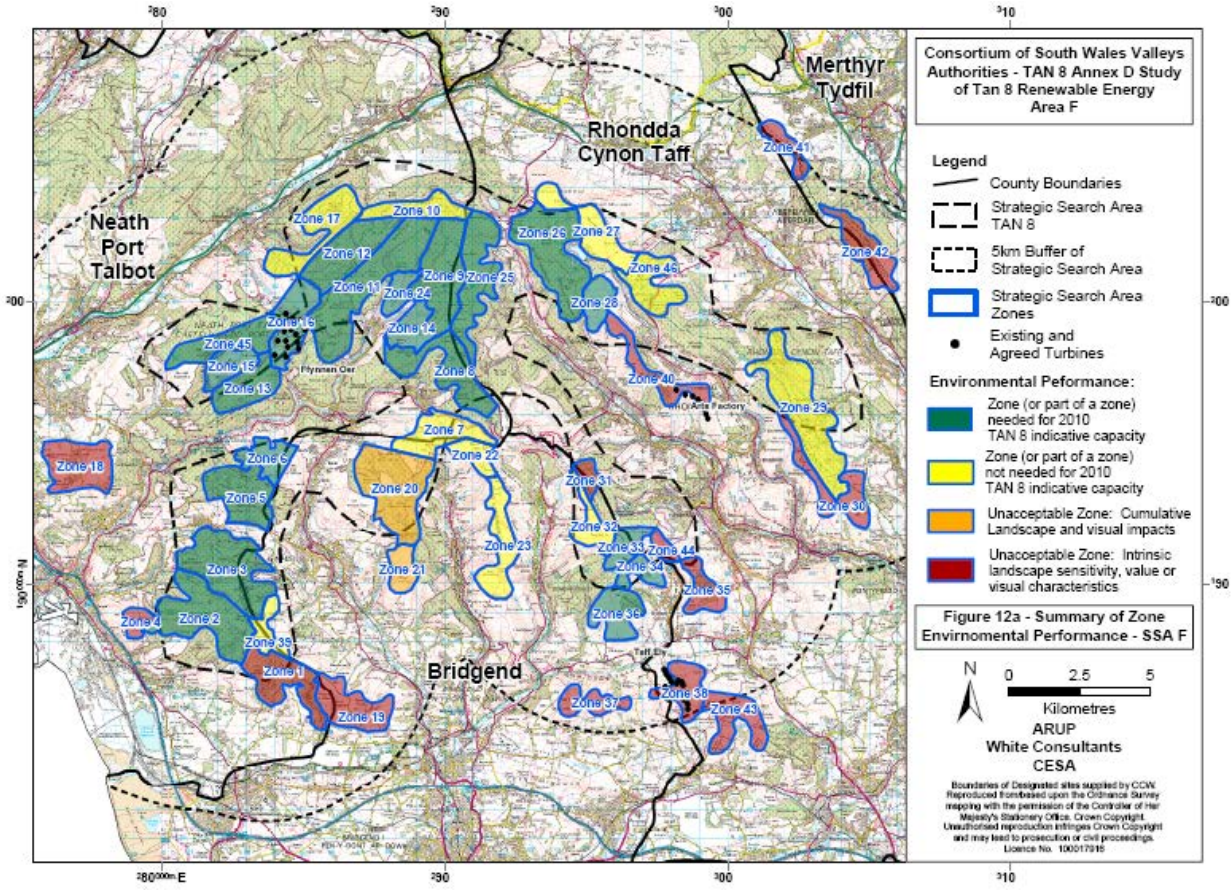
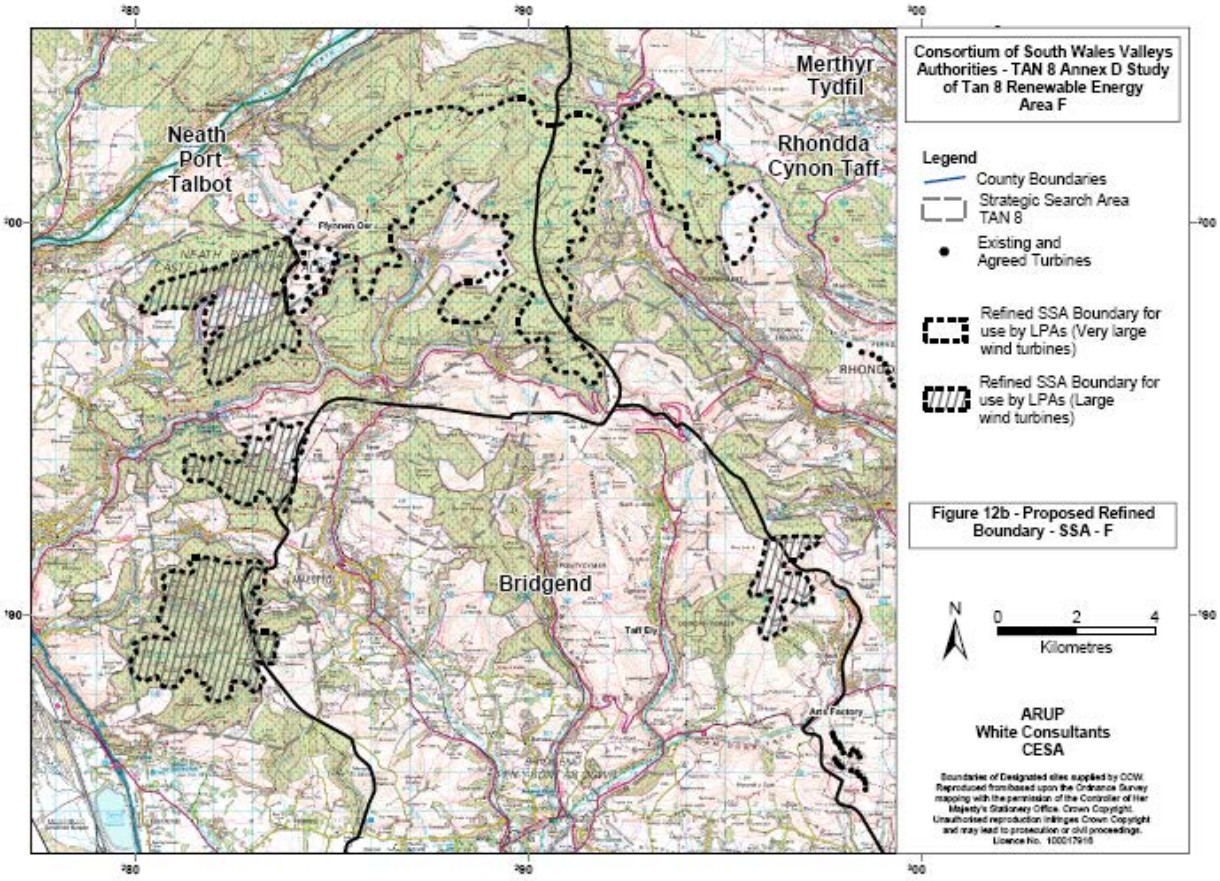


Figure 12 b - Proposed Refined Boundary



The refined boundary comprises six areas with the following estimated capacities for development;

- Mynydd Margam (and environs) – 25-30 MW
- Afan Forest Park South (and environs) – 15-20 MW
- Mynydd Fforch-dwm (and environs) –40-45MW
- Coed Morgannwg – 140-150MW
- Mynydd Ystradffernol (and environs)- 50-55 MW
- Mynydd Maes-teg (and environs)- 15-20 MW

5.6.3 Other comments

Zones F2,F3,F5 and F6 (Mynydd Margam and margins) are slightly affected by the ZTV for Scarweather Sands offshore wind farm, and the Margam Mountain historic landscape also potentially affects zones F2 and F3 (in part). Thus whilst Mynydd Margam and its margins are included in the refined SSA boundary for F (with a recommended lower turbine density) development proposals in these areas should still be subject to very careful examination with regard to both a) their effects upon the historic landscape resource, and b) cumulative landscape and visual impact with the offshore wind farm at key sensitive receptors.

Zones F5 and F13 coincide with the most heavily used part of the Afan Forest Park (closest to the main visitor centre) and it is likely that development proposals in these zones will have to carefully work with the requirements of the local authority and the Forestry Commission to ensure that effects upon recreational users are rendered negligible. Other parts of the Forest Park potentially affect zones F8, F9 and F11, but these are used mostly

by mountain bikers and it is highly likely that the two land uses could co-exist without conflict.

5.7 Wind Turbine height within the refined SSA boundaries

The size of wind turbines is a key issue and one that is of significant concern to stakeholder groups. Where at all possible, best practice suggests that wind turbine size should relate to the scale of the landform. Guidance prepared by Arup supporting TAN 8[41] indicates that ideally turbines should be no higher than a third of the height of the landform if there is a pronounced change in level such as on scarp edge or valley side. The reason for this is to minimise the effect of reducing the scale of the landform (which would be a significant adverse landscape effect); the role of upland ridges as a large scale landscape backcloth to the settlements of the valleys is important.

Wind turbines are increasing in size in order to optimise the energy output reaching over 125m in height and up to 140m in forested areas. The TAN 8 'rule of thumb' guidance is therefore not achievable across all the SSA areas. However, whilst it might be reasonable in the light of TAN 8 to accept turbines of around 130m in the larger scale core SSA areas, turbine height should be limited where possible in the fringe areas of lower landform to the south of SSA F and the west of SSA E. It is recommended that a cap of approximately 100m is placed on turbines in these areas; it is realised this has implications for the size of blades that can be used and thus may affect the rated output (in MW) of turbines in these areas.

Thus this brings a further level of planning guidance below the proposed refined SSA boundaries, whereby the zones within the refined SSA(s) are split into two key types namely:-

- Large scale, high relief landscapes capable of accommodating very large scale wind turbines[42] (SSA E - Hirfynydd ridge, SSA F – Coed Morgannwg)
- Medium to large scale landscapes but with a greater potential for effects on scale of landscape (SSA F – Afan Forest Park North, SSA E – Mynydd y Gwair and environs, SSA F -– Afan Forest Park South, SSA F - – Mynydd Margam and environs, SSA F – Mynydd Maesteg (nr Tonypandy), SSA F –Maerdy North). In these large scale wind turbines (up to 100m maximum) would be appropriate but number and density to be controlled where possible such that they appear as separate wind farms with appropriate, or at least as a transition to the strategic developments located to the centre of the SSAs. Despite the acknowledgement in TAN 8 that within the SSAs the implicit objective is to accept landscape change[43], within these areas, the sub-objective to avoid the worst cumulative visual effects.

As a result of this the recommended zones for SSA F are set out in **Table 11a and 11b** below, including an indication of the wind turbine heights acceptable. Generally SSA F is more suited to the very large wind farm type.

[41] See Arup (2004) – Facilitating Planning for Renewable Energy in Wales: Meeting the Target – Report on Research Contracts 105/2002 and 269/2003.
[42] number and density broadly suitable subject to EIA and appropriate micro-siting
[43] TAN 8 Annex D para 8.4

Table 11a SSA E Proposed refined SSA Zones with cumulative estimated capacities (MW)

Zone		Summary rank	Approx. Capacity (MW)	Cumulative Capacity	Wind turbine size
1	Seven Sisters (East)	1	12	12	Very large
3	Hirfynydd (Sarn Helen) - South West	2	12	24	Very large
2	Hirfynydd (Sarn Helen)	3	14	38	Very large
16	Glyn Neath North	3	10	48	Very large
14	Upper Lliw Reservoir	6	12	60	Large
13	Mynydd y Gwair	8	32	92	Large
4	Hirfynydd (Sarn Helen) - West	11	8	100	Very large

Table 11b SSA F Proposed refined SSA Zones with cumulative estimated capacities (MW)

Zone		Summary rank	Approx. Capacity (MW)	Cumulative Capacity	Wind turbine size
Zone 15	Mynydd Fforch dwm	1	7	7	Large
Zone 16	Ffynnon Oer (wind farm)	2	6	14	Very large
Zone 45	Ffynnon Oer (west)	3	5	19	Large
Zone 13	Mynydd Nant-y-bar	4	16	35	Large
Zone 14	Glyncorrwg East	5	2	37	Very large
Zone 24	Mynydd Corrwg Fechan	6	0	37	Very large
Zone 36	Mynydd Maendy Gilfach Goch	7	4	41	Large
Zone 12	Coed Morgannwg Way	8	20	61	Very large
Zone 11	Glyncorrwg West	9	41	102	Very large
Zone 5	Afan Argoed South East	10	9	111	Large
Zone 8	Mynydd Blaengwynfi	11	27	138	Very large
Zone 9	Mynydd Blaenrhondda (West)	12	31	169	Very large
Zone 6	Foel Trawsnant	13	4	173	Large
Zone 3	Mynydd Bach	14	11	184	Large
Zone 2	Mynydd Margam	16	12	196	Large
Zone 25	Mynydd Blaenrhondda	16	33	229	Very large
Zone 28	Cefn y Rhondda (north)	19	12	241	Very large
Zone 34	Mynydd Maesteg (South)	20	7	245	Large
Zone 26	Mynydd Tynewydd	25	43	288	Very large
Zone 33	Mynydd Maesteg (North)	27	12	300	Large

6 Conclusions and Recommendations

6.1 Conclusions

This study has considered the potential refinement of the boundaries of SSAs E and F as published in TAN 8. Using an extensive analysis involving fieldwork and computer modelling, it has reviewed the nationally published boundaries in the light of data not available to the original consultants at the time of their derivation, principally landscape and visual information.

It concludes that there is no need to extend either TAN 8 boundary outwards by any significant degree i.e. there is no "*robust evidence that land outside (but close to) the SSA is suitably unconstrained* (TAN 8 para 2.4). The land outside the published SSA boundaries has been demonstrated either to be:-

a) unacceptable in landscape and visual terms for the development of large scale wind farms forming part of a strategic search area, or

b) not to be needed to contribute to the 2010 indicative capacity, by virtue of sufficient currently available resource located within the better environmentally performing parts of the SSAs.

Although still a strategic study, the work has identified the extent of the complexity of landscapes within the SSAs and the need to consider the impacts on the very many communities that either lie adjacent to or within the SSAs.

In identifying the refined SSA boundaries it is accepted that significant change in the landscape will impact on many communities. The refined areas contain the preferred areas and while it is considered that these will have significant effects, the other parts of the SSA s performed worse or would have greater adverse effects upon the communities.

6.2 Recommendations

6.2.1 Development within the SSAs

It is recommended that the local planning authorities consider the principles, criteria and refined boundaries outlined within this report as soon as possible. Such an approach should still ensure that the TAN 8 indicative capacities are achieved (or exceeded given the lower end energy yield/km^2 estimates used) whilst protecting as far as is possible the landscape, ecological and visual environment of the Study Area.

Wind farm developers still need to demonstrate that proposals within the refined SSAs respond to the existing/agreed wind farms, communities as well as to the landscape as a whole. To this end, initial guidelines to minimise the landscape and visual impacts of wind farms in the Strategic Areas is included in **Appendix J.** These should be further developed and updated as development within the SSAs proceeds**.**

6.2.2 Development outside the SSAs

This report does not explicitly consider the scope for onshore wind outside the refined SSAs. TAN 8 para. 2.12 indicates local planning authorities could define a set of local criteria that would determine the acceptability of smaller community based wind schemes and define in more detail what is "smaller" and "community based". This exercise would logically follow the endorsement of the work within this study.

6.2.3 Biodiversity and landscape strategy for the SSAs

This study has only been able to address the potential adverse effects on the development of the SSAs on landscape and biodiversity. However the technical potential/feasibility for achieving biodiversity/landscape improvements in and around the SSAs (through management improvements linked to development of the SSAs) should be considered. Broad principles for each SSA should be developed. Individual applications for wind farms could then be seen within this strategic context and appropriate site specific biodiversity/landscape management plans developed to fit within this wider context. Put simply, there should be an agreed regional view, supported by stakeholders, as to what the SSAs should look like in 20-25 years and what habitats and species should be dominant in and around the wind turbines.

Emphasis could be given to the list of Species and Habitats of Principal Importance for Conservation of Biological Diversity. This list[44] has been prepared under section 74 of the Countryside and Rights of Way Act 2000. It identifies the living organisms (species) and habitat types that the National Assembly for Wales considers to be of principal importance for the purpose of conserving biological diversity in accordance with the 1992 United Nations Convention on Biological Diversity. In addition, where possible, any regional view of the SSAs should also consider the species and habitats contained within local authorities Biodiversity Action Plans.

[44] Going Wild in Wales(2003) - http://www.wales.gov.uk/subienvironment/content/guidance/list-of-species-e.pdf

FIGURES

Draft

Appendix A

Existing/Agreed Wind farms

A1 Existing/Agreed Wind farms

All wind farms which have been constructed, or are under construction or have a valid planning consent as of June 2005, but which have an output greater than 5MW i.e. they are not "small" as defined by TAN 8, para. 2.12

Sources

- LUC = Wales Planning and Development Database, Quarterly Planning Review, Prepared for FES by Land Use Consultants – April – June 2005
- BWEA - British Wind Energy Association website – add web address

Offshore proposals at Scarweather Sands and North Hoyle have not been taken into account in the formal visual impact analysis.

Site Name	Status	Grid reference	LUC data	BWEA Data	Local Authority	Number of turbines	Power (MW)	MW capacity	Turbine height (ground to blade tip)	Operational Date
Llyn Alaw	Operational	SH 365875	✓	✓	Anglesey	34	0.6	**20.4**	53	October 1997
Llangwyryfon	Operational	SN 621696	✓	✓	Ceredigion	11	0.85	**9.35**	42	February 2004
Mynydd Gorddu	Operational	SN 667860	✓	✓	Ceredigion	19	0.5	**10.2**	50	April 1998
Bryn Du (Cefn Croes)	Operational	SN 805790	✓	✓	Ceredigion	39	1.5	**58.5**	100	April 2005
Dyffryn Brodyn	Operational	SN 219268	×	✓	Ceredigion	11	0.5	**5.5**	53.5	December 1994
Rhyd-y-Groes	Operational		×	✓	Ceredigion	24	0.3	**7.2**	45.5	Dec 1992
Moel Maelogen	Operational	SH 849611	×	✓	Conwy	1	1.3	**1.3**	74	
Moel Maelogen A	Operational	SH 849611	✓	✓	Conwy	2	1.3	**2.6**	74	December 2002
Moel Maelogen extension	Consented	SH 852606	✓	✓	Conwy	9	1.3	**11.7**	91	November 2004
Tir Mostyn and Foel Goch	Operational	SJ 003580	✓	✓	Denbighshire	25	0.85	**21.25**	75	September 2005
Trysglwyn	Operational	SH 440890	✓	✓	Gwynedd	14	0.4	**5.6**	43.5	July 1996
Ffynnon Oer	Operational	SS 845990	✓	×	Neath Port Talbot	16	1.31	**21**	91	May 2003
Carno A and B	Operational	SN 915960	✓	✓	Powys	56	0.6	**33.6**	54	October 1996
Mynydd Clogau	Under Construction	SO 030 990	✓	✓	Powys	17	0.85	**14.45**	71.5	February 2005
Cemmaes II / C	Operational	SH 866068	✓	✓	Powys	18	0.85	**15.3**	76	March 2002 (A)
Bryn Titli	Operational	SN 930755	×	✓	Powys	22	0.45	**9.9**	48.5	July 1994
Llandinam P and L	Operational	SO 038837	×	✓	Powys	103	0.3	**30.9**	45.5	Dec 1992
Arts Factory	Consented	SS989965	×	✓	Rhondda Cynon Taff	8	1.3	**10.4**	76	April 2005
Taff Ely	Operational	SS 980865	×	✓	Rhondda Cynon Taff	20	0.45	**9**	53.5	August 1993

Appendix B

Wind Farm capacity estimates

B1 Wind farm capacity estimates

Wind farm capacity estimates As a rule of thumb the potential capacity of each 1km grid square within an SSA is taken as being an average of 8.5MW; based on a conservative approach to the data presented in the Tables A1 and A2 below, which provide a review of existing / proposed wind farm developments to emerge in recent years in Wales and NE England[45], including scoping reports. The last two most recent data in Table A1 relate to 3MW turbines, hence the larger average energy yields. It should also be noted that the areas immediately surrounding the turbines represent the most favourable/deliverable areas selected by developers and that there will be other land not utilised within the sites.

Table A1. Capacity performance per unit area of wind farm developments in Wales

Proposal	SSA	Planning status (as of June 2006)	Number of turbines	MW capacity of proposal	Area (approx.) (km^2) (excl. access tracks	MW / km^2
Mwdwl Eithin (	A	Scoping proposal	19	38	4	9.5
Tir Mostyn	A	Developed	25	21.21	3	7.07
Moel Maelogen extension	A	Developed	12	15.6	2	7.8
Blaengwen Farm, Pencader	G	In planning	10	30	3	10
Carno extension	B	In planning	14	18.2	2	9.1
Ffynnon Oer	F	Just constructed	16	20.8	2	10.4
Mynydd-y-Gwair	E	Scoping proposal	25-50	50-75	7.75	6.5 – 9.7 (8 used)
Braich Du	Outside A	Planning permission granted	3	4.5	0.5	9
Mynydd-y-Bettws	E	In planning	16	36.8	4	9.2
Ferndale (Arts Factory)	Buffer of F	Planning permission granted	8	10.4	1.5	7
Maerdy Wind Farm	*F*	*Scoping*	*8*	*24*	*2*	*12*
Pant-y-Wal	*F*	*In Planning*	*14*	*42*	*3*	*14*
					Average	**9.4**

[45] These are areas in which Arup has recent working experience and data; no other significance is implied.

Table A2. Capacity performance per unit area of wind farm developments in North East England

Proposal	Planning status	Number of turbines	MW capacity of proposal	Area (approx.) (km^2)	MW / km^2
Ray	In planning	20	60	6	10
Middlemoor	In planning	18	54-75	6.75	8 - 11.1
Steadings Wind farm	In Planning	22	66 max	9	7.3
Green Rigg	In Planning	18	36	4.5	8
				Average	**8.8**

Appendix C

LANDMAP - Further Information

C1 LANDMAP – Further Explanation

C1.1 The LANDMAP Methodology

LANDMAP separates the landscape into five Aspects:

Geological Landscape: this is the study of the geology, geomorphology and hydrology of the area.

Landscape Habitats: looks at the distribution of vegetation and habitats and the basis for landscape ecology.

Visual & Sensory: this aspect identifies those landscape qualities that are perceived through the senses. It deals with the individual physical attributes of landform and land cover, as well as their visual patterns of distribution and sensory characteristics, and the relationships between them in a particular area.

Historic Landscape: focuses on how archaeological and historical sites relate to each other and to the surrounding landscape.

Cultural Landscape: this considers the relationship that exists between people and places; how people have given meaning to places, how the landscape has shaped their actions and their actions have shaped the landscape.

Detailed guidance on the LANDMAP methodology is provided in the LANDMAP Information System manual, published in 2001 and updated in June 2003. There is a specific methodology chapter written for each of the five Evaluated Aspects (Geological Landscape, Landscape Habitats, Visual and Sensory, Historic Landscape and Cultural Landscape) that comprise the full set of LANDMAP Information.

Additional guidance to ensure that LANDMAP Information achieves high standards of information accuracy and presentation are detailed in the LANDMAP Quality Assurance Procedure (2003), which is also available from the “useful downloads” section. (see www.ccw.gov.uk)

C1.2 The LANDMAP Process.

The process for gathering, organising and evaluating LANDMAP Information into a nationally consistent dataset is similar for each of the five Evaluated Aspects and involves the following steps:

- Step 1: Classifying and mapping distinct Aspect Areas
- Step 2: Completing a detailed data capture form for each Aspect Area identified through desk and field work as appropriate
- Step 3:Preparation of an accompanying Technical Report
- Step 4: Submission for Quality Assurance assessment to ensure consistency and accuracy (for studies based upon the 2003 methodology update)

C1.3 LANDMAP Coverage in 2004

LANDMAP studies are undertaken at a County or National Park scale throughout Wales. LANDMAP is a partnership programme between the Countryside Council for Wales and the Unitary and National Park Authorities. As such, the timing of the collection of LANDMAP Information in an individual Authority responds to the unique circumstances of each situation. The first LANDMAP studies were initiated in 1997; the LANDMAP programme is now underway in all Welsh Unitary and National Park Authorities.

The five Evaluated Aspects, which comprise the full set of LANDMAP information, are complete for 20 of the 25 Unitary and National Park Authorities. Eleven of these complete sets of LANDMAP Information are also Quality Assured. The remaining five Authorities are in the process of working towards completing the full complement of five Evaluated Aspects (which include the Geological Landscape, Landscape Habitats, Visual and Sensory, Historic Landscape and Cultural Landscape).

C1.4 Visual and Sensory methodology

The visual and sensory aspect is a process of mapping what is perceived through our senses, primarily visually, from the physical attributes of landform and land cover to their visible patterns of distribution and their consistent relationships in particular areas. The senses of hearing, smell and touch are also considered as part of the perceived characteristics of the landscape. Partly based on aesthetic and perceptual criteria, this aspect uses many descriptive terms that are similar to the Landscape Character Approach [used in England and Scotland] to ensure familiarity and consistency of application.

Since this aspect may include any visible and/or perceived element within the landscape, it inevitably covers elements and features that are also covered by other Aspects. Thus, for example, the Visual and Sensory Aspect is likely to include references to both the form and type of vegetation within an area which the Biodiversity Aspect will also cover in its own way. The important difference is that the Visual and Sensory Aspect is concerned with the effect the vegetation has on how the area is perceived.

Most people can make subjective comment on what a landscape looks and feels like. However in the LANDMAP Visual and Sensory Aspect, greater objectivity is achieved by using consistent definitions, method of assessment and wording for each area. This makes the assessment more robust and justifiable by the Aspect Specialist who will be an expert in this field.

The process for carrying out the Visual and Sensory aspect is similar to the other evaluated aspects. Initially the study area is classified into different landscape types. These are mapped and data capture forms filled out for each. As with all landscape assessments, this is likely to be an iterative process.

Desk study derived Aspect Areas will be refined by field assessment which will form the basis for data recording. When the assessment is completed, a technical report is prepared to explain judgements and any deviations from the method. A QA procedure is then carried out on the assessment to ensure consistency and for quality control purposes.

The compilation of the LANDMAP Visual & Sensory Aspect therefore involves five main processes:

Step 1: Classifying and mapping Visual & Sensory Aspect Areas

Step 2: Aspect Areas Data Capture - Overview and Description

Step 3: Aspect Areas Data Capture - Evaluation and Recommendations

Tolerance to Change (optional)

Step 4: Technical reporting

Step 5: Quality Assurance

The Visual & Sensory Aspect is less reliant on published data and more reliant on field appraisal than other aspects. The basic information that is likely to be used is as follows:

• 1:25,000 and 1:10,000 OS maps,

• Aerial Photographs at 1:10,000 preferably orthographically corrected and available as continuous digital coverage for a study area [not as individual tiles]

• Unitary Development Plans

• Previous studies and landscape related documentation e.g. landscape assessments and countryside strategies.

The Visual & Sensory Aspect is organised according to a hierarchical classification system. This typology aims to classify the landscape into areas of distinct Visual & Sensory character, and is based on a hierarchy of four levels.

Value is assessed for each aspect area using the following criteria:

Scenic quality	The area will have accessibly-viewed scenes which are of a picturesque quality, demonstrating aesthetically-pleasing elements in composition
Integrity	The area should be generally unspoilt by large-scale, visually intrusive or other inharmonious development
Character	The area should have a distinctive and common character including topographic and visual unity and a clear sense of place
Rarity	The area should exhibit features or qualities that are both rare/representative and valuable for any other Visual & Sensory criteria

The Aspect Specialist also summarises with an overall evaluation and justification. This full information will be available on the CCW LANDMAP website for each local authority area in due course.

Appendix D

Treatment of Historic landscapes

D1 Treatment of historic landscapes

D1.1 Overview - Register of Landscapes of Historic Interest in Wales

Cadw: Welsh Historic Monuments, the Countryside Council for Wales (CCW) and the four Welsh Archaeological Trusts have for some time been working in partnership on several projects which are aimed at improving the understanding of the historic landscape of Wales, at both the national and local levels.

In 1998 and 2001, as a first step towards raising the profile of historic landscapes in Wales, Cadw, CCW and ICOMOS (UK)(International Council on Monuments and Sites) published the two-volume Register of Landscapes of Historic Interest in Wales Note: put all published texts in italics. This advisory and non-statutory document highlights what are considered to be the best examples of different types of historic landscape in Wales. However, the selection of areas for this Register does not reduce the importance of the rest of Wales's rich historic landscape. A Good Practice Guide explains how the Register should be used in assessing the effect of major developments on the historic landscape[46]. This guidance is primarily aimed at the assessment of individual projects and the development control process (Para 21. P 9). It does however indicate that more strategic studies (such as the TAN 8 Annex D studies) should make reference to the principles involved.

D1.2 Cadw Criteria and sensitivity

The Criteria adopted by Cadw for the derivation of the historic landscapes are set out in **Table A** below[47]. The table also includes a general view of the relationship between these criteria and large-scale wind farms based upon fieldwork and expert judgement gathered during the TAN 8 and subsequent work by the study team.

Table A – Cadw Criteria for historic landscape definition and sensitivity to large scale wind farm development.

Criteria	Definition	Relationship to larger scale wind farms
1. Intensively developed or extensively remodelled	Landscapes in which development or change as a result of human activity (land use) has been so intense, resulting in substantial alterations to the natural (landform) and semi-natural (landcover) elements: large towns, cities, conurbations, industrial areas, large-scale civil engineering projects, landscapes showing human endeavour on a grand scale	Sensitive
2. Period	Landscapes in which development or change as a result of human activity has been arrested at one or more stages and subsequent material alteration restricted: relict (or fossil) landscapes showing human activity within one or more periods, perhaps abandoned or essentially unchanged after the principal activity ceased.	Most sensitive
3. Historic diversity/Multiperiod	Landscapes in which development or change as a result of human activity continues, and into which past evidence from more than one period has become cumulatively assimilated with the natural (landform) and semi-natural (landcover) elements, with particular regard for those areas in which evolution over time is shown by a variety of archaeological or historic features with one or more of the following attributes:	Sensitive

[46] Cadw - Good Practice Guide on the using the Register of Landscapes of historic Interest in Wales in the Planning and development process
[47] From Cadw, 2001, Register of Landscapes of Outstanding Historic Interest in Wales

	• different forms of the same type or class of feature; • a range of different features; • density of related features; • particular group value; • continuity through several periods; • features relating to the development of a particular theme or process	
4. Buried/Subsumed or destroyed	Landscapes whose past use may usually only be inferred by historical (documentary) or archaeological (remote or intrusive) methods of investigation.	Less sensitive
5. Cultural merit	Landscapes with historic (events, traditions, legends, folklore), artistic, literary, architectural, technological, religious, or other important cultural association, either singly or in combination.	Less sensitive

The approach adopted for the TAN 8 Annex D studies is set out below.

D1.3 Effects upon historic landscapes of the SSAs

The main direct effects of the relevant SSAs upon the historic landscapes of Wales are summarised in the table below in **Table B.** Two approaches have been taken to the treatment of historic landscape in the TAN 8 Annex D studies (in terms of the influence on the outcomes of the studies) depending on the criteria for designation of the historic landscape concerned. These are as follows:-

- Most sensitive/Sensitive - Historic landscape mapped as a variable constraint and SSA zones ranked with respect to extent of Historic landscape resource directly affected by the developable part of the zone (as a percentage of the whole) – Approach A in Table B)
- Less sensitive - Historic landscape mapped as a variable constraint only – Approach B in Table B)

Table B – General effects of the SSAs on the historic landscape resource and the approach taken in the Annex D studies.

SSA	Historic landscape	Cadw Status	Cadw Criteria for Designation	General spatial impacts	Approach taken in TAN 8 Annex D studies
A – Clocaenog Forest	39 –Denbigh Moors	Special	3	Over 75% of historic landscape within SSA plus buffer	A
B- Carno North	56-Caersws basin	Special	3,4,5	Slight overlap between SSA 5km buffer and historic landscape	A
	57- Clywedog Valley	Special	1,2,5	Slight overlap between SSA 5km buffer and historic landscape	A
D – Nant-y-Moch	4 – Upland Ceredigion	Outstanding	1,2,3,5	Affects northern 20% of historic landscape	A
F – Coed Morgannwg	50 – The Rhondda	Special	1,5	Over 75% of historic landscape within SSA plus buffer	B
	51 – Mynydd Margam	Special	3	Over 75% of historic landscape within SSA plus buffer	A

Appendix E

Landscape Sensitivity/Capacity methdology

E1 Landscape Sensitivity/Capacity Methodology

Landscape sensitivity to wind farms is derived from desk study indicators and site assessment as part of this study. Criteria from the LANDMAP assessments for each area were used, for each aspect, with the prime indicators being visual and sensory. In addition, other criteria have been added to help define the capacity of any given landscape for large scale wind turbines. These criteria have been developed from the study of a number of strategic assessments carried out throughout the UK.

It is important to note that the LANDMAP values are based on assessments by others in accordance with LANDMAP guidance as set out in **Appendix C**. These studies have been undertaken recently and most are quality assured. The data is therefore regarded as sound.

The term *landscape sensitivity* is used in order not to confuse the reader with the technical capacity [energy output] of any given zone/sub-area. The assessment sheet actually assesses the *landscape capacity* of any given area for large scale strategic windfarm development as defined by best practice guidance.

The definitions of sensitivity are as follows:

Landscape Sensitivity definitions	
Landscape Sensitivity	*Definition*
High	Key characteristics of landscape are very vulnerable to change and are not able to accommodate strategic scale development without conflict directly with, and dominance of landscape character
Medium – high	Key characteristics of landscape of vulnerable to change and are generally not able to accommodate strategic scale development without likely conflict and dominance of landscape character
Medium	Key characteristics the landscape are susceptible to change but with some ability to accommodate strategic windfarm development at an appropriate scale.
Medium – low	Key characteristics of the landscape are fairly robust and are able to accommodate strategic development at an appropriate scale in most situations without conflict.
Low	Key characteristics of landscape are robust and are able to accommodate strategic scale windfarms without conflict.

It should be noted that each criteria entry *eg sense of enclosure: open* does not necessarily relate to *medium* sensitivity or has the same sensitivity as other items in the same column. It is a matter of overall judgement in what capacity rating a given zone/sub-area is given. The criteria are to inform that judgement.

A sample assessment sheet is shown in below.

SSA: Landscape sensitivity worksheet **ZONE F1 Moel ton-mawr**

Generally criteria from better to worse for large scale wind farms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau [note dissected plateau and single ridge]	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of**	vast	large	medium	small	intimate

	landform					
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined [note ridge has open lowland on both sdies	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements

Overall Sensitivity		**Low**	**Medium-low**	**Medium**	**Medium-High**	**High**

Comments
Afforested relatively narrow exposed ridge on the edge of the coalfield plateau. Rises from 50-300mAOD getting higher to the west. 100-150 m above the Llynfi valley to the north and 0-200m above the lower land to the south. The ridge acts as setting to Margam Country Park and historic garden.

Historic Landscape

Criteria					
Survival of historic patterns of landscape	Not evident		Moderately evident		Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall	Low	Medium-low	Medium	Medium-high	High

sensitivity					
Comments Margam Mountain to west is a landscape of special historic interest. Bronze Age monmuments including tumuli and trackways [Iron Age] spread along the ridge.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to wind farms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to wind farms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Conifer plantation dominates					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See history.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Plateau, pennant sandstone.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Afforested single, relatively narrow exposed ridge on the edge of the coalfield plateau. Rises from 50-300mAOD getting higher to the west. 100-150 m above the Llynfi valley to the north and 0-200m above the lower land to the south. The ridge acts as setting to Margam Country Park and historic garden. The ridge has historic interest continuing from Margam Mountain to the west. Because of its exposed position to the north and the south, and narrow profile and relatively low elevation, the zone is unsuitable for windfarm development.

Landscape Value

Aspect				
Visual and sensory	Low	Moderate	High	Outstanding
Historic landscape	Low	Moderate	High	Outstanding
Biodiversity	Low	Moderate	High	Outstanding
Cultural associations	Low	Moderate	High	Outstanding
Geology	Low	Moderate	High	Outstanding

Appendix F

Landscape Sensitivity and value results for the SSA Zones

F1 Landscape Sensitivity and value results for the SSA Zones

In separate word document

Appendix G

GIS and Visual Assessment Methodology

G1 GIS and Visual Assessment Methodology

See separate document

Appendix H

ZTV Parameters and ZTV results

H1 Detailed ZTV results for the SSA zones and justification of the Visual analysis

This Appendix provides further details of the visual analysis used in support of the analysis in Section 4.6 of the report.

The visibility of each zone has been divided into the following categories in order to give an appropriate spread and weighting of receptors.

Measurement category	Comments
Overall visual effect	
Overall total additional area that can view turbines up to 20km**	This measurement defines the theoretical area that can view the theoretically placed wind turbines in the SSA zone. It covers all potential receptors including those not covered by categories below such as users of open land, public footpaths and minor roads. It is also a factor which brings in the effects of the turbines on perception of landscapes surrounding the zones.
Additional area that can view turbines per turbine up to 20km**	This factor corrects the effect of different size zones which may be apparent on the above measurement. It shows where a small zone might be visible over a relatively wide area having an unduly large effect for its size and potential productivity.
The ranking of the above categories are combined to form a baseline visual effect ranking	
Landscape/ sensitive outdoor recreation receptors	
Areas of National Park or AONB that can view turbines up to 20km**.	These are sensitive landscapes used by people who may be sensitive receptors such as visitors enjoying its scenic quality. The nature of National Parks and AONBs are such that they often allow broad views, and wind turbines may be viewed at leisure.
National Trail that can view turbines up to 20km**.	These are sensitive routes used by people who will be sensitive receptors-walkers enjoying scenic quality. The National Trails often allow broad views, and wind turbines may be viewed at leisure.
The ranking of the above categories are combined to form a ranking of effect on people at leisure and sensitive landscapes.	
People day to day	
Settlements that can view turbines up to 2km*****	The likelihood of severe effects upon visual amenity and setting, particularly cumulative effects upon valley communities. i.e. the visual effects that developing a zone might have upon adjacent villages and settlement in terms of dominance and sense of enclosure
Settlements that can view turbines up to 5km***	Settlements are the most sensitive receptors. People may see turbines frequently while carrying out their day to day business or whilst residing in or around an SSA. Those most affected will be on the edge of settlements, others gaining glimpses between buildings and other structures.
Settlements that can view turbines up to 20km**	Dwellings up to 20km may also suffer significant effects. Because settlement is the most important receptor it has two distance factors to give it the appropriate weight.
A and B roads that can view turbines up to 10km****	Users of roads are less sensitive than residents generally but may include tourists and turbines will affect visitor's perceptions of an area.
The ranking of the above categories are combined to form a ranking of effect on people.	

Notes –

*** 20km is used as a distance that covers the most significant effects on static or slow moving observers. It is accepted that turbines will be visible beyond this distance but the analysis is not taken beyond this distance so the assessment is not skewed by less important effects*

**** Within 5km the effects will be the most severe. The number of individual properties within the 5km distance band has also been considered as a visual indicator for "people day to day", but sensitivity testing suggests the results are*

not dissimilar to the number of 250x250m grid cells with containing one or properties within 5km and thus this data has not been taken further in the analysis.

***** Turbines may have significant effects up to 10km becoming the focus of a view although these may change quickly in a moving car.*

In arriving at an overall summary of the *visual* performance of an SSA zone/sub-area, the disaggregated visual impact data is brought together as follows:

- Overall visual effects (ranked) + effects upon people day to day (ranked)+ landscape/sensitive outdoor receptors (ranked)+effects on settlements within 2km (ranked).

Within the complex incised plateau nature of the South Wales Valleys Coalfield it was felt necessary to further modify the way the above data were combined. This is as following:-

- Overall visual effects (ranked) – Effect reduced by 50% - justification = generally longer distance views to sensitive receptors *within (as opposed to on top of)* the South Wales Valleys Coalfield plateau are limited due to the inter-visibility imposed by the topography. To a certain extent the important elements of this indicator are also encompassed by the other visual factors.
- Effects on settlements within 2km (ranked) – Effect increased by 100% - justification = Over 0.5 million people live within or close to SSAs E and F and up to 10000 people live within 2km of some of the zones (and would potentially be able to see turbines located within those zones). Regardless of whether turbines are viewed as positive or negative elements in the landscape, the potential for significant visual dominance over valley settlements given the scale of the proposed structures (130m+ to blade tip) is very high.

H2 Detailed ZTV results for the SSA zones: SSA E

Note – In all cases raw data for the ZTVs is indicated in numbers of 250x250m grid squares affected.

Table H1 - SSA E - Overall Visual Effects

Zone	Turbine No	Overall total additional up to 20km	Rank overall additional	Additional per turbine up to 20km	Rank additional per turbine	Sum totals of overall ranking	Rank of sum
1	16	3541	4	221	5	9	2
2	22	4580	9	208	3	12	4
3	18	3852	5	214	4	9	2
4	8	3901	6	488	13	19	9
5	29	5072	11	175	1	12	4
6	5	4085	7	817	15	22	12
7	4	2701	1	675	14	15	7
8	5	5034	10	1007	16	26	15
9	14	5395	13	385	9	22	12
10	11	4439	8	404	10	18	8
11	18	5276	12	293	7	19	9
12	20	8085	15	404	11	26	15
13	24	8270	16	345	8	24	14
14	28	7618	14	272	6	20	11
15	6	2742	2	457	12	14	6
16	18	3324	3	185	2	5	1

Table H5 - SSA F - Overall Visual Effects

Zone	Turbine No	Overall total additional up to 20km	Rank overall additional	Additional per turbine up to 20km	Rank additional per turbine	Sum totals of overall ranking	Rank of sum
Zone 1	15	2344	31	156	20	51	24
Zone 2	24	3114	39	130	14	53	27
Zone 3	23	2580	34	112	12	46	19
Zone 4	4	2407	32	602	44	76	42
Zone 5	17	1681	20	99	9	29	10
Zone 6	6	1007	6	168	24	30	11
Zone 7	13	1612	17	124	13	30	11
Zone 8	19	1600	16	84	6	22	7
Zone 9	22	2878	38	131	15	53	27
Zone 10	9	3630	42	403	40	82	43
Zone 11	31	2657	35	86	7	42	15
Zone 12	19	2491	33	131	16	49	23
Zone 13	10	1031	7	103	10	17	6
Zone 14	6	467	2	78	5	7	3
Zone 15	9	580	3	64	2	5	2
Zone 16	13	927	4	71	3	7	3
Zone 17	13	2222	29	171	25	54	30
Zone 18	14	4031	45	288	38	83	44
Zone 19	12	1968	25	164	23	48	22
Zone 20	24	1741	22	73	4	26	9
Zone 21	7	1290	12	184	27	39	14
Zone 22	4	1625	18	406	41	59	35
Zone 23	12	1912	23	159	21	44	16
Zone 24	4	168	1	42	1	2	1
Zone 25	18	2801	37	156	19	56	31
Zone 26	26	3473	41	134	17	58	34
Zone 27	12	3262	40	272	34	74	41
Zone 28	6	1685	21	281	35	56	31
Zone 29	28	3966	43	142	18	61	36
Zone 30	13	2768	36	213	30	66	39
Zone 31	4	1677	19	419	42	61	36
Zone 32	7	2013	26	288	37	63	38
Zone 33	6	1438	14	240	33	47	21
Zone 34	4	1128	9	282	36	45	17
Zone 35	6	1425	13	238	32	45	17
Zone 36	12	1289	11	107	11	22	7
Zone 37	7	1552	15	222	31	46	19
Zone 38	8	1281	10	160	22	32	13
Zone 39	6	2244	30	374	39	69	40
Zone 40	10	1922	24	192	28	52	26
Zone 41	6	4015	44	669	45	89	45
Zone 42	11	5626	46	511	43	89	45
Zone 43	12	2137	27	178	26	53	27
Zone 44	1	930	5	930	46	51	24
Zone 45	12	1064	8	89	8	16	5
Zone 46	11	2203	28	200	29	57	33

Table H2 - SSA E- Landscape/sensitive outdoor recreation receptors

Zone	Nat Park up to 20km	Npark rank	AONB up to 15km	AONB rank	National Trail up to 20km	National Trail rank	Sum of ranks	Rank sum all
1	1660	15	0	1	0	1	17	15
2	1862	16	0	1	0	1	18	16
3	1494	12	0	1	0	1	14	12
4	1553	14	0	1	0	1	16	14
5	1237	10	0	1	0	1	12	10
6	1005	8	0	1	0	1	10	8
7	668	3	0	1	0	1	5	3
8	518	1	0	1	0	1	3	1
9	592	2	0	1	0	1	4	2
10	967	7	0	1	0	1	9	7
11	1041	9	0	1	0	1	11	9
12	946	6	0	1	0	1	8	6
13	921	5	0	1	0	1	7	5
14	831	4	0	1	0	1	6	4
15	1330	11	0	1	0	1	13	11
16	1510	13	0	1	0	1	15	13

Table H6 - SSA F- Landscape/sensitive outdoor recreation receptors

Zone	Nat Park up to 20km	Npark rank	AONB up to 15km	AONB rank	National Trail up to 20km	National Trail rank	Sum of ranks	Rank sum all
Zone 1	0	1	0	1	0	1	3	1
Zone 2	0	1	0	1	0	1	3	1
Zone 3	0	1	0	1	0	1	3	1
Zone 4	0	1	0	1	0	1	3	1
Zone 5	0	1	0	1	0	1	3	1
Zone 6	0	1	0	1	0	1	3	1
Zone 7	64	25	0	1	0	1	27	25
Zone 8	389	31	0	1	0	1	33	31
Zone 9	1413	42	0	1	0	1	44	42
Zone 10	1752	46	0	1	0	1	48	46
Zone 11	1338	38	0	1	0	1	40	38
Zone 12	1359	39	0	1	0	1	41	39
Zone 13	46	22	0	1	0	1	24	22
Zone 14	98	27	0	1	0	1	29	27
Zone 15	41	21	0	1	0	1	23	21
Zone 16	451	32	0	1	0	1	34	32
Zone 17	1211	37	0	1	0	1	39	37
Zone 18	106	28	0	1	0	1	30	28
Zone 19	0	1	0	1	0	1	3	1
Zone 20	28	18	0	1	0	1	20	18
Zone 21	0	1	0	1	0	1	3	1
Zone 22	59	23	0	1	0	1	25	23
Zone 23	30	20	0	1	0	1	22	20
Zone 24	28	18	0	1	0	1	20	18
Zone 25	1381	41	0	1	0	1	43	41
Zone 26	1492	44	0	1	0	1	46	44
Zone 27	1528	45	0	1	0	1	47	45
Zone 28	733	35	0	1	0	1	37	35
Zone 29	671	34	0	1	0	1	36	34
Zone 30	148	29	0	1	0	1	31	29
Zone 31	73	26	0	1	0	1	28	26
Zone 32	60	24	0	1	0	1	26	24
Zone 33	13	17	0	1	0	1	19	17
Zone 34	0	1	0	1	0	1	3	1
Zone 35	0	1	0	1	0	1	3	1
Zone 36	0	1	0	1	0	1	3	1
Zone 37	0	1	0	1	0	1	3	1
Zone 38	0	1	0	1	0	1	3	1
Zone 39	0	1	0	1	0	1	3	1
Zone 40	606	33	0	1	0	1	35	33
Zone 41	1363	40	0	1	0	1	42	40
Zone 42	1455	43	0	1	0	1	45	43
Zone 43	0	1	0	1	0	1	3	1
Zone 44	0	1	0	1	0	1	3	1
Zone 45	190	30	0	1	0	1	32	30
Zone 46	968	36	0	1	0	1	38	36

Table H3 - SSA E- People: day to day sensitive receptors

Zone	Roads up to 10km	Roads rank	Settlement up to 10km	Settlement rank(10)	Settlement up to 5km	Settlement rank	Sum all rank	Rank sum all
1	223	3	368	2	197	5	10	2
2	362	10	522	7	251	8	25	8
3	334	8	516	6	185	4	18	6
4	236	4	426	5	117	1	10	2
5	475	12	875	11	496	13	36	11
6	343	9	638	9	342	10	28	9
7	238	5	425	4	220	6	15	5
8	508	14	1008	12	607	15	41	15
9	552	16	1060	13	619	16	45	16
10	201	2	550	8	285	9	19	7
11	250	6	645	10	386	12	28	9
12	362	10	1108	14	507	14	38	13
13	501	13	1314	16	363	11	40	14
14	524	15	1275	15	235	7	37	12
15	154	1	254	1	127	2	4	1
16	290	7	375	3	177	3	13	4

Table H7 - SSA F- People: day to day sensitive receptors

Zone	Roads up to 10km	Roads rank	Settlement up to 10km	Settlement rank(10)	Settlement up to 5km	Settlement rank (5)	Sum all rank	Rank sum all
Zone 1	251	35	541	39	270	37	111	38
Zone 2	313	41	629	42	332	41	124	41
Zone 3	264	37	482	37	220	35	109	36
Zone 4	207	32	409	34	213	34	100	34
Zone 5	145	17	251	21	171	29	67	22
Zone 6	93	9	150	8	103	16	33	13
Zone 7	155	20	193	14	127	24	58	18
Zone 8	106	12	126	6	84	13	31	10
Zone 9	201	31	299	28	106	17	76	25
Zone 10	276	39	374	32	140	26	97	33
Zone 11	182	25	249	20	122	21	66	21
Zone 12	159	22	207	17	102	15	54	16
Zone 13	91	8	134	7	70	9	24	6
Zone 14	28	3	44	3	19	3	9	3
Zone 15	27	2	47	4	12	1	7	2
Zone 16	70	5	0	1	28	4	10	4
Zone 17	226	33	279	26	119	19	78	26
Zone 18	384	43	657	43	420	43	129	43
Zone 19	277	40	564	40	308	40	120	40
Zone 20	185	29	299	28	178	31	88	31
Zone 21	160	23	270	24	154	28	75	24
Zone 22	128	14	150	8	72	10	32	12
Zone 23	182	25	298	27	173	30	82	29
Zone 24	3	1	17	2	12	1	4	1
Zone 25	184	28	272	25	131	25	78	26
Zone 26	268	38	474	36	285	38	112	39
Zone 27	251	35	429	35	295	39	109	36
Zone 28	99	11	167	11	93	14	36	14
Zone 29	453	45	803	45	438	44	134	45
Zone 30	342	42	572	41	332	41	124	41
Zone 31	153	19	209	18	124	23	60	19
Zone 32	193	30	267	23	122	21	74	23
Zone 33	129	15	199	16	80	12	43	15
Zone 34	96	10	169	12	48	7	29	8
Zone 35	158	21	251	21	112	18	60	19
Zone 36	108	13	184	13	42	5	31	10
Zone 37	148	18	318	31	186	32	81	28
Zone 38	84	6	198	15	58	8	29	8
Zone 39	248	34	524	38	197	33	105	35
Zone 40	140	16	213	19	121	20	55	17
Zone 41	387	44	698	44	531	45	133	44
Zone 42	568	46	964	46	591	46	138	46
Zone 43	183	27	375	33	151	27	87	30
Zone 44	89	7	155	10	74	11	28	7
Zone 45	63	4	89	5	47	6	15	5
Zone 46	176	24	308	30	224	36	90	32

Table H9 - SSA E Visual Dominance on Settlement

	Turbine No	Number of Grid Cells	Number of OS Address Points (250m Grid)	Normalised Settlement per turbine	2km Normalised Ranking	2km Normalised Ranking X2
Zone 1	16	73	1456	91.0	4	8
Zone 2	22	74	2133	97.0	5	10
Zone 3	18	85	1932	107.3	7	14
Zone 4	8	75	1753	219.1	12	24
Zone 5	29	157	3681	126.9	8	16
Zone 6	5	70	1109	221.8	13	26
Zone 7	4	45	410	102.5	6	12
Zone 8	5	216	10375	2075.0	16	32
Zone 9	14	234	10190	727.9	15	30
Zone 10	11	56	504	45.8	3	6
Zone 11	18	146	2393	132.9	9	18
Zone 12	20	172	3323	166.2	11	22
Zone 13	24	50	69	2.9	1	2
Zone 14	28	78	366	13.1	2	4
Zone 15	6	75	1557	259.5	14	28
Zone 16	18	100	2820	156.7	10	20

Table H10 - SSA F Visual Dominance on Settlement

	Turbine No	Grid Number	Number of Settlements	Normalised Settlement per turbine	2km Normalised Ranking	2km Normalised Ranking X2
Zone 1	15	66	388	25.9	6	12
Zone 2	24	60	1870	77.9	13	26
Zone 3	23	91	3718	161.7	20	40
Zone 4	4	67	3986	996.5	43	86
Zone 5	17	85	3850	226.5	24	48
Zone 6	6	52	2581	430.2	35	70
Zone 7	13	43	2196	168.9	22	44
Zone 8	19	33	1271	66.9	11	22
Zone 9	22	12	509	23.1	5	10
Zone 10	9	13	257	28.6	7	14
Zone 11	31	33	976	31.5	8	16
Zone 12	19	6	100	5.3	3	6
Zone 13	10	31	416	41.6	9	18
Zone 14	6	15	666	111.0	14	28
Zone 15	9	5	4	0.4	1	2
Zone 16	13	7	60	4.6	2	4
Zone 17	13	68	1837	141.3	19	38
Zone 18	14	203	13251	946.5	42	84
Zone 19	12	104	1624	135.3	18	36
Zone 20	24	117	6848	285.3	25	50
Zone 21	7	75	3647	521.0	37	74
Zone 22	4	23	1570	392.5	30	60
Zone 23	12	92	4891	407.6	31	62
Zone 24	4	12	467	116.8	16	32
Zone 25	18	20	1138	63.2	10	20
Zone 26	26	43	3078	118.4	17	34
Zone 27	12	36	929	77.4	12	24
Zone 28	6	23	1791	298.5	26	52
Zone 29	28	192	11558	412.8	33	66
Zone 30	13	181	10415	801.2	39	78
Zone 31	4	43	3600	900.0	41	82
Zone 32	7	33	2240	320.0	27	54
Zone 33	6	26	2465	410.8	32	64
Zone 34	4	30	1714	428.5	34	68
Zone 35	6	152	10640	1773.3	45	90
Zone 36	12	63	1971	164.3	21	42
Zone 37	7	102	795	113.6	15	30
Zone 38	8	104	3688	461.0	36	72
Zone 39	6	49	1051	175.2	23	46
Zone 40	10	159	13556	1355.6	44	88
Zone 41	6	114	3803	633.8	38	76
Zone 42	11	164	8966	815.1	40	80
Zone 43	12	125	4525	377.1	29	58
Zone 44	1	42	4157	4157.0	46	92
Zone 45	12	15	214	17.8	4	8
Zone 46	11	55	3816	346.9	28	56

Table H4 - SSA E Summary Matrix - Landscape and Visual Performance

Zone	Ranking: LANDMAP visual and sensory value	Ranking: Landscape sensitivity	ranking: Overall visual effects	Ranking : Landscape/Sensitive outdoor receptors visual effects	Ranking: People day by day sensitive receptors	Ranking: Visual Dominance on settlement X2	Sum of Ranks	Summary rank	Capacity (MW)
1	2	2	2	15	2	8	31	1	23
2	2	2	4	16	8	10	42	3	17
3	2	2	2	12	6	14	38	2	14
4	2	2	9	14	2	24	53	11	10
5	2	2	4	10	11	16	45	7	32
6	2	2	12	8	9	26	59	13	2
7	2	13	7	3	5	12	42	3	2
8	11	13	15	1	15	32	87	16	1
9	2	13	12	2	16	30	75	15	1
10	11	13	8	7	7	6	52	10	7
11	11	2	9	9	9	18	58	12	16
12	11	2	15	6	13	22	69	14	18
13	11	1	14	5	14	2	47	8	40
14	11	2	11	4	12	4	44	6	28
15	1	2	6	11	1	28	49	9	0
16	2	2	1	13	4	20	42	3	13

Table H8 - SSA F Summary Matrix - Landscape and Visual Performance

Zone	LANDMAP visual and sensory value	Landscape sensitivity	ranking: Overall visual effects	Ranking : Landscape/Sensitive outdoor receptors visual effects	Ranking: People day by day sensitive receptors	Ranking: Visual Dominance on settlement	Sum of Ranks	Summary rank	Capacity (MW)
Zone 1	1	40	24	1	38	12	116	15	9
Zone 2	1	26	27	1	41	26	122	16	12
Zone 3	1	13	19	1	36	40	110	14	11
Zone 4	31	40	42	1	34	86	234	44	1
Zone 5	1	13	10	1	22	48	95	10	9
Zone 6	1	13	11	1	13	70	109	13	4
Zone 7	31	13	11	25	18	44	142	22	7
Zone 8	31	3	7	31	10	22	104	11	27
Zone 9	1	1	27	42	25	10	106	12	31
Zone 10	31	26	43	46	33	14	193	40	12
Zone 11	1	3	15	38	21	16	94	9	41
Zone 12	1	3	23	39	16	6	88	8	20
Zone 13	1	3	6	22	6	18	56	4	16
Zone 14	1	13	3	27	3	28	75	5	6
Zone 15	1	3	2	21	2	2	31	1	7
Zone 16	1	1	3	32	4	4	45	2	6
Zone 17	1	26	30	37	26	38	158	26	7
Zone 18	1	40	44	28	43	84	240	45	11
Zone 19	31	40	22	1	40	36	170	31	7
Zone 20	1	13	9	18	31	50	122	16	19
Zone 21	1	26	14	1	24	74	140	21	4
Zone 22	31	26	35	23	12	60	187	36	7
Zone 23	31	26	16	20	29	62	184	35	16
Zone 24	1	26	1	18	1	32	79	6	0
Zone 25	1	3	31	41	26	20	122	16	33
Zone 26	1	3	34	44	39	34	155	25	43
Zone 27	31	13	41	45	36	24	190	38	6
Zone 28	1	3	31	35	14	52	136	19	12
Zone 29	1	13	36	34	45	66	195	41	39
Zone 30	1	26	39	29	41	78	214	42	9
Zone 31	1	13	36	26	19	82	177	32	3
Zone 32	31	13	38	24	23	54	183	34	9
Zone 33	31	13	21	17	15	64	161	27	12
Zone 34	31	13	17	1	8	68	138	20	7
Zone 35	1	26	17	1	19	90	154	24	6
Zone 36	1	26	7	1	10	42	87	7	16
Zone 37	31	40	19	1	28	30	149	23	5
Zone 38	31	40	13	1	8	72	165	29	9
Zone 39	31	26	40	1	35	46	179	33	4
Zone 40	1	26	26	33	17	88	191	39	3
Zone 41	1	26	45	40	44	76	232	43	5
Zone 42	1	26	45	43	46	80	241	46	19
Zone 43	31	40	27	1	30	58	187	36	19
Zone 44	31	13	24	1	7	92	168	30	4
Zone 45	1	3	5	30	5	8	52	3	5
Zone 46	1	3	33	36	32	56	161	27	3

Appendix I

Qualitative Visual Effects Analysis

I1 Qualitative Visual effects Analysis

See separate document

Appendix J

Micro-siting guidance for wind farms in SSAs

J1 Micro-siting guidance for wind farms within SSAs

Initial Guidelines to minimise the landscape and visual impacts of wind farms within the Strategic Search Areas

Aim	Guideline	Comment
Optimise location of wind farm	Site large wind farms on large-scale and simple landscapes with simple, smooth skylines	Avoid *complex* ridgelines and areas of *complex land cover*.
	Where views are possible towards wind farms site them back from the edge of plateaux, valley sides, hill fringes.	Site turbine a distance of around 5 times its height to blade tip from top of break of slope where possible
	Avoid breaking skylines when viewed from *sensitive landscapes* and viewpoints	
Optimise layout of wind farm	Lay out wind turbines in apparently random pattern. Avoid straight lines unless in highly rectilinear field pattern or industrial landscape.	
	Where possible break small wind farms into small groups in *finer grain* field landscapes.	Break up into small visually separate groups of around 5 turbines where possible.
	Avoid a cluttered appearance without spreading out	
Optimise wind turbine design and size	All turbines in one wind farm must be of the same appearance and size. It is commonly accepted that the three bladed wind turbines with a solid evenly tapering tower is the most elegant design.	Colour turbines off-white or light grey with a matt finish
	Respect scale of landscape where there is pronounced topography by using wind turbines sizes and numbers that do not dwarf hills / ridges[48]. Consider where possible not using wind turbines that are higher than a third of the height of the landform they are placed on, (or likely to be viewed against), where breaks of slope and heights are well defined. (Note: in gently undulating or flat landscapes this is irrelevant).	
Optimise design and layout of ancillary equipment	Site ancillary equipment below the skyline including buildings, sub-stations and transmission lines.	Locate transmission lines underground in exposed parts of the site. Use timber poles to support higher voltage over-ground lines on lower slopes, where voltage allows.
	House all clutter within wind turbine structure.	
	Design access roads so they are not widely visible using local quarried crushed stone where possible.	

[48] Larger wind turbines (>100m) could potentially have the effect of being out of scale with the appropriate topography, particularly where the receiving landform is pronounced and smaller in scale (say up to 200m change in level). In these circumstances a lower number of turbines eg. 3-5, could potentially reduce the potential visual and landscape impact

Appendix K

Wildlife Trust Sites

K1 Wildlife Trust Sites

K1.1 Introduction

There are six Wildlife Trusts in Wales; as follows:

- Brecknock,
- Gwent,
- Montgomeryshire,
- North Wales,
- Radnorshire and
- South and West Wales.

These broadly coincide with the administrative boundaries of local authorities in Wales, with the exception of the Gwent/South and West Wales boundary. The location of Wildlife Trust sites in relation to the boundaries of the SSAs has been determined.

Only those wildlife sites that are greater than 25ha in size (i.e. ¼ of the area of a 1km2 grid square) will be taken forward for consideration in the analysis section (these have been colour-coded green in **Table J1** below).

Wildlife Trust Reserves found to be in proximity of the SSA boundaries and above the 25ha size threshold have been digitised, prior to being taken forward to inform final capacity estimates. In this way, land under designation as a County Wildlife Site (reserve) can be used to moderate final capacity estimates, rather than excluding such areas in absolute terms. To avoid confusion, an area of land (habitat) that has been afforded statutory protection, e.g. as a SSSI, but practically is under the management of a named Wildlife Trust, is classified as being an absolute constraint to onshore wind farm development.

Table J1 – Relevant Wildlife Trust Reserves in Wales

Wildlife Trust Area	Reserve name	Size (ha)	Grid Reference	SSSI status (Yes/No)	Commentary
Brecknock	Not Applicable				
Gwent	Not Applicable				
Montgomeryshire	Dyfnant Meadows	9.5	SJ005155	No	Open land within a forest plantation. Already dealt with in the constraint analysis due to the presence of settlement which is buffered by 500m. Site falls within the settlement buffer.
	Llyn Mawr	12	SO006972	Yes	Dealt with in the environmental constraint analysis
	Glaslyn	280	SN822939	Yes	Dealt with in the environmental constraint analysis
North Wales	Blaen-y-Weirglodd	4.04	SH914633	Yes	A peat bog near Llansannan, Denbighshire dealt with as an environmental constraint (SSSI) in the analysis.

	Gors Maen Llwyn	280	SH 975580	Yes	Gors Maen Llwyd, a heather moorland. This habitat is part of the Mynydd Hiraethog SSSI, hence the area has been dealt with as part of the environmental constraint analysis.
Radnorshire	Beacon Hill	1889	SO176767	Yes (part)	Included in the constraint analysis as a county wildlife site, i.e. *variable constraint*. The reserve comprises all of the common land of Beacon Hill belonging to the Crown Estate. The pool on Pool Hill (the source of the Lugg) and the River Lugg are notified Sites of Special Scientific Interest.
South and West Wales	Blaenant-y-Gwyddyl	10.1	SN885076	No	An upland area of ancient broadleaved woodland, stream and waterfalls
	Craig Cilhendre Woods	16.1	SN719022	No	Semi-natural broadleaved woodland, part of which is ancient in origin
	Llyn Fach	16.2	SN905033	Yes	Forming part of the Craig-y-Llyn. Designated as a SSSI. Dealt with in the environmental constraint analysis
	Melincwrt Waterfalls	5.2	SN825017	No	Ancient broadleaved woodland, stream and waterfall.
	Parc Slip Nature Reserve	123.2	SS880840	No	An entirely restored site which historically suffered from industrial dereliction emanating from a large deep mine. Not within technically feasible part of SSA 5km buffer so does not affect zones taken forward for further analysis (nearest zone is F19)
	Pwll Waun Cynon (Mountain Ash)	7.2	ST034997	No	Pond, meadow, scrub and acidic woodland

SSA F: Landscape sensitivity worksheet

ZONE F1 Moel ton-mawr

Generally criteria from better to worse for large scale wind farms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau [note dissected plateau and single ridge]	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined [note ridge has open lowland on both sdies	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements

Overall Sensitivity		Low	Medium-low	Medium	Medium-High	High

Comments

Afforested relatively narrow exposed ridge on the edge of the coalfield plateau. Rises from 50-300mAOD getting higher to the west. 100-150 m above the Llynfi valley to the north and 0-200m above the lower land to the south. The ridge acts as setting to Margam Country Park and historic garden.

Historic Landscape

Criteria			
Survival of historic	Not evident	Moderately evident	Highly evident

patterns of landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Margam Mountain to the west is a landscape of special historic interest. Bronze Age monuments including tumuli and trackways [Iron Age] spread along the ridge.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to wind farms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to wind farms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Conifer plantation dominates

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
See history.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall	Low	Medium-low	Medium	Medium-high	High

sensitivity					

Comments

Plateau, pennant sandstone.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a single, relatively narrow exposed ridge on the edge of the coalfield plateau only 100-150 m above the Llynfi valley to the north and 0-200m above the lower land to the south. The ridge rises from 50-300mAOD getting higher to the west and acts as setting to Margam Country Park and historic garden. It is covered in forest plantation. The ridge has historic interest continuing from Margam Mountain to the west. Because of its exposed position to the north and the south, and narrow profile and relatively low elevation, the zone is unsuitable for strategic windfarm development.

Landscape Value

Aspect				
Visual and sensory	Low	Moderate	High	Outstanding
Historic landscape	Low	Moderate	High	Outstanding
Biodiversity	Low	Moderate	High	Outstanding
Cultural associations	Low	Moderate	High	Outstanding
Geology	Low	Moderate	High	Outstanding

SSA F: Landscape sensitivity worksheet
ZONE F2 Mynydd Margam

Generally criteria from better to worse for large scale wind farms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau [note dissected plateau and single ridge]	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined [note ridge has open lowland on both sdies	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements

Overall Sensitivity		Low	Medium-low	Medium	Medium-High	High

Comments

Afforested upland on the edge of the coalfield plateau with a gently rounded smooth skyline. Rises to 349mAOD, 50-200m above lower land to south. Upland continues north but the area acts as setting to Margam Country Park and historic garden to the south. The area is incised by narrow minor valleys.

Historic Landscape

Criteria					
Survival of historic patterns of landscape	Not evident		Moderately evident		Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Margam Mountain is a landscape of special historic interest. Bronze Age monuments including tumuli and trackways [Iron Age] spread along the ridge.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to wind farms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to wind farms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Conifer plantation dominates

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
See history.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive

Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Plateau, pennant sandstone.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is afforested upland on the edge of the coalfield plateau which acts as setting to Margam Country Park and historic garden to the south. The area rises to 349mAOD, 50-200m above lower land to south with a gently rounded smooth skyline. The area is incised by narrow minor valleys. The upland continues north and becomes less sensitive.

Landscape Value

Aspect				
Visual and sensory	Low	Moderate	High	Outstanding
Historic landscape	Low	Moderate	High	Outstanding
Biodiversity	Low	Moderate	High	Outstanding
Cultural associations	Low	Moderate	High	Outstanding
Geology	Low	Moderate	High	Outstanding

SSA F: Landscape sensitivity worksheet
ZONE F3 Mynydd Bach

Generally criteria from better to worse for large scale wind farms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau [note dissected plateau and single ridge]	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined [note ridge has open lowland on both sdies	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements

Overall Sensitivity		Low	Medium-low	Medium	Medium-High	High

Comments

Afforested upland on the southern fringes of the coalfield plateau with a gently rounded smooth skyline. Rises to 319mAOD, 50-150m above lower land to east and west. The area is incised by narrow minor valleys. Upland continues north and south. The most sensitive areas on the edge of the ridges especially to the east [medium high].

Historic Landscape

Criteria					
Survival of historic patterns of landscape	Not evident		Moderately evident		Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Margam Mountain is a landscape of special historic interest. Bronze Age monuments including tumuli and trackways [Iron Age] spread along the ridge.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to wind farms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to wind farms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Conifer plantation dominates

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
See history.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive

Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Plateau, pennant sandstone.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is an afforested upland on the southern fringes of the coalfield plateau with a gently rounded smooth skyline as part of area of upland area running north south. It rises to 319mAOD, 50-150m above lower land to the east and west. The area is incised by narrow minor valleys. The most sensitive areas on the edge of the ridges to the east [medium high].

Landscape Value

Aspect				
Visual and sensory	Low	Moderate	High	Outstanding
Historic landscape	Low	Moderate	High	Outstanding
Biodiversity	Low	Moderate	High	Outstanding
Cultural associations	Low	Moderate	High	Outstanding
Geology	Low	Moderate	High	Outstanding

SSA F: Landscape sensitivity worksheet
ZONE: F4 Ergyd Isaf (Mynydd Margam West)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm *[in LANDMAP but not in this zone]*	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Prominent edge to upland coalfield plateau behind scarp slope which falls to coastal plain. The land rises to 257mAOD, 240m above the plain and has a smooth rounded profile but with some pillow mounds. The landcover is upland pasture.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Busy historical landscape, covered by Landscape of special historic interest with tumuli, enclosures and pillow mounds.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Improved grassland

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See history

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Top of scarp

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a prominent edge to upland coalfield plateau behind scarp slope which falls to coastal plain. The land rises to 257mAOD, 240m above the plain and has a smooth rounded profile but with some pillow mounds. The landcover is upland pasture.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F5 Afan Argoed South East

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	Forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Afforested upland on the southern fringes of the coalfield plateau dissected with valleys as part of upland area running south. Combination of ridge and hills with rounded skylines incised by narrow minor valleys. It rises to 363mAOD, 100-150m above lower land to the east, upto 200m to the south and 150m to the west. The most sensitive areas are the edges of the ridges [medium high].

Historic Landscape

Criteria				
Survival of historic patterns of	Not evident		Moderately evident	Highly evident

landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Bronze Age/Iron Age plus medieval evidence of use.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Crossbill habitat?					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See history					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is afforested upland on the southern fringes of the coalfield plateau dissected with valleys as part of upland area running south. It is a combination of ridge and hills with rounded skylines incised by narrow minor valleys with the most sensitive areas on the edge of the ridges [medium high]. It rises to 363mAOD, 100-150m above lower land to the east, upto 200m to the south and 150m to the west.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F6 Foel Trawsnant

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Simple rounded upland hill, rising to 369mAOD, 150-200m above narrow valley floor to north and west and 150m to east. The hill is open and unenclosed with a landcover dominated by rough grassland.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Bronze/Iron Age plus medieval remains evident in area.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Mire and acid grasslands, possible upland heath or purple moor grass.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See historic

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
The area has the sensitivity above because it is a simple rounded upland hill, rising to 369mAOD, 150-200m above narrow valley floors to north and west and 150m to east. The hill is open and unenclosed with a landcover dominated by rough grassland.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F7 Mynydd y Gelli

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	Enclosed *[in LANDMAP but only relates to valley bottom]*	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Simple rounded large scale landform indented with small tributary valleys, forming northern edge of upland massif, rising to 520/550mAOD, 250-350m above valley floor to the north. The land rises to the conical landform of Mynydd Caerau to the south and to Werfa to the east- both sensitive high points. The landcover is open, unenclosed rough grassland.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident

Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Evidence of use since the Mesolithic period, tumuli and dyke.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Upland grassland and mire predominantly

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See historic.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because though is a large scale simple rounded landform it rises to the conical landform of Mynydd Caerau to the south and to Werfa to the east- both sensitive high points with steep slopes in places. It is indented with small tributary valleys, forming northern edge of upland massif, rising to 520/550mAOD, 250-350m above valley floor to the north. The landcoveris open, unenclosed rough grassland.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F8 Mynydd Blaengwynfi

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the higher large scale coalfield plateau with small incised valleys, rising to 528mAOD, 150-300m above valley floor to the south. The skyline is simple and gently undulating. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Extensive patterns from the Mesolithic period exist but are hidden beneath forestry.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Crossbill possible.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See historic.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is part of the large scale higher coalfield plateau with a simple and gently undulating skyline with small incised valleys, rising to 528mAOD, 150-300m above valley floor to the south. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F9 Mynydd Blaenrhondda (West)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Core of the higher large scale coalfield plateau with small incised valleys, rising to 550mAOD, 200m above minor tributary valley floor to the west. The skyline is simple and gently undulating. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Extensive patterns from the Mesolithic period exist but are hidden beneath forestry.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Crossbill possible.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See historic.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is the core of the large scale higher coalfield plateau with a simple and gently undulating skyline with small incised valleys, rising to 550mAOD, 200m above minor tributary valley floor to the west. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F10 Mynydd Pen-y-Cae - Llyn Fach

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

The most prominent northern edge of the large scale coalfield plateau, rising to 600mAOD, 200-450m above the Nedd valley floor to the north. The landform distinctly rises to this elevated area and the skyline is simple. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places. Just to the north, the scarp falls sharply to the lower land at the heads of the valleys before rising more gently to the Brecon Beacons.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness	Not evident	Patches	Cohesive over	Highly cohesive

of historic patterns of landscape			parts of the area		
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Extensive patterns from the Mesolithic period exist but are hidden beneath forestry.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Crossbill possible.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See historic.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is the most prominent northern edge of the large scale coalfield plateau, rising from the west to 600mAOD, 200-450m above the Nedd valley floor. Just to the north, the scarp falls sharply to the lower land at the heads of the valleys before rising more gently to the Brecon Beacons. The landform distinctly rises to this elevated area and the skyline is simple. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F11 Glyncorrwg West

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the higher large scale coalfield plateau with small incised valleys, rising to 550mAOD, around 250m above valley floor to the east. The skyline is simple and gently undulating. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Extensive patterns from the Mesolithic period exist but are hidden beneath forestry.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Crossbill possible.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See historic.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
The area has the sensitivity above because it is part of the higher large scale coalfield plateau with small incised valleys, rising to 550mAOD, around 250m above valley floor to the east. The skyline is simple and gently undulating. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F12 Coed Morgannwg Way

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the higher large scale coalfield plateau with small incised valleys, rising to 493mAOD, around 150- 450m above the Neath valley floor to the north west. The landform falls from the simple and gently undulating skyline towards the valley in a series of slopes which are more sensitive. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness	Not evident	Patches	Cohesive over	Highly cohesive

of historic patterns of landscape			parts of the area		
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Extensive patterns from the Mesolithic period exist but are hidden beneath forestry.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Crossbill possible.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See historic.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is part of the higher large scale coalfield plateau with small incised valleys, rising to 493mAOD, around 150- 450m above the Neath valley floor to the north west. The landform falls from the simple and gently undulating skyline towards the valley in a series of slopes which are more sensitive falling towards the valley. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F13 Mynydd Nant-y-bar

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the higher large scale coalfield plateau with small incised valleys, rising to 370mAOD, around 250m above valley floor to the south. The skyline is simple and gently undulating. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Extensive patterns from the Mesolithic period exist but are hidden beneath forestry.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Crossbill possible.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See historic.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is part of the higher large scale coalfield plateau with small incised valleys, rising to 370mAOD, around 250m above valley floor to the south. The skyline is simple and gently undulating. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F14 Glyncorrwg East

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Predominantly convex slopes of the large scale coalfield plateau, with some plateau top, rising to 490mAOD, 50- 270m from narrow valley bottom of Cwm Corrwg. The skyline is simple and gently undulating. The landcover is simple unenclosed rough grassland.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Evidence of use since Mesolithic period.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Upland acid grassland					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See historic					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is predominantly convex slopes of the large scale coalfield plateau, with some plateau top, rising to 490mAOD, 50- 270m from narrow valley bottom of Cwm Corrwg. The skyline is simple and gently undulating. The landcover is simple unenclosed rough grassland.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F15 Mynydd Fforch dwm

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

On the falling slopes of the coalfield plateau rising to 311mAOD, incised by the Blaen Pelenna, but surrounded by other high ground away from broader valley edges. The skyline is simple and gently rounded. The landcover is simple pasture and unenclosed rough grassland/heath.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Patterns of Mesolithic period exist					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Mix of upland rough grasses/heath and improved grassland					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See history					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is on the falling slopes of the coalfield plateau rising to 311mAOD, but surrounded by other high ground away from broader valley edges. The area is incised by the Blaen Pelenna but the skyline is simple and gently rounded. The landcover is simple pasture and unenclosed rough grassland/heath.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F16 Ffynnon Oer (wind farm)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the coalfield plateau rising to 464mAOD, incised by the Melin Court Brook. The skyline is simple and gently rounded and the area is generally set back from the Neath valley to the north west. The landcover is simple unenclosed rough grassland/heath. The Ffynnon Oer windfarm is located here.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Patterns of Mesolithic period exist					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Mix of upland rough grasses/heath and improved grassland					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See history					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is part of the coalfield plateau rising to 464mAOD, incised by the Melin Court Brook but generally set back from the Neath valley to the north west. The skyline is simple and gently rounded. The landcover is simple unenclosed rough grassland/heath. The Ffynnon Oer windfarm is located here.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F17 Mynydd Resolven

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

An outlier hill of the coalfield plateau separated from the main massif by an incised valley, rising to 383mAOD, around 150-340m above the Neath valley floor to the north west. The separation of rounded profile hill is particularly noticeable from the north. The landcover is part of the vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Extensive patterns from the Mesolithic period exist but are hidden beneath forestry.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Crossbill possible.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See historic.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is an outlier hill of the coalfield plateau separated from the main massif by an incised valley, rising to 383mAOD, around 150-340m above the Neath valley floor to the north west. The separation of rounded profile hill is particularly noticeable from the north. The landcover is part of the vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F18 Mynydd-y-Gaer and Foel Fynyddau

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Two hills and a valley on the prominent southern edge of the coalfield plateau rising to 314 and 370mAOD. These are 100-300m above the Neath valley floor to the west and 150-300m above Afan valley to south. The hills are rounded and the landcover is upland pasture, some enclosed and some open rough grassland with conifer plantation on the hillside and deciduous riparian vegetation in the valley. There are farmsteads and dwellings in the area. A hillfort lies on Mynydd y Gaer. Wireless masts lie on the hill to the east.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness	Not evident	Patches	Cohesive over	Highly cohesive

of historic patterns of landscape			parts of the area		
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Hillforts prevalent- late prehistory. Area used over significant period, late enclosure.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Semi-improved upland farming					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See historic					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is two prominent hills and a valley on the prominent southern edge of the coalfield plateau rising to 314 and 370mAOD. These are 100-300m above the Neath valley floor to the west and 150-300m above Afan valley to south. The hills are rounded and the landcover is upland pasture, some enclosed at a medium/fine grain parts and some open rough grassland with conifer plantation on the hillside and deciduous riparian vegetation in the valley. There are farmsteads and dwellings in the area which add to its sensitivity as does the historic interest such as the hillfort which lies on Mynydd y Gaer. Wireless masts lie on the hill to the east.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE F19 Mynydd Baedan

Generally criteria from better to worse for large scale wind farms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements

Overall Sensitivity		Low	Medium-low	Medium	Medium-High	High

Comments

Prominent relatively narrow exposed single ridge on the edge of the coalfield plateau with valleys to the north, south and east. The ridge rises to only 251mAOD, 50-150m above lower land to south and 50-100m above Llynfi valley to north. There is a single mast and some settlement in the area.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Enclosures and medieval platform houses and ridgeway walk. Bronze Age monuments including tumuli and trackways [Iron Age] spread along the ridge.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to wind farms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to wind farms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Improved grassland

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See history.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Pennant sandstone.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a prominent relatively narrow exposed single ridge on the edge of the coalfield plateau with valleys to the north, south and east. The ridge rises to only 251mAOD, 50-150m above lower land to south and 50-100m above Llynfi valley to north. There is a single mast and some settlement in the area.

Landscape Value

Aspect				
Visual and sensory	Low	Moderate	High	Outstanding
Historic landscape	Low	Moderate	High	Outstanding
Biodiversity	Low	Moderate	High	Outstanding
Cultural associations	Low	Moderate	High	Outstanding
Geology	Low	Moderate	High	Outstanding

SSA F: Landscape sensitivity worksheet
ZONE: F20 Mynydd Caerau

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Ridge running from the sensitive conical northern highpoint of Mynydd Caerau, south to separate the Llynfi and Garw valleys. Forms part of the dissected coalfield plateau. The area rises to 556mAOD, 350m above valley floor to the north and to 350mAOD at its southern end, around 250m above the Llynfi valley floor. The ridge encloses a lower bowl to the north west. The landcover is forest plantation, cleared in places, interspersed with open, unenclosed grassland.

Historic Landscape

Criteria				
Survival of historic patterns of	Not evident		Moderately evident	Highly evident

landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Tumuli on Mynydd Caerau.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Coniferous plantation and grassland					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See History					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Some minor outcrops. Pennant sandstone.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a ridge running from the more sensitive conical northern highpoint of Mynydd Caerau [medium-high], south to separate the Llynfi and Garw valleys. Forms part of the dissected coalfield plateau. The area rises to 556mAOD, 350m above valley floor to the north and to 350mAOD at its southern end, around 250m above the Llynfi valley floor. The ridge encloses a lower bowl to the north west which is intrinsically less sensitive [medium] [leaving aside the effect on the nearby settlement]. The landcover is forest plantation, cleared in places, interspersed with open, unenclosed grassland.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F21 Moel Cynhordy

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Prominent end of a ridge top as part of the dissected coalfield plateau running up from 280-350mAOD, 190-260m above the Llynfi valley floor to the south west. The landcover is enclosed upland pasture with fridd. The skyline is simple and rounded and the area is open to view from the broad valley.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Heathland, improved grassland and bracken in area.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is the prominent end of a ridge top as part of the dissected coalfield plateau running up from 280-350mAOD, 190-260m above the Llynfi valley floor to the south west. The landcover is enclosed upland pasture with fridd. The skyline is simple and rounded and the area is open to view from the broad valley.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F22 Werfa

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	Diverse *[in LANDMAP but should be simple]*	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Gently rounded simple high point on the southern fringe of the core dissected plateau area rising to 568mAOD around 400m above steep incised valleys to the south east and south west. The area is exposed with long views south and north. The landcover is rough grazing with some enclosure of old stone walls in the area. The existing wireless mast and associated infrastructure is a detractor.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident

Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Ridgeway walk from church to the south, some tumuli and cairns with a strongerhistoric sense than other areas.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Marshy acid grasslands and wet/dry heath in area.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

No info

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Pennant sandstone upper plateau

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a gently rounded simple high point on the southern fringe of the core dissected plateau area exposed with long views south and north. It rises to 568mAOD around 400m above steep incised valleys to the south east and south west. The landcover is rough grazing with some enclosure of old stone walls in the area and there are historic features of some importance. The existing wireless mast and associated infrastructure is a detractor.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F23 Mynydd Llangeinwyr

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	Diverse *[in LANDMAP but should be simple]*	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Narrow linear ridge on the southern fringe of the core dissected plateau area rising to 530mAOD around 360m above steep incised valleys to the east and west. The area is exposed with long views south and north. The landcover is rough grazing with some enclosure of old stone walls in the area.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Ridgeway walk from church to the south, some tumuli and cairns with a stronger historic sense than other areas.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Marshy acid grasslands and wet/dry heath in area.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

No info

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant sandstone upper plateau

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
The area has the sensitivity above because it is a narrow linear ridge on the southern fringe of the core dissected plateau area rising to 530mAOD around 360m above steep incised valleys to the east and west. The area is exposed with long views south and north. The landcover is rough grazing with some enclosure of old stone walls in the area and there are historic features of some importance.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F24 Mynydd Corrwg Fechan

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land *[in LANDMAP but part enclosed]*	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

A prominent rounded hill at the head of Cwm Corrwg rising to 410mAOD, 50-200m above the narrow valley bottom. The landcover is a combination of simple unenclosed rough grassland and enclosed upland pasture. The southern face and top of the hill are most prominent and sensitive facing down the valley.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Evidence of use since Mesolithic period- sheepfolds and some enclosure.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Upland acid grassland					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments See historic					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a prominent rounded hill at the head of Cwm Corrwg rising to 410mAOD, 50-200m above the narrow valley bottom. The landcover is a combination of simple unenclosed rough grassland and enclosed upland pasture. The southern face and top of the hill are most prominent and sensitive facing down the valley.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F25 Mynydd Blaenrhondda

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the large scale higher coalfield plateau with a simple and gently undulating skyline with small incised valleys, rising to 450-550mAOD, 250-300m above the valley floor to the east. On the eastern boundary there are major rock outcrops at the head of the valley which are sensitive as is the highest land to the north [medium high]. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Conifer plantation with marshy grassland					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Rock outcrops to the east are sensitive

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is part of the large scale higher coalfield plateau with a simple and gently undulating skyline with small incised valleys, rising to 450-550mAOD, 250-300m above the valley floor to the east. On the eastern boundary there are major rock outcrops at the head of the valley which are sensitive as is the highest land to the north [medium high]. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F26 Mynydd Tynewydd

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the large scale higher coalfield plateau with a simple and gently undulating skyline with contained upland valley, rising to 516mAOD, 250-300m above the valley floor to the west. On the western boundary there are rock outcrops at the head of the valley which are sensitive as are the northern fringes close to the scarp slope[medium high]. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Conifer plantation with marshy grassland					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Rock outcrops to the east are sensitive

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is part of the large scale higher coalfield plateau with a simple and gently undulating skyline with a contained upland valley, rising to 516mAOD, 250-300m above the valley floor to the west. On the western boundary there are rock outcrops at the head of the valley which are sensitive as are the northern fringes close to the scarp slope [medium high]. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F27 Mynydd Bwllfa

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	Mountains [in LANDMAP but not true]
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

On the northern edge of the large scale higher coalfield plateau with a simple and gently undulating skyline and a dramatic scarp slope to the north and rock outcrop to the east. The area rises from 380mAOD in the south to 515mAOD, around 300m above the valley floor to the west. The landcover is simple, dominated by rough grassland. The most sensitive areas are the northern and eastern edges whilst the western facing areas [medium high], back from the edge are moderate to low sensitivity.

Historic Landscape

Criteria					
Survival of historic patterns of landscape	Not evident		Moderately evident		Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Some stone features such as cairns are in evidence.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Peregrine falcon, some BAP habitat upland heath, but mostly molinia and unimproved acid grassland.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

No info

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Rock outcrops to east and steep slopes to Cynon valley sensitive

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because its south western facing slopes have a simple and gently undulating skyline as part of the large scale higher coalfield plateau with a simple landcover, dominated by rough grassland. The dramatic scarp slope to the north and rock outcrop to the east are sensitive and their environs should not be developed. The area rises from 380mAOD in the south to 515mAOD, around 300m above the valley floor to the west.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High *[to east]*	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F28 Cefn y Rhondda (north)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys *[in LANDMAP but not true]*	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic *[in LANDMAP but not true]*	development	
	Settlement pattern	no settlements	scattered/rural/farm *[in LANDMAP but not true]*	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the large scale higher coalfield plateau with a simple and gently undulating skyline at the head of the Rhondda Fach which twists to meet this area north of Maerdy. The area rises to 464mAOD around 160m above the valley floor to the west and 200mAOD above the minor tributary valley of the Rhondda to the south. The landcover is simple, dominated by rough grassland. The most sensitive area is the southern edge where turbines may intrude on the Rhondda.

Historic Landscape

Criteria				
Survival of historic	Not evident		Moderately evident	Highly evident

patterns of landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Upland grassland including acid grassland, molinia, bilberry.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological	None known		Moderately sensitive		Highly sensitive

features					
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

U shaped valley edge

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is part of the large scale higher coalfield plateau with a simple and gently undulating skyline at the head of the Rhondda Fach which twists to meet this area north of Maerdy. The area rises to 464mAOD around 160m above the valley floor to the west and 200mAOD above the minor tributary valley of the Rhondda to the south. The landcover is simple, dominated by rough grassland. The most sensitive area is the southern edge where turbines may intrude on the Rhondda.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F29 St Gwynno Forest

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	Rare *[in LANDMAP but not true as minor road]*	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Afforested upland ridged plateau on the eastern fringes of the SSA dissected with a high valley basin as part of upland area running south east. The ridge rises to around 450mAOD in the north west from 317m in the south with the lower valley areas to the east around 250mAOD. The ridge lies upto 250m above valley floor to west and north, 100m to south east. The main ridge to the west is complemented by a dissected parallel ridge to the east which gives some breadth to the area, particularly to the north. The area becomes more sensitive to the south sloping gradually eastwards [fairly high]. The landcover is forestry, cleared in places , with some broadleaves in areas and some scattered settlement including a pub and a linking minor road. The area is used for informal recreation such as walking.

Historic Landscape

Criteria					
Survival of historic patterns of landscape	Not evident		Moderately evident		Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Varied conifer plantation					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Tributary hanging valley in sandstone dominated coal measures

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is afforested upland ridged plateau with a high contained valley/basin to the north. The potential of the area is countered by the popularity of the area for recreation and the presence of scattered settlement and deciduous trees and the sensitivity of the landform to the south which slopes towards the valley bottom [medium high]. The zone is on the eastern fringes of the SSA and rises to around 450mAOD in the north west from 317mAOD in the south with the lower valley areas to the east around 250mAOD. The ridge lies upto 250m above valley floor to west and north, 100m to south east. The main ridge to the west is complemented by a dissected parallel ridge to the east which gives some breadth to the area, particularly to the north. The landcover is forestry, cleared in places, with some broadleaves in areas and some scattered settlement including a pub and a linking minor road. The area is used for informal recreation such as walking. Any windfarm development should be located to the north of the church avoiding affecting its setting.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F30 St Gwynno Forest (South)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Prominent western edge and end of a plateau ridge on the eastern fringes of the SSA as part of upland area running south east. The ridge rises to around 450mAOD in the north west from 250m AOD in the south east. The ridge lies upto 250m above the valley floor to west and 130m to south east. The landcover is a mix of open rough grassland on the western edge and enclosed upland pasture with stone walls and occasional deciduous trees to the south and east. A minor road runs up from the south and north.

Historic Landscape

Criteria				
Survival of historic patterns of	Not evident		Moderately evident	Highly evident

landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low ?	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Cairns and other features evident.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Improved grassland, semi improved grassland and rhos pasture.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

No info.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall	Low	Medium-low	Medium	Medium-high	High

sensitivity						

Comments

Outcrops to south east of area- sensitive. Pennant sandstone.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High	

Comments

The area has the sensitivity above because it consists of a prominent ridge edge dominating the adjacent valleys to the west and enclosed upland pasture with stone walls falling and exposed to the south east at the end of the ridge. The area lies on the eastern fringes of the SSA as part of upland area running south east. The ridge rises to around 450mAOD in the north west from 250m AOD in the south east and lies upto 250m above the valley floor to west and 130m to south east. The landcover is a mix of open rough grassland on the western edge and farmland and occasional deciduous trees to the south and east. A minor road runs up from the south and north.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F31 Mynydd William Meyrick (NE)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains*[in LANDMAP but should be hills and valleys]*
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Relatively level ridge top on the southern fringe of the core dissected plateau area reaching 535mAOD, around 300m above steeply incised valley floors to the east and west. The ridgetop is a relatively limited in size with very steep slopes on the fringes, particularly to the west. The landcover is uniform coniferous plantation.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Conifer plantation					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because though it is simple level ridge top with a simple landcover, it is relatively limited in size with very steep slopes on the fringes, particularly to the west. The area lies on the southern fringe of the core dissected plateau area reaching 535mAOD, around 300m above steeply incised valley floors to the east and west. The landcover is uniform coniferous plantation.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F32 Mynydd William Meyrick (SW)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains*[in LANDMAP but should be hills and valleys]*
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Western edge of ridge on the southern fringe of the core dissected plateau area rising to 517mAOD from 430mAOD around 340m above the steep incised Ogmore Vale to the west. The ridge broadens and falls to the south into a hand with incised fingers. The northern edge is sensitive [fairly high]. The south eastern part of the zone approaches the core of the ridge [moderate]. The landcover is simple dominated by rough grazing.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident

Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Stone features and cairns.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Marshy/acid grassland, limited wet/dry heath, blanket bog in area.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Rock outcrops on the north western fringes.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The southern part of the area has medium sensitivity above because it broadens and has a simple landcover. The northern finger and western side on the edge of the valley is medium-high sensitivity. The zone is on the southern fringe of the core dissected plateau area rising to 517mAOD from 430mAOD around 340m above the steep incised Ogmore Vale to the west. The ridge broadens and falls to the south into a hand with incised fingers. The south eastern part of the zone approaches the core of the ridge. The landcover is simple dominated by rough grazing.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F33 Mynydd Maesteg (North)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains*[in LANDMAP but should be hills and valleys]*
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the southern fringe of the core dissected plateau area rising to 430mAOD from 380mAOD in the east around 150m above the steep incised Ogwr fach to the east. The ridge broadens and falls to the south into a 'hand' with incised fingers. This area is part of the core of the ridge. It also borders a small, twisting incised forested valley to the south. The landcover is simple, dominated by rough grazing.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident

Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Stone features and cairns.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Marshy/acid grassland, limited wet/dry heath, blanket bog in area.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Rock outcrops on the north western fringes.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is part of a ridge which broadens and has a simple landcover. It is on the southern fringe of the core dissected plateau area rising to 430mAOD from 380mAOD in the east around 150m above the steep incised Ogwr fach to the east. The ridge broadens and falls to the south into a 'hand' with incised fingers. This area is part of the core of the ridge. It also borders a small, twisting incised forested valley to the south. The landcover is simple, dominated by rough grazing.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F34 Mynydd Maesteg (South)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains*[in LANDMAP but should be hills and valleys]*
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the southern fringe of the core dissected plateau area rising to 400mAOD from 360mAOD in the east around 120m above the steep incised Cwm Dyfolog to the east. The ridge broadens and falls to the south and east into a 'hand' with incised fingers. This area is on of the fingers lying between Cwm Dyfolog and the upper reaches of Ogwr fach. Its eastern extremity is therefore prominent and more sensitive [fairly high]. The landcover is simple, dominated by rough grazing.

Historic Landscape

Criteria				
Survival of historic	Not evident		Moderately evident	Highly evident

patterns of landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Stone features and cairns.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Marshy/acid grassland, limited wet/dry heath, blanket bog in area.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

No info.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Rock outcrops on the north western fringes.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has mediumsensitivity because it is part of a ridge which broadens to the south and has a simple landcover. It is on the southern fringe of the core dissected plateau area rising to 400mAOD from 360mAOD in the east around 120m above the steep incised Cwm Dyfolog to the east. The ridge broadens and falls to the south and east into a 'hand' with incised fingers. This area is on of the fingers lying between Cwm Dyfolog and the upper reaches of Ogwr fach. Its eastern part is therefore prominent and more sensitive [medium high]. The landcover is simple, dominated by rough grazing.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F35 Mynydd y Glifach (Trane)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

End of a ridge top as part of the dissected coalfield plateau running up from 200-415mAOD, 70m above wide valley to the south east, 220m above Rhondda valley to north east and upto180m above the Ogwr fach valley floor to the west. The landcover is rough grassland, heath, enclosed upland pasture and conifer plantation. The skyline is simple and rounded but the area is open to view from the surrounding valleys which are wide in parts.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Improved grassland and conifer plantation					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is the end of a ridge top open to view from the surrounding valleys which are wide in parts. It is part of the dissected coalfield plateau running up from 200-415mAOD, 70m above wide valley to the south east, 220m above Rhondda valley to north east and upto180m above the Ogwr fach valley floor to the west. The landcover is rough grassland, heath, enclosed upland pasture and conifer plantation. The skyline is simple and rounded.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F36 Mynydd Maendy Gilfach Goch

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

South facing hillside which is the end of a ridge top as part of the dissected coalfield plateau running up from 200 to 391mAOD, 50-240m above the valley of Cwm Ogwr fach to the south. The landcover is enclosed upland pasture with medium sized rectilinear fields, conifer plantation and rough grassland. The skyline is simple and rounded but the area is open to views from the valley and other areas to the south.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Cairn on the higher northern area.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Improved grassland, conifer plantation					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is an exposed south facing hillside which is the end of a ridge top as part of the dissected coalfield plateau running up from 200 to 391mAOD, 50-240m above the valley of Cwm Ogwr fach to the south. The landcover is enclosed improved upland pasture with medium sized rectilinear fields, conifer plantation and rough grassland. The skyline is simple and rounded but the area is open to views from the valley and other areas to the south.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate *[not known?]*	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F37 Mynydd y Gaer

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	Mountains *[in LANDMAP but not true]*
	Landcover pattern	forestry	open land	field pattern/mosaic*[in LANDMAP but not true for zone]*	development	
	Settlement pattern	no settlements	scattered/rural/farm*[in LANDMAP but not true for zone]*	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse*[in LANDMAP but not true for zone]*	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Prominent relatively narrow exposed single ridge on the edge of the coalfield plateau with valleys to the north, south and west. The ridge rises to 295mAOD, around 225m above lower land to the south and 135m above Cwm Ogwr valley bottom to the north and has a rounded profile. The landcover is a combination of upland grazing with some field boundaries, rough grazing and bracken.

Historic Landscape

Criteria					
Survival of historic patterns of landscape	Not evident		Moderately evident		Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Bracken dominated common [fritillary butterfly] with marshy molinia grassland, acid grassland [plus improved pasture].

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

No info

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a prominent relatively narrow exposed single ridge on the edge of the coalfield plateau with valleys to the north, south and west. The ridge rises to 295mAOD, around 225m above lower land to the south and 135m above Cwm Ogwr valley bottom to the north and has a rounded profile. The landcover is a combination of upland grazing with some field boundaries, rough grazing and bracken. The scale and single ridge form of the area make it unsuitable for strategic windfarm development.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F38 Mynydd Maendy (Taff Ely wind farm)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains*[in LANDMAP but not true]*
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse *[in LANDMAP but not true]*	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

The zone is a prominent relatively narrow exposed single ridge on the edge of the coalfield plateau with a valley to the north and low land to the south. The ridge rises to 300mAOD, around 225m above land to the south and 135m above Cwm Ogwr valley bottom to the north and has a rounded profile. The landcover is a combination of upland grazing with some field boundaries, rough grazing and bracken. Visually, the area is dominated by the Taff Ely windfarm which has relatively small scale wind turbines.

Historic Landscape

Criteria				
Survival of historic	Not evident		Moderately evident	Highly evident

patterns of landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Bronze Age funerary monuments.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Improved grassland, with hedgerows in places.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Windfarm most significant cultural feature.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a prominent relatively narrow exposed single ridge on the edge of the coalfield plateau with a valley to the north and low land to the south. The ridge rises to 300mAOD, around 225m above land to the south and 135m above Cwm Ogwr valley bottom to the north and has a rounded profile. The landcover is a combination of upland grazing with some field boundaries, rough grazing and bracken. Visually, the area is dominated by the Taff Ely windfarm which has relatively small wind turbines. The scale and single ridge form of the area make it unsuitable for strategic windfarm development.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate *not known?*	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE F39 Mynydd Margam (East)

Generally criteria from better to worse for large scale wind farms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements

Overall Sensitivity		Low	Medium-low	Medium	Medium-High	High

Comments

Edge of a ridge on the southern part of the coalfield plateau with the relatively wide Llynfi valley to the east. The ridge rises from 250m to 291mAOD, 140-190m above the main valley bottom. The landcover is pasture with rough grassland and a number of prehistoric features. The area has a backcloth of forest plantation to the west.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Enclosures and medieval platform houses and ridgeway walk. Bronze Age monuments including tumuli and trackways [Iron Age] spread along the ridge.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to wind farms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to wind farms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Improved grassland

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See history.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Pennant sandstone.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is the narrow edge of a ridge on the southern part of the coalfield plateau with the relatively wide Llynfi valley to the east. The ridge rises from 250m to 291mAOD, 140-190m above the main valley bottom. The landcover is upland improved grassland with field boundaries with some rough grassland and a number of prehistoric features. The area has a backcloth of forest plantation to the west.

Landscape Value

Aspect				
Visual and sensory	Low	Moderate	High	Outstanding
Historic landscape	Low	Moderate	High	Outstanding
Biodiversity	Low	Moderate	High	Outstanding
Cultural associations	Low	Moderate	High	Outstanding
Geology	Low	Moderate	High	Outstanding

SSA F: Landscape sensitivity worksheet

ZONE: F40 Cefn y Rhondda

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic *[in LANDMAP but not true for this zone]*	development	
	Settlement pattern	no settlements	scattered/rural/farm *[in LANDMAP but not true for this zone]*	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Narrow linear ridge on the eastern fringe of the core dissected plateau area rising to 481mAOD around 200-250mAOD above the steep incised valleys to the east and west. There are some rock outcrops on the Rhondda Fach valley edge which are sensitive. The landcover is rough grazing with some forestry. The Artworks windfarm will be constructed on the southern fringes of this area.

Historic Landscape

Criteria				
Survival of historic	Not evident		Moderately evident	Highly evident

patterns of landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Cairns and other hilltop features.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Part upland grassland on peat, some bilberry.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

No info

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological	None known		Moderately sensitive		Highly sensitive

features					
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Outcrops on Rhondda Fach. East side of asymmetric Rhondda valley.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a narrow linear ridge unable to conceal wind turbines from the adjacent valley floors. It is on the eastern fringe of the core dissected plateau area rising to 481mAOD, around 200-250mAOD above the steep incised valleys to the east and west. There are some rock outcrops on the Rhondda Fach valley edge which are sensitive. The landcover is rough grazing with some forestry. The Artworks windfarm will be constructed on the southern fringes of this area.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F41 Mynydd Merthyr (North -East)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Narrow linear ridge with undulating skyline on the north eastern fringe of the SSA rising to 457mAOD around 200m above Taff valley to the east and 250 m above the Cynon valley to the west. The landcover is heathland with coniferous plantation to the south and some rough grazing. Two wireless masts lie on the ridge.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Cairns evident.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Unenclosed common of dry heath, acid grassland and some bracken.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant sandstone.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a narrow linear ridge with undulating skyline unable to conceal wind turbines from the adjacent valley floors. It is on the north eastern fringe of the SSA rising to 457mAOD around 200m above Taff valley to the east and 250 m above the Cynon valley to the west. The landcover is heathland with coniferous plantation to the south and some rough grazing. Two wireless masts lie on the ridge.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F42 Mynydd Merthyr

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	Mountains *[in LANDMAP but should be hills and valleys]*
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Narrow linear ridge with undulating skyline on the north eastern fringe of the SSA rising to 493mAOD around 275-350m above Taff valley to the east and the Cynon valley to the west. The landcover is heathland with coniferous plantation to the north in simple blocks.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness	Not evident	Patches	Cohesive over	Highly cohesive

of historic patterns of landscape			parts of the area		
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Largely plantation with bracken with some dry heath and acid grassland to the south.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a narrow linear ridge with undulating skyline unable to conceal wind turbines from the adjacent valley floors. It is on the north eastern fringe of the SSA rising to 493mAOD around 275-350m above the Taff valley to the east and the Cynon valley to the west. The landcover is heathland with coniferous plantation to the north in simple blocks.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F43 Mynydd Portref (Taff Ely wind farm east)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains*[in LANDMAP but not true]*
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse *[in LANDMAP but not true]*	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

The zone is a prominent relatively narrow exposed single ridge on the edge of the coalfield plateau with a valley to the north and low land to the south. The ridge rises to 277mAOD, around 200m above land to the south and 135m above the upper Ely valley bottom to the north and has a rounded profile. The landcover is a combination of upland grazing with some field boundaries, rough grazing and bracken. Visually, the area is dominated by the Taff Ely windfarm to the west which has relatively small scale wind turbines.

Historic Landscape

Criteria				
Survival of historic	Not evident		Moderately evident	Highly evident

patterns of landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Bronze Age funerary monuments.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Improved grassland, with hedgerows in places.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Windfarm most significant cultural feature.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is a prominent relatively narrow exposed single ridge on the edge of the coalfield plateau with a valley to the north and low land to the south. The ridge rises to 277mAOD, around 200m above land to the south and 135m above the upper Ely valley bottom to the north and has a rounded profile. The landcover is a combination of upland grazing with some field boundaries, rough grazing and bracken. Visually, the area is dominated by the Taff Ely windfarm to the west which has relatively small wind turbines. The scale and single ridge form of the area make it unsuitable for strategic windfarm development.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate *not known?*	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F44 Mynydd Pwllyrhebog

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains*[in LANDMAP but should be hills and valleys]*
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the southern fringe of the core dissected plateau area rising to 410mAOD from 350mAOD in the east around 100m above the steep incised Ogwr fach to the south. The ridge broadens and falls to the south and east into a 'hand' with incised fingers. This area is one of the fingers, lying north of Ogwr fach and south west of the Rhondda. Its southern and eastern edges are therefore potentially prominent and more sensitive [fairly high]. The landcover is simple, dominated by rough grazing.

Historic Landscape

Criteria				
Survival of historic patterns of	Not evident		Moderately evident	Highly evident

landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Stone features and cairns.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Marshy/acid grassland, limited wet/dry heath, blanket bog in area.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Rock outcrops on the north western fringes.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has medium sensitivity because it is part of a ridge which broadens to the south and has a simple landcover. It is on the southern fringe of the core dissected plateau area rising to 410mAOD from 350mAOD in the east around 100m above the steep incised Ogwr fach to the south. The ridge broadens and falls to the south and east into a 'hand' with incised fingers. This area is one of the fingers, lying north of Ogwr fach and south west of the Rhondda. Its southern and eastern edges are therefore potentially prominent and more sensitive [medium high]. The landcover is simple, dominated by rough grazing.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet
ZONE: F45 Ffynnon Oer (west)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of the higher large scale coalfield plateau with small incised valleys, rising to 360mAOD, around 310m above Neath valley floor to the north. The area is set back from the main valley edge and slopes. The skyline is simple and gently undulating. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Extensive patterns from the Mesolithic period exist but are hidden beneath forestry.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Crossbill possible.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

See historic.

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant formation

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is part of the higher large scale coalfield plateau with small incised valleys, rising to 360mAOD, around 310m above Neath valley floor to the north but the area is set back from the main valley edge and slopes. The skyline is simple and gently undulating. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA F: Landscape sensitivity worksheet

ZONE: F46 Mynydd Bwllfa (south east)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Eastern edge of SSA coalfield plateau with a simple and gently undulating skyline with contained upland valley, rising to 430mAOD, 200m above the valley floor to the south. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places. The edge bordering the Cynon valley is the most sensitive as are the those of the tributary valley in which Cwmaman lies [fairly high].

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Varied conifer plantation					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The area has the sensitivity above because it is the eastern edge of SSA coalfield plateau with a simple and gently undulating skyline which links across the head of the Rhondda fach to other parts of the upland dissected plateau giving depth. It surrounds a contained upland valley, rising to 430mAOD, 200m above the valley floor to the south. The landcover is part of a vast scale forest plantation with clearings. The forest creates abrupt edges in places. The edge bordering the Cynon valley is the most sensitive as are the those of the tributary valley in which Cwmaman lies [medium high].

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High [?]	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

GIS Methodology: TAN 8 Annex D Studies of Strategic Search Areas

Dr. Helen Dunsford

Centre for Environmental and Spatial Analysis
School of Applied Sciences, Ellison Building D Block
University of Northumbria, Newcastle upon Tyne, NE1 8ST.

Helen Dunsford contact details:

Tel: 0191 243 7155
Fax: 0191 227 4715
E-mail: helen.dunsford@northumbria.ac.uk

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1. Introduction

This document presents the methods and techniques adopted using Geographical Information Systems (GIS) to aid Arup and White Consultants in the process of identifying 'Preferred Area or Areas' for siting wind farms within the TAN 8 Annex D studies strategic search areas. Data and maps were generated in order to address three key information needs. Identifying potential zones for development within the Strategic Search Area (SSA) by reviewing the technical and environmental constraints of the SSA and assessing visual impact if the zones identified were developed to establish:

1. the potential for additional "extra over" visual impact
2. the degree to which sensitive receptors are influenced by any additional visual impact
3. the degree to which settlement is affected visually by hypothetical zone development

Data has been compiled from a number of sources listed below.

- CartoGraphics: The National Assembly for Wales (includes supply of Ordnance Survey data)
- Countryside Council for Wales (CCW)
- CADW
- Ordnance Survey
- http://www.bbc.co.uk/reception/tv_transmitters/region_wales.shtml
- http//www.torfaen-objectiveone.org.uk/bil/site/site.htm
- http://www.emairport.co.uk/aerocharts/aerochart.htm
- Data from appropriate LPA
- RSPB

Sources of data and its metadata (information about the data) are given in Appendix A. Please note that all maps produced in this report are based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationary Office. Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Welsh Assembly Government O.S. Licence No. 100017916 and O.S. Licence No.s of appropriate Unitary Authorities.

2. Reviewing the technical and environmental constraints of the SSA

Table 1 provides a summary constraints used in this study. Each criteria listed in the table exists as a layer of data in GIS either in point, line or polygon format. The data compiled for each format has then been modified according to the parameters specified in **Table 1**. There are three different types of parameters, footprints, buffers and Line of Sight (LOS).

Table 1. List of data compiled for the GIS constraints model

Constraints	**Format** (Raw Data)	**Source**	**Parameters**
Technical and Environmental Constraints			
Windspeed at 45m Above Ground Level	Polygon	DTI	<=6.9ms-1
Settlement	Polygon (Point)	C-NAW	Buffer - 500m Radius
Slope greater than 15 degrees	Polygon	C-NAW	Footprint
National Parks	Polygon	CCW	Footprint
Areas of Outstanding Natural Beauty	Polygon	CCW	Footprint
SPAs	Polygon	CCW	Footprint
RAMSAR	Polygon	CCW	Footprint
pSAC	Polygon	CCW	Footprint
SAC	Polygon	CCW	Footprint
National Nature Reserves	Polygon	CCW	Footprint
Dyfi Valley Biosphere site	Polygon	CCW	Footprint
Major TV Transmitter Masts (10km radius)	Polygon (Point)	Website	Buffer – 10km Radius
Scheduled Ancient Monuments	Polygon (Point)	CADW	Buffer – 300km Radius*
SSSIs	Polygon	CCW	Footprint
Variable Technical and Environmental Constraints			
MoD Low Flying Area 7T	Polygon	C-NAW	Footprint
Safeguarded Civil Aerodromes: Cardiff	Polygon (Point)	Website	LOS 30km Radius
Local nature reserves	Polygon	CCW	Footprint
RSPB Reserves	Polygon	CCW	Footprint

RSPB Bird Data	Polygon	RSPB	Footprint (1km grid)
National Trials	Polygon (Line)		Buffer – 250m Radius
Historic Landscapes	Polygon	CCW	Footprint
Country Parks (Historic Parks and Gardens)	Polygon (Point)	CCW	Buffer – 2km Radius*

Key:	
CCW: Countryside Council for Wales	RSPB: Royal Society for the Protection of Birds
C-NAW: CartoGrpahics – National Assembly for Wales	pSAC: Proposed Special Areas of Conservation
DTI: Department of Trade and Industry	SAC: Special Areas of Conservation
LOS: Line of Sight†	SPA: Special Protection Areas
NG: National Grid	SSSI: Sites of Special Scientific Interest
RAMSAR: Wetlands	Website: see Appendix A for website addresses

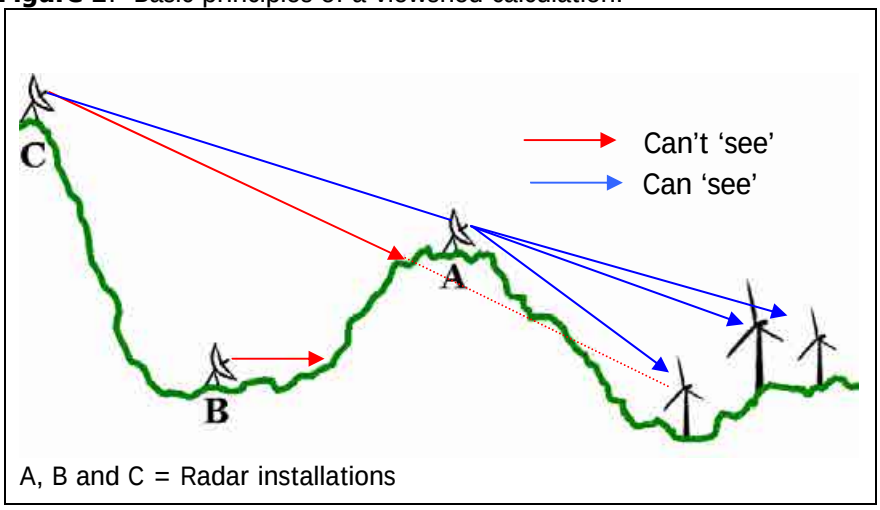
* Buffer is applied to aid in the differentiation of features at the scale of representation
† See elsewhere in report for specifications and methods of calculation of Line of Sight

Footprint is used to describe the actual location of designated sites/areas and other factors.

Buffers represent areas that lie within a specified distance or radius of the actual location of the feature be it a country park, a TV transmitter or civil aerodrome. Please note that for some of the data (as identified in **Table 1**) a buffer with a defined radius has been applied as a cartographic tool to aid in the differentiation of features at the scale of cartographic representation or the data.

The third type of parameter represents the results of a viewshed calculation – ***Line of Sight (LOS)***. It is not possible to locate a wind turbine that is visible or within the line of sight of a radar installation (**Figure 1**).

Figure 1: Basic principles of a viewshed calculation.



A viewshed calculation requires:

- A Digital Elevation Model (DEM): a digital map of elevation data made up of equally sized gridded cells each with a value of elevation in metres.[1]
- An observer point: a building, person or in this case radar installation.
- Calculation parameters: - Height offsets: the height of the observer point
  heights of feature that you are trying to 'see'.
- Radius: a limit beyond which visibility is no longer calculated - the effect of radar is no longer restrictive.

Line of Sight has been calculated for Cardiff Airport. The parameters used in the calculation of a viewshed are summarised below.

Observer point: Cardiff Airport at 26.82m[2]
Height offsets: wind turbines at 110m
Radius: Cardiff Airport at 30km

[1] The DEM used in this calculation was supplied by OTCO Welsh Assembly – Landform Profile has a vertical resolution of ±2.5m see http://www.ordnancesurvey.co.uk/oswebsite/products/landformprofile/
[2] Source: http://www.emairport.co.uk/aerocharts/aerochart.htm

Using all data complied within a GIS it is possible to:

- Switch off individual layers representing technical and environmental constraints in order to assess the impact of each parameter upon the feasibility of windfarm development within the SSA
- Change the parameters, of all of the layers used in the GIS constraints model and for the two visibility scenarios, in line with technological advances.

For information upon how the data were used please see main report. The zone boundaries were defined by others independently of the GIS work undertaken for the study. Please note that this data has been used in concert with all of the constraints that were used to identify the boundaries of the SSA detailed in Facilitating Planning for Renewable Energy in Wales: Meeting the Target – ARUP Final Report of August 2004.

3. Visual Capacity Assessment

3.1 Introduction

The main aim of the visibility analysis has been to produce maps of relative visibility in order to assess the potential for additional visual impact of zone development and the degree to which sensitive receptors are influenced by any additional visual impact. This data was then used to inform the environmental and landscape performance of the zones in the SSA.

3.2 An Introduction to Visibility Analysis

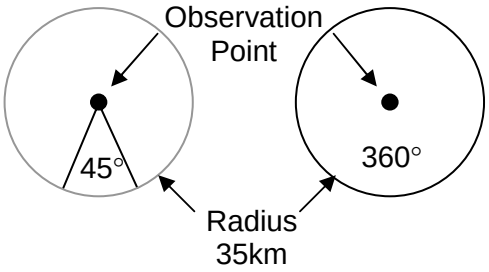
Visibility Analysis identifies those areas on a map that can see a single or many specified objects, for example, wind turbines. In this study the in-built *Viewshed* function, part of the Spatial Analyst extension in ArcGIS v8.3, has been used to carry out the visibility analysis. *Viewshed* is one of many in-built functions within GIS software that are available for this type of analysis. There is no single description of visibility analysis, various software packages implement it differently. The type of datasets required in a visibility analysis and parameters that can be applied to them are summarised below:

- A Digital Elevation Model (DEM), that describes height over a topographic surface.

- A data set of predefined **observation points** can be used in the analysis. Observation points can take the form of any feature such as ferry routes or viewpoints or the whole land surface. For an area, a grid of observer points that covers the surface has to be created.

- For each observation point it is possible to set the field of view or **azimuth**, i.e. complete at 360º or at a defined azimuth of 45º.

Azimuth and Radius:



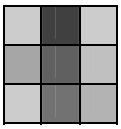
- In any visibility analysis, it is possible to set a distance limit beyond which visibility is no longer calculated. This **radius** can be set at any specified distance or is not set i.e. limitless. This brings in the issue of zones of theoretical limits of visibility (ZTV).

- Height offsets are then chosen above the elevation given by the DEM for the observation points being analysed. One offset is the **subject height** – the height of industrially available wind turbines.

- A second height offset for the observer is also essential, and is known as a **viewing height.**

- The output or results of the analysis, a **visibility surface**, are usually recorded in Raster format.

Raster Format:



1	5	1
2	4	1
1	3	2

Uses a grid structure to store geographic information.

Calculating visibility identifies those cells in an input DEM that can be seen from one or more than one observation point subject to predefined parameters. Using one observation point as an example the output visibility map would contain cells that are classed as:

- A cell that can see the given observer point = 1
- A cell that cannot see the given observer point = 0

The calculation is repeated for each observation point. The cumulative *visibility score* for each grid cells is equal to the number of observation points that that grid cell can 'see'. The number of observation points is controlled by the parameters set for the subject height, viewing height, location and number of observation points and resolution (grid size) of the output visibility surface. The higher the number of observation points a grid cell can 'see', the more visible that given grid cell is.

To summarise there are five key parameters that can be defined:

- subject height: the object being observed
- viewing height: the observer
- radius: distance limit of visibility calculations
- azimuth: field of view
- output grid: resolution of the visibility surface

In terms of the resolution chosen for the output visibility surface created there are two variables to consider:

- The spacing of the observation points covering an area, for example, a point every 500m by 500m
- The resolution of the output grid size or visibility surface. It must be equal to or larger than the resolution of the DEM.

The following section describes how the requirements of the project are reflected in the specification of parameters given above.

3.3 Deriving the potential for additional visual impact of individual zone development

Objective: for each zone determine the spatial extent of "extra-over" visual influence related to the development of a zone when compared to the current situation and assess the potential for each zone to cause additional visual impact to sensitive receptors: AONB, National Park, Settlement, Major Roads and National Trails.

Each Zone was covered in a blanked grid of points that represent hypothetical wind turbines. These points were generated by overlaying the area with 500m grid squares. Each grid square was then converted to a central point - (the *centroid*) – which forms the observation point of that particular cell. A *visibility score* for each zone was then calculated individually using the following parameters:

- Subject Height: 125m to blade tip
- Viewing Height: 1.72m
- Radius: ZTV (20km)
- Azimuth: 360º
- Output Grid Size: 250m

In addition, a *visibility score* of the existing and approved windfarms, termed the "existing" situation, was also calculated. Each individual turbine location, for existing windfarms and for those with planning permission (using site plans) has been converted into an observation point (**Appendix A Main Report**).

Cumulative visibility is then calculated for the whole of the study area, limited to the outer radius limit of the ZTV at 20km. To allow comparison between the two visibility studies the output resolution is also set at 250m. The visibility surface represents the relative visibility of the current situation for individual turbines within 40km of the centre of SSA (see Appendix A – Main report for further details). The higher the score the more turbines in the current situation the 250m grid square can 'see'. A high score therefore represents a greater cumulative impact or inter-visibility between windfarms.

The method used to establish the number and spatial extent of **additional** 250m by 250m grid squares that would be affected visually by hypothetical wind turbines within each Zone but which are not already affected by the visibility for existing/agreed wind turbines is provided in steps 1 to 3 outlined in **Table 2**.

Table 2. Method: Additional effects over existing situation using Zone 1 in Area E as an example

	Method	No of 250m Grid Squares
Step 1	Establishing the maximum extent of cumulative visibility for existing/agreed wind turbines	15266
Step 2	Establishing the maximum extent of visibility for a hypothetically fully developed Zone 1	7111
Step 3	Within the maximum extent of visibility for Zone 1 establish the number and spatial extent of 250m by 250m grid squares that would be affected visually by hypothetical wind turbines within Zone 1 but which are **not** already affected by the cumulative visibility for existing/agreed wind turbines.	3541

For each zone it was then possible to derive how many of these additional grid cells were spatially consistent with (overlain by) the following receptors.

1. National Parks
2. Areas of Outstanding Natural Beauty
3. Settlement (OS Address Point)
4. Major Roads (OS Strategi, Motorways, A roads and B roads)
5. National Trails

In order to differentiate how many of these cells lie close too (greater visual impact) or far away from the Zone (diminishing visual impact) buffers of distance intervals were associated with each receptor ranging from 10km to 20km. The number of additional cells that lies within a set distance for each receptor were established (**Figure 2**). The results are presented in **Table 3**.

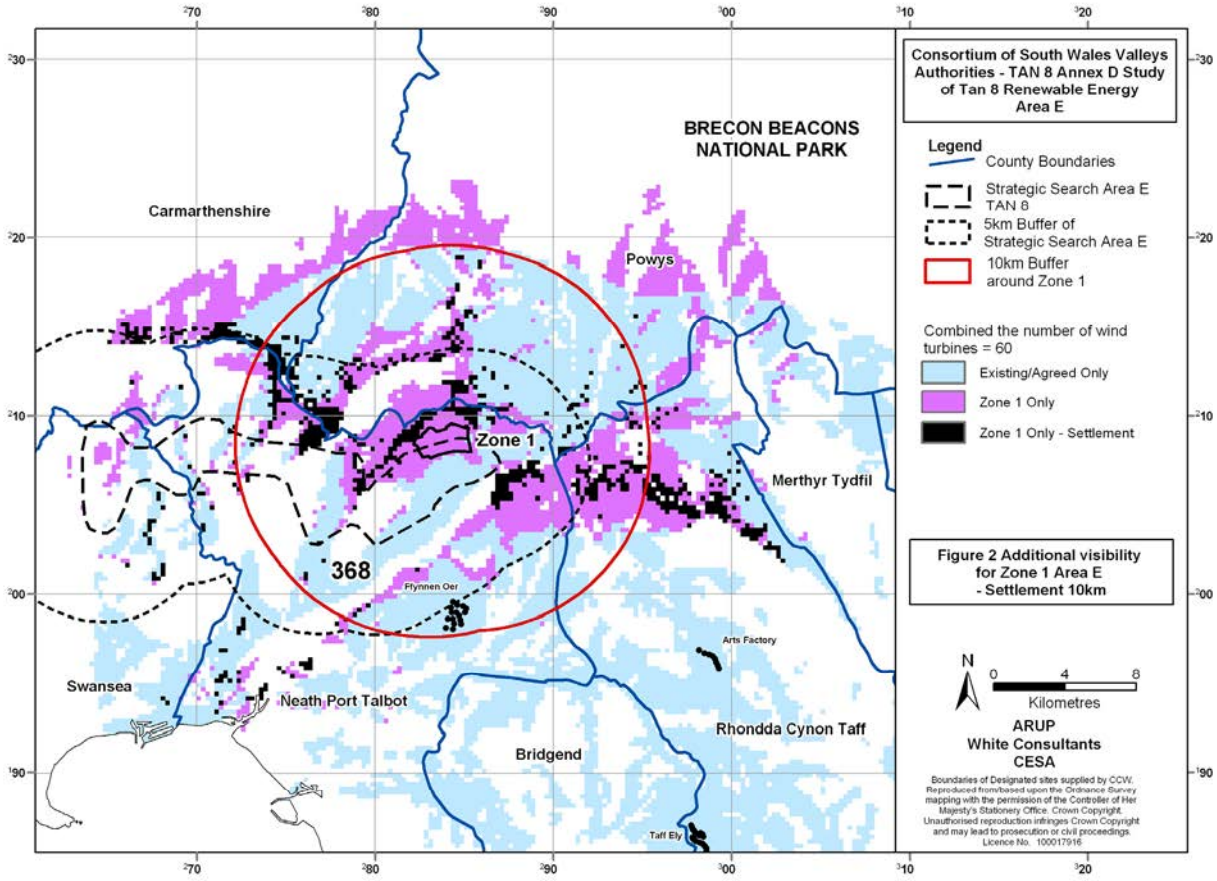
Table 3. Additional effects over existing situation

90

			Sensitive receptors				
Strategic Search Area Zones	**No. of Turbines in each zone**	**Additional Number of 250m grid cells that cannot already see existing/agreed Windfarms**	**National Park 20km**	**AONB 15km**	**Settlement 10km**	**Roads 10km**	**National Trails 20km**
AREA E							
Zone 1	16	3541	1660	N/A	368	223	N/A
Zone 2	22	4580	1862	N/A	522	362	N/A
Zone 3	18	3852	1494	N/A	516	334	N/A
Zone 4	8	3901	1553	N/A	426	236	N/A
Zone 5	29	5072	1237	N/A	875	475	N/A
Zone 6	5	4085	1005	N/A	638	343	N/A
Zone 7	4	2701	668	N/A	425	238	N/A
Zone 8	5	5034	518	N/A	1008	508	N/A
Zone 9	14	5395	592	N/A	1060	552	N/A
Zone 10	11	4439	967	N/A	550	201	N/A
Zone 11	18	5276	1041	N/A	645	250	N/A
Zone 12	20	8085	946	N/A	1108	362	N/A
Zone 13	24	8270	921	N/A	1314	501	N/A

Zone 14	28	7618	831	N/A	1275	524	N/A
Zone 15	6	2742	1330	N/A	254	154	N/A
Zone 16	18	3324	1510	N/A	375	290	N/A
AREA F							
Zone 1	15	2344	0	N/A	541	251	N/A
Zone 2	24	3114	0	N/A	629	313	N/A
Zone 3	23	2580	0	N/A	482	264	N/A
Zone 4	4	2407	0	N/A	409	207	N/A
Zone 5	17	1681	0	N/A	251	145	N/A
Zone 6	6	1007	0	N/A	150	93	N/A
Zone 7	13	1612	64	N/A	193	155	N/A
Zone 8	19	1600	389	N/A	126	106	N/A
Zone 9	22	2878	1413	N/A	299	201	N/A
Zone 10	9	3630	1752	N/A	374	276	N/A
Zone 11	31	2657	1338	N/A	249	182	N/A
Zone 12	19	2491	1359	N/A	207	159	N/A
Zone 13	10	1031	46	N/A	134	91	N/A
Zone 14	6	467	98	N/A	44	28	N/A
Zone 15	9	580	41	N/A	47	27	N/A
Zone 16	13	927	451	N/A	0	70	N/A
Zone 17	13	2222	1211	N/A	279	226	N/A
Zone 18	14	4031	106	N/A	657	384	N/A
Zone 19	12	1968	0	N/A	564	277	N/A
Zone 20	24	1741	28	N/A	299	185	N/A
Zone 21	7	1290	0	N/A	270	160	N/A
Zone 22	4	1625	59	N/A	150	128	N/A
Zone 23	12	1912	30	N/A	298	182	N/A
Zone 24	4	168	28	N/A	17	3	N/A
Zone 25	18	2801	1381	N/A	272	184	N/A
Zone 26	26	3473	1492	N/A	474	268	N/A
Zone 27	12	3262	1528	N/A	429	251	N/A
Zone 28	6	1685	733	N/A	167	99	N/A
Zone 29	28	3966	671	N/A	803	453	N/A
Zone 30	13	2768	148	N/A	572	342	N/A
Zone 31	4	1677	73	N/A	209	153	N/A
Zone 32	7	2013	60	N/A	267	193	N/A
Zone 33	6	1438	13	N/A	199	129	N/A
Zone 34	4	1128	0	N/A	169	96	N/A
Zone 35	6	1425	0	N/A	251	158	N/A
Zone 36	12	1289	0	N/A	184	108	N/A
Zone 37	7	1552	0	N/A	318	148	N/A
Zone 38	8	1281	0	N/A	198	84	N/A
Zone 39	6	2244	0	N/A	524	248	N/A
Zone 40	10	1922	606	N/A	213	140	N/A
Zone 41	6	4015	1363	N/A	698	387	N/A
Zone 42	11	5626	1455	N/A	964	568	N/A
Zone 43	12	2137	0	N/A	375	183	N/A
Zone 44	1	930	0	N/A	155	89	N/A
Zone 45	12	1064	190	N/A	89	63	N/A
Zone 46	11	2203	968	N/A	308	176	N/A

Figure 2. Figure 2 Additional visibility for Zone 1 Area E - Settlement 10km



The total number of additional grid squares identified for each zone allows comparison of the potential visual impact of each zone to be made. Thus it is possible to *rank* each zone, the higher the number of grid cells classed as additional the greater the visual impact of zone development if you assume that the visual impact of seeing 1 new turbine or 50 new turbines is comparable. Please see main report for how this data was used.

3.4 Deriving the visual impact of zone development on settlement

Objective: to establish the visual impact of zone development on settlement – deriving the number of addresses that can 'see' hypothetical turbines within 2km for each zone.

For each zone the extent of its visibility (with turbines) has been generated (see section 3.3), termed its **absolute** visibility (please note that the affects of existing and approved wind farms are not taken into account in calculating the visual impact on settlement). The spatial extent of zone visibility is then used to establish how many settlements within 2km of the zone can potentially 'see' a hypothetical turbine within each zone. OS Address Point data was used to establish how many address points lay within a 250m by 250m grid cell that could 'see' a hypothetical turbine within 2km of a zone. The results are presented in **Table 4**.

Table 4. The visual impact within 2km of a zone upon settlement

Strategic Search Area Zones	No. of Turbines in each zone	Settlement 2km Number of Grid Cells	Settlement 2km Number of OS Address Points (250m Grid)
AREA E			
Zone 1	16	73	1456
Zone 2	22	74	2133
Zone 3	18	85	1932
Zone 4	8	75	1753
Zone 5	29	157	3681

Zone 6	5	70	1109
Zone 7	4	45	410
Zone 8	5	216	10375
Zone 9	14	234	10190
Zone 10	11	56	504
Zone 11	18	146	2393
Zone 12	20	172	3323
Zone 13	24	50	69
Zone 14	28	78	366
Zone 15	6	75	1557
Zone 16	18	100	2820
AREA F			
Zone 1	15	66	388
Zone 2	24	60	1870
Zone 3	23	91	3718
Zone 4	4	67	3986
Zone 5	17	85	3850
Zone 6	6	52	2581
Zone 7	13	43	2196
Zone 8	19	33	1271
Zone 9	22	12	509
Zone 10	9	13	257
Zone 11	31	33	976
Zone 12	19	6	100
Zone 13	10	31	416
Zone 14	6	15	666
Zone 15	9	5	4
Zone 16	13	7	60
Zone 17	13	68	1837
Zone 18	14	203	13251
Zone 19	12	104	1624
Zone 20	24	117	6848
Zone 21	7	75	3647
Zone 22	4	23	1570
Zone 23	12	92	4891
Zone 24	4	12	467
Zone 25	18	20	1138
Zone 26	26	43	3078
Zone 27	12	36	929
Zone 28	6	23	1791
Zone 29	28	192	11558
Zone 30	13	181	10415
Zone 31	4	43	3600
Zone 32	7	33	2240
Zone 33	6	26	2465
Zone 34	4	30	1714
Zone 35	6	152	10640
Zone 36	12	63	1971
Zone 37	7	102	795
Zone 38	8	104	3688
Zone 39	6	49	1051
Zone 40	10	159	13556
Zone 41	6	114	3803
Zone 42	11	164	8966
Zone 43	12	125	4525
Zone 44	1	42	4157
Zone 45	12	15	214

Zone 46	11	55	3816

3.5 Points to consider

- Any visibility analysis based on terrain models tends to ignore the screening effects of buildings / vegetation.
- Blade tip height used in this study will always give a worst-case scenario, as there is no differentiation to show whether you could see all of the rotating blade or only the very tip. Again, this would be an issue for a more focused study to factor in at the EIA stage.
- The resolution of the output visibility surface is 250m. However, grid cell resolution could be as high as 10m - equivalent to the resolution of the input DEM. The choice of grid resolution however is a trade-off between computing power/time and the usefulness of undertaking the exercise at a much more defined scale.
- Please note that as the number of observation points (hypothetical turbines) differs for each zone (dependent on area) this will weight larger zones higher than smaller zones; however zones are broadly comparable in size to minimise this effect.

Appendix: Constraints - METADATA

Technical and Environmental Constraints:

Technical: **Windspeed <=6.9ms-1 at 45m Above Ground Level**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1km square resolution
Source	ETSU NOABL data (http://www.bwea.com/noabl/download.htm)
Description	Secondary Data: File contains data with windspeed greater than 6m/s only *Primary Data: converted from ASCII format (downloaded – see above) into a 1km polygon grid for the whole of Wales.*
Notes	The Department of Trade and Industry wind speed database (ETSU NOABL) contains estimates of the annual mean wind speed throughout the UK. The data is the result of an air flow model that estimates the effect of topography on wind speed. There is no allowance for the effect of local thermally driven winds such as sea breezes or mountain/valley breezes. The model was applied with 1km square resolution and makes no allowance for topography on a small scale or local surface roughness (such as tall crops, stone walls, or trees), both of which may have a considerable effect on the wind speed. The data can only be used as a guide and should be followed by on-site measurements for a proper assessment. Each value is the estimated average for a 1km square at 45m above ground level (agl).
Constraint Type	Footprint
Copyright	ETSU for the DTI 1999

Technical: **Settlement**

File Type	ESRI Shapefile - Polygon
Nominal Scale	Coordinates of addresses accurate to within 0.1m
Supplied by	OTCO
Description	Secondary Data: buffer generated with a 500m radius *Primary Data: OS Address Point – original format: point.*
Notes	Ordnance Survey Address point Data updated and maintained by Ordnance Survey. For more information on the accuracy of this dataset visit the following web address. http://www.ordnancesurvey.co.uk/oswebsite/products/addresspoint/techinfo.html
Constraint Type	Buffer – 500m Radius
Copyright	Reproduced from/based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Licence No. 100017916

Technical: **Steep slopes greater than 15°**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:10,000
Source	CESA
Description	Secondary Data - Derivation of slope from a DEM *Primary Data: generated from OS Survey Profile DEM (http://www.ordnancesurvey.co.uk/oswebsite/products/landformprofile)*
Notes	Calculated using a 10m DEM (For more information on Ordnance Survey Profile dataset visit the following web address http://www.ordnancesurvey.co.uk/oswebsite/products/landformprofile/) Raster data at 10 by 10 m resolution of all grid cells greater than 15 degrees was converted into a vector/polygon shapefile.
Constraint Type	Footprint
Copyright	N/A
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Environmental/Planning with National/International Status: **National Parks**

File Type	ESRI Shapefile - Polygon
Nominal Scale	Unknown
Source	Countryside Council for Wales (CCW)
Description	Primary Data
Notes	None Available
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Environmental/Planning with National/International Status: **Areas of Outstanding Natural Beauty (AONB)**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:50,000
Supplied by	Countryside Council for Wales (CCW)
Description	Primary Data
Notes	AONB are established under the same legislation as National Parks, but the key difference between the two is that creating opportunities for recreation is not a specific purpose of AONB. However, recreation within AONB is acceptable if it is consistent with the conservation of natural beauty and the needs of agriculture, forestry and other uses. AONB are designated by CCW and the proposals are confirmed by the First Minister for the National Assembly for Wales. Each AONB is managed by a Joint Advisory Committee which represents local authorities, land owning and community interests. Last updated: 13/08/00, Digitised from O.S. 1:50,000 raster
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Environmental/Planning with National/International Status: Natura 2000 Habitat Directive site – **SPAs**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:10,000
Supplied by	Countryside Council for Wales (CCW)
Description	Primary Data
Notes	The EC Birds Directive of 1979 requires member states to establish Special Protection Areas to conserve the habitats of two categories of birds:- i) Species which are rare or vulnerable, of which there are forty-eight in the UK. ii) Some migratory species which visit our shores regularly. SPAs in Wales are identified by CCW, in conjunction with the UK Joint Nature Conservation Committee, and designated by the First Minister for the National Assembly for Wales. They are also protected through being SSSI. The 1994 Conservation Regulations also provide a means of protecting such areas at sea. SPA together with SAC will contribute to a European Union network of protected sites to be known as 'Natura 2000'. Last updated: 29/05/2001, Digitised from O.S. 1:10,000 raster
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Environmental/Planning with National/International Status: Natura 2000 Habitat Directive site – **RAMSAR**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:10,000
Supplied by	Countryside Council for Wales (CCW)
Description	Primary Data

Notes	Wetlands of International Importance (Ramsar Sites) In ratifying the Convention in 1976, the UK government accepted a commitment to promote the conservation of internationally important wetland sites within its territories. Wetlands are vital for many types of birds particularly waterfowl and Wales have some prime sites that are essential to the survival of many wetland plants and animals. Wetland sites can be areas of marsh, fen, peatland or open water; natural or artificial; permanent or temporary; with water that is fresh, brackish or salty. They can also include shallow areas of sea. All Ramsar sites are also SSSI. Wetlands of International Importance are identified by CCW, in collaboration with the UK Joint Nature Conservation Committee, and designated by the First Minister for the National Assembly for Wales. Last updated: 01/06/01, Digitised from O.S. 1:10,000 raster
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Environmental/Planning with National/International Status: Natura 2000 Habitat Directive site **– pSAC**

File Type	ESRI Shapefile - Polygon
Nominal Scale	Unknown
Source	Countryside Council for Wales (CCW)
Description	Primary Data
Notes	None Available
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Environmental/Planning with National/International Status: Natura 2000 Habitat Directive site – **SAC**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:1,250 or 1:2,500 or 1:10,000
Supplied by	Countryside Council for Wales (CCW)
Description	Primary Data
Notes	Special Areas of Conservation: The EC Habitats and Species Directive came into effect in 1992 and its aim is to maintain a rich variety of wildlife by protecting vulnerable habitats, and the plants and animals they support. The Habitat Directive together with the 1979 Birds Directive will lead to the establishment of a series of sites throughout Europe that will be known as ' Natura 2000'. This represents the cream of European sites and will ensure their survival for future generations. The sites listed here are all Candidate status, that means, they have been to public consultation and the UK government are currently presenting them to the EC for recommendation. Last updated: 18/09/2001 Digitised from a combination of O.S. Landline and O.S Raster products
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Environmental/Planning with National/International Status: Natura 2000 Habitat Directive site – **Natural Nature Reserves (NNR)**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:2,500 or 1:10,000
Supplied by	Countryside Council for Wales (CCW)
Description	Primary Data

Notes	National Nature Reserves represent the very best examples of our wildlife habitats and geological features and can range in size between five hectares to well over 2,000. NNR are declared by CCW under the National Parks and Access to the Countryside Act of 1949, or under the Wildlife and Countryside Act of 1981. They are owned or leased by CCW, or the land is held by an approved body, such as a County Wildlife Trust. Each reserve has a programme of work to manage the site's special features. All of them are also SSSI and may provide places for educational projects, research and management trials. Some reserves require permits to gain access to them. Last updated: 13/06/2001 Digitised from a combination of O.S. Landline and O.S Raster products
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Environmental/Planning with National/International Status: **Dyfi Valley biosphere site**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:10,000
Supplied by	Countryside Council for Wales (CCW)
Description	Primary Data
Notes	The Biosphere Reserve is an international designation made by UNESCO based on nominations made by more than 110 countries. Each reserve is therefore part of a world-wide chain of permanently protected areas dedicated to the study and understanding of the changes affecting land and water. The biosphere is rapidly changing under the influence of human activity, so understanding it's effect is of paramount importance. Last updated: 23/09/1999 Digitised from O.S 1: 10,00 Raster product.
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Technical: **Major TV Transmitter Masts**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:50,000
Source	http://www.bbc.co.uk/reception/tv_transmitters/region_wales.shtml / CESA Website provided the point source location as a grid reference (accurate to 100m).
Description	Secondary Data: buffer generated with a 10km radius *Primary Data: point location of major TV Transmitter Masts radar digitised using OS Raster 1:50,000 using grid references supplied by the website given above.*
Notes	N/A
Constraint Type	Buffer at 10km
Copyright	N/A

Environmental – some existing planning status: **Scheduled Ancient Monuments**

File Type	ESRI Shapefile - Polygon
Nominal Scale	Unknown
Source	CADW: Welsh Historic Monuments
Description	Secondary Data: buffer generated with a 300m radius *Primary Data: Scheduled Ancient Monuments supplied by CADW – original format: point*
Notes	Please note that the radius has been applied to aid in differentiation of features at the scale of presentation
Constraint Type	Buffer at 300m
Copyright	"This report is based on Scheduled Ancient Monument Data. © Crown copyright. CADW: Welsh Historic Monuments".

Environmental – some existing planning status: Natura 2000 Habitat Directive site – **SSSI**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:1,250 or 1:2,500 or 1:10,000
Source	Countryside Council for Wales (CCW)
Description	Primary Data
Notes	SSSI cover a wide range of habitats from small fens, bogs and riverside meadows to sand dunes, woodlands and vast tracks of uplands. Most are in private ownership, although some are owned and managed by local wildlife trusts, or other voluntary conservation bodies. Notification of an SSSI under the Wildlife and Countryside Act 1981 has since been amended by the Countryside and Rights of Way Act 2001, which brought about numerous changes in the way SSSI are notified managed and protected. In order to ensure consistent, favourable long-term management of these sites, CCW is working with landowners to prepare management plans for all SSSI sites in Wales. Local planning authorities are required to consult CCW before allowing any development to proceed that may affect an SSSI. Water, gas and electricity companies must also do the same. Last updated: 12/08/02, Digitised from O.S. Landline and O.S. 1:10,000 raster
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Variable Technical and Environmental Constraints:

Technical: **Ministry of Defence (MOD) Low Flying Area 7T**

File Type	ESRI Shapefile - Polygon
Nominal Scale	Unknown
Supplied by	CartoGraphics: The National Assembly for Wales
Description	Primary Data
Notes	Summary of CartoGraphic Release of digital data - METADATA Description:- 18 co-ordinates used to plot low fly area, Owner of Data:- MOD HQ STC Ops Support, Original Source:- Ministry of Defence, Date Capture:- September 2003, Completeness:- 100%, Data Release: ISG. Steel & Energy. Simon Dupree/Rosemary Iles Comments: Data received 4/09/2003. SAC S T Rutherford. HQ Ops Support. Military Airspace Co-ord. LATCC MIL. Porters Way. West Drayton UB7 9AU. Tel: 01895 423937 Data captured by Philippa White, E/GIS/_DD/Topic Data/Transport/ Airfields.
Constraint Type	Footprint
Copyright	MoD

Technical: **Safeguarded civil aerodrome – Cardiff**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:10,000
Source	http://www.homepages.mcb.net/bones/06airfields/UK/uk.htm / CESA Website provided the point source location as a grid reference (accurate to 100m).
Description	Visibility Analysis – Line of Sight
Notes	Calculated using a 10m DEM (Ordnance Survey Profile http://www.ordnancesurvey.co.uk/oswebsite/products/landformprofile/) Observer Offset = 26.82m (height of radar) Target Offset = 110m (wind turbine) Calculation radius = 30km For methodology see page #
Constraint Type	Line of Sight 30km radius
Copyright	N/A

Environmental – some existing planning status: Natura 2000 Habitat Directive site – **Local Nature Reserves (LNRs)**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:2,500 or 1:10,000
Source	Countryside Council for Wales (CCW)
Description	Primary Data
Notes	Local Nature Reserves are established and managed by local authorities, following consultation with CCW under the National Parks and Access to the Countryside Act 1949. For a site to become an LNR it must have natural features of special interest to the local area, and the authority must either have a legal interest in the land or have an agreement with the owner to manage the land as a reserve. LNR prove to be useful not only to protect habitats and wildlife but increase people's awareness of their environment. They are places where children can learn about nature, and they are often situated in or near urban areas. Last updated: 09/06/2002 Digitised from O.S. 1:10,000 raster
Constraint Type	Footprint
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply. See legal maps for definitive boundaries.

Environmental – some existing planning status: **RSPB reserves**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:10,000 or 1:50,000
Source	Data downloaded from the following website: http://www.rspb.org.uk/reserves/
Description	Primary Data
Notes	The RSPB endeavours to maintain accurate information. However, the RSPB can accept no responsibility for the consequences of errors or omissions in the data. For further information, please contact the Conservation Data Management Unit (01767 680551).
Constraint Type	Footprint
Copyright	The RSPB reserve the right to comment on the accuracy of representation of the data in material produced by the recipient.

Environmental – some existing planning status: **RSPB Bird Data**

File Type	ESRI Shapefile - Polygon
Nominal Scale	Not Known
Source	Mike Webb (mike.webb@rspb.org.uk)
Description	Primary Data
Notes	"This 1km square contains, (or is an integral part of) a nationally important population of a bird species of acknowledged conservation importance (Annex 1 of the EU Birds Directive, Section 74 of the Countryside and Rights of Way Act 2000, or red-listed in Wales, in "The Population Status of Birds in Wales : An analysis of Conservation Concern, 2002 - 2007" Thorpe, R and Young, A. 2002,). If, within this 1km square, a development is proposed which is located within the relevant disturbance radius for the species, the developer will need to modify the design of the proposed development, after discussions with the RSPB. If no acceptable design modification takes place, or can take place, the RSPB will lodge and maintain a formal objection"
Constraint Type	Footprint
Copyright	The RSPB reserve the right to comment on the accuracy of representation of the data in material produced by the recipient.

Environmental – some existing planning status: **National Trails**

File Type	ESRI Shapefile - Polygon
Nominal Scale	Not Known
Source	Countryside Council for Wales (CCW)
	Secondary Data: buffer generated with a 250m radius *Primary Data: original format: line*
Notes	Source Not Known
Constraint Type	Buffer at 250m
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply.

Environmental – some existing planning status: **Country Parks** (Historic Parks and Gardens)

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:25,000
Source	Countryside Council for Wales (CCW)
	Secondary Data: buffer generated with a 300m radius *Primary Data: Country Parks supplied by CCW – original format: point*
Notes	Please note that the radius has been applied to aid in differentiation of features at the scale of presentation Point data only Last updated: 23/08/1999
Constraint Type	Buffer at 2km
Copyright	Copyright is held by the Countryside Council for Wales. Normal restrictions apply.

Environmental – some existing planning status: **Historic Landscape**

File Type	ESRI Shapefile - Polygon
Nominal Scale	1:50,000
Source	Cadw, 2001, Register of Landscapes of Special Historic Interest in Wales Cadw, 2001, Register of Landscapes of Outstanding Historic Interest in Wales
	Primary Data
Notes	Digitised using Ordnance Survey 1:50,000 OS raster as a backdrop.
Constraint Type	Footprint
Copyright	Copyright is held by the CADW. Normal restrictions apply.

SSA E: Landscape sensitivity worksheet

ZONE: E1 Seven Sisters (East)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau *[in LANDMAP but consists of slopes of ridge]*	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Relatively open slopes of Hirfynydd ridge [part of dissected Coalfield plateau], steep close to the top which lies 250-300m above valley floor, running down to Seven Sisters at around 200mAOD. Coniferous plantation lies over part of area but much is cleared leading to open rough grassland and clear views up to simple ridge line from valley floor. Open cast mining cuts into slopes and is also highly visible.

Historic Landscape

Criteria				
Survival of historic patterns of	Not evident		Moderately evident	Highly evident

landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Part of wider Historic aspect area. Hirfynydd Ridge once tribal frontier and Roman border. Many cairns on overall ridge from Bronze Age. Sarn Helen Roman Road is an important feature.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Part of wider landscape habitats aspect area. In forest adjacent- crossbill and red squirrel.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other	None known		Moderately		Highly sensitive

geological features			sensitive		
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Open cast mining exposes rock face.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it consists of the exposed slopes of a ridge 250-300m above valley floor [part of dissected Coalfield plateau], steep close to the top, running down to Seven Sisters and the Dulais valley and to the north east. There is little depth of ridge top to obscure turbines. There is coniferous plantation over part of the area but much has been cleared leading to open rough grassland and clear views up to simple ridgeline from valley floor. Open cast mining cuts into slopes and is also highly visible. Hirfynydd Ridge was once a tribal frontier and Roman border and has historic interest. Many cairns are located on the overall ridge from the Bronze Age. Sarn Helen Roman Road is an important feature.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/a
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E2 Hirfynydd (Sarn Helen)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau *[in LANDMAP but consists of ridge and slopes*	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention		*Forest*		Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features	*[rock outcrops]*	features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Ridge and slopes [part of dissected Coalfield plateau], 150-400m above the Neath Valley bottom and 150-250m above Seven Sisters, with dramatic rock outcrops on Neath Valley side which are sensitive features. There is one small area of relatively flat remnant plateau top at around 450mAOD. Coniferous plantation clothes much of the area. Open cast workings lie to the north east.

Historic Landscape

Criteria				
Survival of historic patterns of	Not evident		Moderately evident	Highly evident

landscape					
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Part of wider Historic aspect area. Hirfynydd Ridge once tribal frontier and Roman border. Many cairns on overall ridge from Bronze Age. Sarn Helen Roman Road is an important feature.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Part of wider landscape habitats aspect area. Potential for crossbill and red squirrel.					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other	None known		Moderately		Highly sensitive

geological features			sensitive		
Overall sensitivity	Low	Medium-low *[generally]*	Medium	Medium-high *[by rock outcrop]*	High

Comments
Rock outcrops are key features.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
The zone has sensitivity above because it is a ridge and slopes [part of dissected Coalfield plateau] with dramatic rock outcrops on the Neath Valley side. There is only one small area of relatively flat remnant plateau top at around 450mAOD. Though the scale of the ridge is quite large to the east, 150-400m above the Neath Valley bottom [150-250m above Seven Sisters], there are only limited opportunities to place turbines to minimise effects because of its single ridge character and outcrops. Coniferous plantation clothes much of the area. Open cast workings lie to the north east and possibly offer some opportunities off the top of the ridge. Hirfynydd Ridge was once a tribal frontier and Roman border and has historic interest. Many cairns are located on the overall ridge from the Bronze Age. Sarn Helen Roman Road is an important feature. The forest has potential for ecological species interest which may be disturbed by wind turbine development.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/a
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E3 Hirfynydd (Sarn Helen) - South West

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau *[in LANDMAP but consists of ridge]*	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention		*Forest*		Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

South western end of Hirfynydd Ridge and slopes [part of dissected Coalfield plateau], reaching 399mAOD and 150-250m above valley bottom. The ridge has a rounded profile and steep sides with local high points and coniferous plantation clothes much of the area.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Part of wider Historic aspect area. Hirfynydd Ridge once tribal frontier and Roman border. Many cairns on overall ridge from Bronze Age. Sarn Helen Roman Road is an important feature.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Part of wider landscape habitats aspect area. In forest potential for crossbill and red squirrel.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it is the south western extremity of a rounded single ridge and slopes [part of dissected Coalfield plateau]. The height of the ridge reaches 399mAOD, 150-300m above the valley bottom. The ridge has a rounded profile and steep sides with local high points and coniferous plantation clothes much of the area. Hirfynydd Ridge was once a tribal frontier and Roman border and has historic interest. Many cairns are located on the overall ridge from the Bronze Age. Sarn Helen Roman Road is an important feature. The forest has potential for ecological species interest which may be disturbed by wind turbine development.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/a
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E4 Hirfynydd (Sarn Helen) - West

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau *[in LANDMAP but consists of slopes of ridge]*	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Western open slopes and top of Hirfynydd Ridge [part of dissected Coalfield plateau], running down to Dulais valley. The topography runs from around 250-400mAOD and 100m-250m max above valley floor. The ridge sides are steep and the skyline is simple but the top of the ridge is fairly narrow. Open rough grassland is the predominant simple landcover.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident

Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Part of wider Historic aspect area. Hirfynydd Ridge once tribal frontier and Roman border. Many cairns on overall ridge from Bronze Age. Sarn Helen Roman Road is an important feature adjacent.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Part of wider landscape habitats aspect area. In forest adjacent- crossbill and red squirrel.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological	None known		Moderately sensitive		Highly sensitive

features					
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Open cast mining exposes rock face.

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because the ridge sides are steep and though the skyline is simple, the top of the ridge is fairly narrow. There is little depth of ridge top to obscure turbines. The area comprises the western open slopes and top of Hirfynydd Ridge [part of dissected Coalfield plateau], running down to Dulais valley. The topography runs from around 250-400mAOD and 100m-250m max above valley floor. Open rough grassland is the predominant simple landcover. Hirfynydd Ridge was once a tribal frontier and Roman border and has historic interest. Many cairns are located on the overall ridge from the Bronze Age. Sarn Helen Roman Road is an important feature running adjacent.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/a
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E5 Mynydd Marchywel

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau *[in LANDMAP but consists of single ridge]*	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	Forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention		*forest*		Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Single ridge and slopes [part of dissected Coalfield plateau], reaching over 400mAOD and 100-300m above valley bottom to the east and 200-300m above the valley to west. The ridge has a rounded profile, simple undulating skyline from the high point in the south and steep sides with local high points and coniferous plantation clothes much of the area.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident

Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Bronze Age remains on ridge top					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present ?	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No sensitive species known					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it is a single narrow ridge with steep slopes [part of dissected Coalfield plateau], reaching over 400mAOD and 100-300m above valley bottom to the east and 200-300m above the valley to west. The ridge has a rounded profile, simple undulating skyline from the high point in the south and steep sides with local high points and coniferous plantation clothes much of the area.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet

ZONE: E6 Mynydd Marchywel South West

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau *[in LANDMAP but end of ridge]*	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	Simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Exposed end of single ridge rising from 200-350mAOD, 150-250m above the valley floor with steep slopes in parts. The ridge has a smooth skyline profile with simple, open moorland cover bordered by coniferous plantation to the north.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					
House platforms and ridge and furrow in evidence in the area.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					
Upland heath habitats/rough grazing					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it is the exposed end of single ridge rising from 200-350mAOD, 150-250m above the valley floor with steep slopes in parts. There is no depth of ridge to conceal wind turbines. The ridge has a smooth skyline profile with simple, open moorland cover bordered by coniferous plantation to the north. House platforms and ridge and furrow in evidence in the area.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E7 Mynydd Marchywel South East

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Part of upper valley sides near the end of the Marchywel ridge, around 100-150m above adjacent Dulais valley floor. Pastoral farming gives way to fridd with medium scale fields, scattered deciduous trees and nearby farmsteads. Backcloth of open ridge behind. The area is part of the continuum of the valley sides.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Area of medieval/post medieval field patterns with associated settlement.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Fridd habitat					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it is part of the pastoral settled landscape of the upper valley sides near the end of the Marchywel ridge, only around 100-150m above adjacent Dulais valley floor. Pastoral farming giving way to fridd with medium scale fields, scattered deciduous trees and nearby farmsteads in the settled valley make the area inappropriate for large scale wind turbine development. The area is part of the continuum of the valley sides.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E8 Mynydd Drumau (east)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some	*Out only*	None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth	*[trees and rocks]*	rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline *[rock outcrops]*
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Prominent, flat, narrow topped hill reaching 272mAOD, 150-200m above valley floor with strong rock outcrop above mixed woodland on eastern side. The landform acts as an outlier for the dissected coalfield plateau above the Neath valley.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Carreg Bica- standing stone, burial cairns and ring cairns.					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Upland Heathland					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Carreg Bica- folklore association					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Located on a fault with significant rock outcrops

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it is a prominent flat, narrow topped hill only reaching 272mAOD, 150-200m above valley floor with strong rock outcrop above mixed woodland on eastern side. The landform acts as an outlier for the dissected coalfield plateau above the Neath valley which gives it further prominence. Carreg Bica, a standing stone has folklore importance adding to the sensitivity of the site. There are also burial cairns and ring cairns.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E9 Mynydd Drumau (west)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Flat, narrow topped hill reaching 272mAOD to east sloping down towards Tawe valley bottom, 100-200m above valley floor. The landform acts as an outlier for the dissected coalfield plateau above the Neath valley. The landcover is pastoral with field pattern, woodland and settlement.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Improved grassland 50%					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No information					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
Pennant sandstone

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it is a flat but narrow topped hill only reaching 272mAOD to east sloping down towards Tawe valley bottom, 100-200m above valley floor. The landform acts as an outlier for the valleys plateau above the Tawe valley which gives it further prominence. The landcover is pastoral with field pattern, deciduous woodland and settlement making it further unsuitable.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet

ZONE: E10 River Egel Valley

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Upland valley rising up to 300mAOD, with the valley sides upto 100m high. The landcover is pastoral with small- medium sized fields, scattered farmhouses with a small block of coniferous plantation.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Some standing stones/cairns and drystone walls from mid 18C in area.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Fridd habitat and rhos pastures [dominant] with mire in the valley bottom and ancient woodland.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it is an upland valley in relatively fine grain landscape of pastoral land use with small- medium sized fields, scattered farmhouses with a small block of coniferous plantation. The valley sides rise up only upto 100m high up to 300mAOD. Overall these attributes make the area unsuitable for strategic windfarm development.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E11 Mynydd Uchaf (AAT site)

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau *[in LANDMAP but a hill]*	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Upland unenclosed common with simple rounded skyline rising to 357mAOD. The area rises 50-170m above surrounding lower land and encloses the upland valley of the River Egel. The dominant landcover is acid grassland with some heath. The common is accessed by minor road with sparse scattered settlement on its edges.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

One of the 3 most important ritual landscapes from the Bronze Age in Glamorgan displaying cairns etc.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Wet and dry heath

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it is upland unenclosed common [upto 357mAOD] with simple rounded skyline which only rises 50-170m above surrounding lower land and encloses the upland valley of the River Egel. The dominant landcover is acid grassland with some heath. The common is accessed by minor road with sparse scattered settlement on its edges. The area is one of the 3 most important ritual landscapes from the Bronze Age in Glamorgan displaying cairns etc.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E12 Mynydd y Bettws

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Upland common with rounded skyline reaching 341mAOD rising around 200-250m above valley to the north. The area is unenclosed and exposed with long views. A minor road passes through it and there is an existing wireless mast and pylons. The zone lies on the edge of a wide valley to the north and east and is on the edge of the coalfield plateau upland.
.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

patterns of landscape					
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No information					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No information					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No information					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
No information

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has the sensitivity above because it lies on the edge of a wide valley to the north and east and is on the edge of the coalfield plateau upland. It is an upland common with rounded skyline reaching 341mAOD rising around 200-250m above valley to the north. The area is unenclosed and exposed with long views. The area to the south of the summit which faces away from the valley is slightly less sensitive than the area to the north although the scale of turbines may counteract this. A minor road passes through it and there is an existing wireless mast and pylons.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	No info
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	No info

SSA E: Landscape sensitivity worksheet
ZONE: E13 Mynydd y Gwair

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm *[LANDMAP indicates this but not true for this area]*	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote *[mentioned in LANDMAP but not remote compared to mid Wales]*				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Simple open upland common rising to 374mAOD, 200-300m above valley floor. The zone has a broad undulating ridge top sloping south towards further upland. The area is the furthest west part of the coalfield plateau. The landcover is acid grassland, unenclosed, and is crossed by a minor road.

Historic Landscape

Criteria					
Survival of historic patterns of landscape	Not evident		Moderately evident		Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Penller castle to the north is possibly sensitive.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Mainly acid grassland, some marshy grassland with purple moor grass.

Cultural landscape/associations

Criteria				
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive	Highly sensitive
notional associations [eg with famous people,	None known		Moderately sensitive	Highly sensitive

events]					
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Pennant sandstone					

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments The zone has sensitivity above because it is a simple open upland common rising to 374mAOD, 200-340m above valley floor. The zone has a broad undulating ridge top sloping south towards further upland. The area is the furthest west part of the coalfield plateau. The landcover is acid grassland, unenclosed, and is crossed by a minor road.					

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E14 Upper Lliw Reservoir

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm *[in wider LANDMAP area]*	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote *[mentioned in LANDMAP but not remote compared to mid Wales]*				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Southern end of simple open upland common rising to 317mAOD, Upto 200m above minor valley to the east 150m above minor valley to west. The zone has a broad undulating ridge top sloping south and encircling a small reservoir on the River Lliw. The area is the furthest west part of the coalfield plateau. The landcover is unenclosed acid grassland, some enclosed land and a small conifer plantation. It is crossed by a minor road. There are long views to the south.

Historic Landscape

Criteria					
Survival of historic patterns of landscape	Not evident		Moderately evident		Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Not significant constraint except in field systems in centre.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Mainly acid grassland, some marshy grassland, purple moor grass.

Cultural landscape/associations

Criteria			
Recorded expressions [eg featured in painting or poem]	None known	Moderately sensitive	Highly sensitive
notional associations [eg with famous people,	None known	Moderately sensitive	Highly sensitive

events]					
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments No info.					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Pennant sandstone					

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments The zone has sensitivity above because it is the southern end of a simple open upland common with long views to the south. The area rises to 317mAOD, upto 200m above minor valley to the east 150m above minor valley to west. The zone has a broad undulating ridge top sloping south and encircling a small reservoir on the River Lliw. The area is the furthest west part of the coalfield plateau. The landcover is unenclosed acid grassland, some enclosed land which is sensitive and a small conifer plantation. The area is crossed by a minor road.					

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	No info
Geology	Low	Moderate	High	Outstanding	

SSA E: Landscape sensitivity worksheet
ZONE: E15 Onllwyn South

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	plateau	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention				Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features		features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

The area is undulating lower hillside which is reclaimed land between 250-300mAOD and only 50-100m above lower land to north. The area has field enclosures, copses and woodlands and settlement nearby.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident
Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area	Highly cohesive

Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments Reclaimed land					

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments					

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments
No info

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

The zone has sensitivity above because it is undulating lower hillside which is reclaimed land between 250-300mAOD and only 50-100m above lower land to north. The area has field enclosures, copses and woodlands and settlement nearby. Overall the combination of these attributes mean the area has medium-high sensitivity.

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/A
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	No info

SSA E: Landscape sensitivity worksheet

ZONE: E16 Glyn Neath North

Generally criteria from better to worse for large scale windfarms, left to right.

Visual and Sensory

Criteria from LANDMAP assessment						
PHYSICAL	**Topographic form**	Plateau *[in LANDMAP but consists of lower ridge and slopes*	rolling/undulating	hills/valleys	levels	mountains
	Landcover pattern	forestry	open land	field pattern/mosaic	development	
	Settlement pattern	no settlements	scattered/rural/farm	clustered	urban	
AESTHETIC	**Scale of landform**	vast	large	medium	small	intimate
	Scale of landcover	vast	large	medium	small	intimate
	Sense of enclosure	confined	enclosed	open	exposed	
	Diversity	uniform	simple	diverse	complex	
PERCEPTUAL	**Level of human access**	rare	occasional	infrequent	frequent	constant
	Presence of attractive views	None		Some		Many
	Presence of detractive views	Many		Some		None
	Tranquillity	Noisy				Tranquil
	Remoteness	Remote				Settled
	Wildness	Human intervention		*Forest*		Wild
Other criteria						
	Skyline	smooth		rounded		complex
		multiple				single
	Sensitive features	no sensitive features		some sensitive features	*[rock outcrops]*	features on skyline
	Vertical elements	Many Masts and pylons		Some masts and pylons		No man made vertical elements
Overall Sensitivity		Low	Moderate/low	Moderate	Fairly High	High

Comments

Northern end of ridge and slopes [part of dissected Coalfield plateau] reaching 370mAOD, 100-200m above the Neath valley floor to the south and 0-170m above Afon Pyrrdin valley to the north. The area falls from the main Hirfynydd ridge and then rises back up to a series of lower hills around 300mAOD. Coniferous plantation clothes much of the area. Open cast workings lie to the east.

Historic Landscape

Criteria				
Survival of historic patterns of landscape	Not evident		Moderately evident	Highly evident

Cohesiveness of historic patterns of landscape	Not evident	Patches	Cohesive over parts of the area		Highly cohesive
Presence of designated features eg SAM's, listed buildings etc	None	Low	Medium	Fairly high	High
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Part of wider Historic aspect area. Hirfynydd Ridge once tribal frontier and Roman border. Sarn Helen Roman Road is an important feature.

Landscape habitats/Biodiversity

Criteria					
Presence of habitat sensitive to windfarms	No sensitive habitat	Moderately sensitive over some of area	Moderately sensitive over all of area	Highly sensitive over some of area	Highly sensitive over most of area
Presence of species sensitive to windfarms	Not present	Limited presence	Some presence	Moderate-high presence	Significant presence
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Part of wider landscape habitats aspect area. Potential for crossbill and red squirrel.

Cultural landscape/associations

Criteria					
Recorded expressions [eg featured in painting or poem]	None known		Moderately sensitive		Highly sensitive
notional associations [eg with famous people, events]	None known		Moderately sensitive		Highly sensitive
Overall sensitivity	Low	Medium-low	Medium	Medium-high	High

Comments

Geological landscape/Earth sciences

Criteria					
Exposed rock/ outcrops	None known		Moderately sensitive		Highly sensitive
Other geological features	None known		Moderately sensitive		Highly sensitive

Overall sensitivity	Low	Medium-low *[generally]*	Medium	Medium-high	High
Comments					

Landscape Character Sensitivity Summary

Overall sensitivity	Low	Medium-low	Medium	Medium-high	High
Comments The zone has sensitivity above because it is the northern end of the Hirfynydd ridge falling from the main ridge to a broad saddle and then rising back up to a series of lower hills around 300mAOD. Though simple in landcover, it is at a lower elevation. It is part of dissected Coalfield plateau at a lower elevation reaching 370mAOD, 100-200m above the Neath valley floor to the south and 0-170m above Afon Pyrrdin valley to the north. Coniferous plantation clothes much of the area. Open cast workings lie to the east.					

Landscape Value

Aspect					
Visual and sensory	Low	Moderate	High	Outstanding	
Historic landscape	Low	Moderate	High	Outstanding	N/a
Biodiversity	Low	Moderate	High	Outstanding	
Cultural associations	Low	Moderate	High	Outstanding	
Geology	Low	Moderate	High	Outstanding	

POTENTIAL VISUAL EFFECTS

The tables below discuss the main potential visual effects of turbines located in each zone.

SSA E		
Zone no.	*Zone name*	*Effects*
Zone 1	Seven Sisters (East)	The area is contained by the ridge to the south so its effects are reduced overall and are focussed northwards towards the national park. Turbines on the western part of the zone would have a significant effect on Seven Sisters and this area should be avoided. The area would be highly visible to nearby settlement to the north and the upland part of Brecon Beacons.
Zone 2	Hirfynydd (Sarn Helen)	The area lies on the ridgetop and turbines on its edges will affect the Neath valley and Crynant valleys and settlements with turbines potentially prominent/dominant in places. These areas should be avoided. The area is most visible to the Brecon Beacons national park in Area E.
Zone 3	Hirfynydd (Sarn Helen) - South West	The area lies on the ridgetop and turbines on its edges will affect the Neath valley and Crynant valleys and settlements with turbines potentially prominent/dominant in places. These areas should be avoided. The area is visible to the Brecon Beacons national park but further than Zone 2.
Zone 4	Hirfynydd (Sarn Helen) - West	The area lies on the ridgetop and turbines on its edges will affect the Crynant valleys and settlements with turbines potentially prominent/dominant in places. These areas should be avoided. The area will be visible from the Brecon Beacons national park.
Zone 5	Mynydd Marchywel	As a single ridge wind turbines on its edges will affect the Tawe valley and Crynant valleys and settlements with turbines potentially prominent/dominant in places. These areas should be avoided. The area is visible to the Brecon Beacons national park particularly to the north.
Zone 6	Mynydd Marchywel South West	As the exposed southern end of a single ridge wind turbines will be highly visible from the southern part of the Neath valley adversely affecting its hilly backcloth. The number of turbines could have a disproportionate visual effect. The area can also be seen in profile especially from the west.
Zone 7	Mynydd Marchywel South East	As the south eastern end of a single ridge the area is generally contained to the north and west and also by the Hirfynydd ridge to the east. However, wind turbines will be visible from the southern part of the Neath valley adversely affecting its hilly backcloth. The number of turbines could have a disproportionate visual effect.
Zone 8	Mynydd Drumau (east)	Wind turbines in this area will be highly prominent overlooking the Neath Valley and will have significant adverse effects on Neath and adjacent settlements. Turbines will also be highly visible from the West including settlements in the Tawe valley and from the M4 corridor. The effect on receptors is likely to be so severe that the area is considered unacceptable in terms of windfarm development.
Zone 9	Mynydd Drumau (west)	Wind turbines in this area will be highly prominent overlooking the Tawe Valley and will have significant adverse effects on Clydach, Birchgrove and adjacent settlements. Turbines will also be highly visible from the East including settlements in the Neath valley and the M4 corridor. The effect on receptors is likely to be so severe

		that the area is considered unacceptable in terms of windfarm development.
Zone 10	River Egel Valley	The most significant effects will be limited to scattered rural settlement in the River Egel Valley and surrounding common.
Zone 11	Mynydd Uchaf (AAT site)	The area dominates GCG to the west, Tairgwaith to the north and is visible from linear settlements further north and to the north east. There are potentially significant effects on these settlements depending on the location of wind turbines. Locations back from the edge and further south would affect less people. Turbines on the northern edges of the area would be highly visible from the national park to the north.
Zone 12	Mynydd y Bettws	The area overlooks Ammanford in the valley to the north west, Glanaman to the north and settlements to the north east. Wind turbines on much of the area would have potentially significant adverse effects on Ammanford and closer settlements with a large viewshed to the west. Existing detractors such as a wireless mast and pylons will be relatively small in scale in comparison with strategic wind turbines. Turbines on the northern edges of the area would be highly visible from the national park to the north. Turbines on the limited southern [south facing] part of the area are likely to be less prominent in views from the valley floor.
Zone 13	Mynydd y Gwair	The area has a large view shed to the west and turbines may have some effects on Ammanford and rural settlement in the valleys to the east and west. Turbines on the northern edges of the area would be highly visible from the national park to the north. At a distance, there will also be some effects on the Gower AONB. Turbines located in the core of the area are unlikely to have significant effects on most surrounding settlements.
Zone 14	Upper Lliw Reservoir	Turbines in this area have potential for adverse visual effects on northern outskirts of Swansea eg Llangefylach and, at a distance, on the Gower AONB. Locating turbines in the northern part of the area is likely to have least effects on surrounding settlement.
Zone 15	Onllwyn South	This area performs particularly poorly in relation to effects on settlement within 2km bordering one to the north. Though the area is generally well contained to the south it also has an effect on the national park to the north. The containment of the higher ground also means the area performs well in terms of effects on roads and settlement over a wider area. However, the effect on adjacent receptors is likely to be so severe that the area is considered unacceptable in terms of windfarm development.
Zone 16	Glyn Neath North	The north western part of this area could have significant adverse effects potentially on the nearby settlement of Dyffryn Cellwen. The southern part could have significant adverse effects potentially on Blaengwrach and Glyneath. Though the area is generally well contained to the south west it also has an effect on the national park to the north. The containment of the higher ground also means the area performs well in terms of effects on settlement over a wider area. The nearby main roads will have clear views of turbines particularly on the eastern fringes.

SSA F		
Zone no.	*Zone name*	*Effects*
Zone 1	Moel ton-mawr	The ridge separates the Llynfi valley from the coastal lowlands. Turbines would be widely visible from settlements to the south and north with views down the valley and from the M4 being clear. Significant adverse effects would be apparent.
Zone 2	Mynydd Margam	The upland is seen in conjunction with Margam Park and acts as setting on its southern fringes and turbines on the southern edge may have a significant adverse effect on receptors. There are clear views from the south, in particular from the M4 corridor and coastal plain. The eastern fringes will affect the Llynfi valley. Turbines in the core and northern part of the area would be likely to have less effect.
Zone 3	Mynydd Bach	Turbines on the eastern fringes may have a significant effect on Maesteg and other Llynfi valley settlements whilst the north western edge will significantly affect Bryn. The issue of cumulative effects on this settlement will need to be taken into consideration in conjunction with Zone 5. Turbines in the core and west of the area are likely to have least effect.
Zone 4	Ergyd Isaf (Mynydd Margam West)	Turbines on this prominent landform would be highly visible and have a significant adverse effect on the coastal plain settlements, in particular Margam, and on the M4.
Zone 5	Afan Argoed South East	Turbines on the south eastern corner may have a significant adverse effect on Maesteg and Llynfi valley settlements whilst turbines to the south west will have a similar effect on Bryn. The issue of cumulative effects on this settlement will need to be taken into consideration in conjunction with Zone 3. The area forms part of the Afan Forest Park and effects on the Afan valley in conjunction with Zone 13 will need to be considered.
Zone 6	Foel Trawsnant	Turbines on the eastern edge may have a significant adverse effect on Caerau and the upper Llynfi valley settlements. The area borders the Afan valley and cumulative effects in conjunction with Zone 13 will need to be considered.
Zone 7	Mynydd y Gelli	Effects on Abergwynfi/Blaengwnfi could be significantly adverse as the area slopes down towards these settlements. Croeserw to the west may have clear views of turbines on the western edge, which with the visual effects of the exisiting windfarm at Ffynnon Oer and adjacent zones eg 13, may have significant adverse cumulative effects. The effects of turbines on the southern central edge on the Garw valley could be significant. The A4107 will also have clear views passing through the area.
Zone 8	Mynydd Blaengwynfi	The area is generally set back from settlement although views will be possible from Croeserw. The A4107 will also have clear views.
Zone 9	Mynydd Blaenrhondda (West)	The area is generally set back from settlement although views glimpses may be possible from Glyncorrwg. The area will be highly visible from the national park with the northern edge particularly prominent. This northern tip should be avoided.
Zone 10	Mynydd Pen-y-Cae - Llyn Fach	This zone is particularly prominent in views to the north, in particular to the national park and settlements such as Glynneath. Its height in addition to its location on the

		edge of the dissected plateau would make turbines highly prominent and have a significant adverse effect on receptors in the above areas including the A465. It is likely that the effects will be unacceptable.
Zone 11	Glyncorrwg West	The area is generally set back from settlement although views glimpses may be possible from Glyncorrwg. The cumulative effects on this settlement should be avoided when considered in relation to other surrounding zones. The area will be highly visible from the national park with the northern edge particularly prominent.
Zone 12	Coed Morgannwg Way	Turbines in this zone are likely to have effects on receptors in the Neath valley around Glynneath and Resolven, the A465 and in the national park. The significant adverse effects should be avoided by careful siting.
Zone 13	Mynydd Nant-y-bar	Turbines on the south eastern side may have a significant adverse effects on the Afan valley. As part of the Afan Forest Park the issue of cumulative effects on this area will need to be taken into consideration in conjunction with Zones 5 and 6.
Zone 14	Glyncorrwg East	The area is not generally widely visible but the effect of turbines on Glyncorrwg could be dominant and significantly adverse as the zone slopes down to this settlement. These effects should be avoided.
Zone 15	Mynydd Fforch dwm	Turbines on the area would be visible and prominent from Cilfrew on the opposite valley side but there are very few nearby dwellings that may be affected.
Zone 16	Ffynnon Oer (wind farm)	The area includes the Ffynnon Oer windfarm and the greatest effects in the south would be on Cwmer. The extent of the effect if the northern part is developed may include the Neath valley around Resolven.
Zone 17	Mynydd Resolven	This zone including the outlying hill is particularly prominent in views from the north, in particular to the national park and settlements such as Glynneath. It is also highly visible from Resolven and the A465. Its location would make turbines highly prominent and domineant in some places and have a significant adverse effect on receptors in the above areas. It is likely that the effects will be unacceptable in most parts of the area.
Zone 18	Mynydd-y-Gaer and Foel Fynyddau	Turbines on this zone as outlying hills/ridges would be particularly prominent in views from the Neath and the surrounding Neath valley, the M4 and the coastal plain around Port Talbot. Effects are likely to range from dominant to prominent and the location would make turbines have a significant adverse effect on receptors in the above areas. It is likely that the effects will be unacceptable.
Zone 19	Mynydd Baedan	The ridge forms the prominent southern edge of the Llynfi valley with lower land to the south and east. Turbines would be widely visible and prominent when viewed from settlements to the north, east and south eg Cefn Cribwr with views down the valley being clear. Significant adverse effects would be apparent.
Zone 20	Mynydd Caerau	Turbines on the western edge of this zone are likely to dominate the settlement of Caerau and will have significant adverse effects. Turbines to the south may have an adverse effect on Maesteg and its southern outskirts. Turbines on Mynydd Caerau are likely to be prominent when viewed from Croeserw and also possibly

		from the Garw Valley. The area is likely to have a significant cumulative visual effect on settlements of the upper Llynfi valley when considered in conjunction with zones 3, 5 and 6.
Zone 21	Moel Cynhordy	Turbines on this zone are likely to be highly prominent when viewed from the rural part of the Llynfi valley and around Llangynwydd, possibly dominating some properties. The area is likely to have a significant cumulative visual effect on settlements of the Llynfi valley when considered in conjunction with zones 1, 2 3, 5, 6 and 19.
Zone 22	Werfa	Turbines would be likely to be highly prominent/dominant on the settlements of the Garw valley and Ogmore Vale [Blaengarw and Nant-y-moel] if placed on the southern margins. Views from the A4107 would be clear. As a high point, the area is widely visible across the coalfield plateau.
Zone 23	Mynydd Llangeinwyr	This area performs poorly in relation to effects on settlement within 2km to the east and west in Ogmore Vale and the Garw valley respectively. Windfarm development on this narrow ridge is likely to have a dominant effect on settlement in these steep sided valleys and there are few, if any options for strategic scale wind turbines. The effect on nearby receptors is likely to be significantly adverse.
Zone 24	Mynydd Corrwg Fechan	The area is not generally widely visible but the effect of turbines on the southern side and top of the hill on Glyncorrwg would be dominant and significantly adverse as the zone abuts this settlement. These effects should be avoided. Development to the north may be acceptable depending on effects.
Zone 25	Mynydd Blaenrhondda	The area is generally set back from settlement although views glimpses may be possible from the upper parts of the Rhondda valley. These eastern edges should be avoided. The area will be highly visible from the national park with the northern edge particularly prominent. This northern tip should also be avoided.
Zone 26	Mynydd Tynewydd	The area is generally set back from settlement although views glimpses may be possible from the upper parts of the Rhondda valley. These western edges should be avoided. The area will be highly visible from the national park and the A465 [albeit at a distance] with the north eastern tip particularly prominent. Turbines on this latter area would also be visible from settlement to the north and should also be avoided.
Zone 27	Mynydd Bwllfa	This zone is prominent in views to the north, in particular to the national park, the A465 and settlements such as Hirwaun, and Aberdare to the east. The scarp edge would make turbines highly prominent and have a significant adverse effect on receptors in the above areas and should be avoided. Turbines on the south western facing slopes may be acceptable.
Zone 28	Cefn y Rhondda (north)	This area is generally well contained with the only potential for views from the upper Rhondda fach where there is no settlement, the A4233 and from the Rhondda to the south west. Turbines should avoid the southern tip of the area to avoid effects on the latter.
Zone 29	St Gwynno Forest	This area has potential for views from the Cynon valley to the east, the Rhondda Fach and Penrhys to the west and Ynysbwl to the south east. Longer views are possible of

		the south from Cilfynydd in the Taff Vale. Turbines should avoid the southern part of the area due to the wider effects to the south east, avoid the northern edges which may affect the Cynon valley and also the western edges which could affect the Rhondda Fach. Penrhys is likely to have views of any development in the area and the cumulative effects of this with Zones 32, 33 and 34 to the south east should be considered. Setting back any turbines form the western edge should reduce the potential for cumulative effects on the Rhondda Fach in association with the Arts Factory windfarm although this is an issue which needs careful consideration.
Zone 30	St Gwynno Forest (South)	This area performs poorly in relation to effects on settlement within 2km to the south and west in the Rhondda and Rhondda Fach valleys respectively. Windfarm development is likely to have a dominant effect on settlement in these steep sided valleys. Though the area is more contained to the east it will be visible over a longer distance from settlement such as from Cilfynydd. Overall there is no satisfactory location for strategic windfarms. The effect on adjacent receptors is likely to be so severe that the area is considered unacceptable in terms of windfarm development.
Zone 31	Mynydd William Meyrick (NE)	This area performs poorly in relation to effects on settlement within 2km to the east and particularly to the west in the Rhondda and Ogmore Vale valleys respectively. Windfarm development is likely to have a dominant effect on settlement in these steep sided valleys. Overall there is no satisfactory location for strategic windfarms due to the exposed nature of the zone. The effect on adjacent receptors is likely to be so severe that the area is considered unacceptable in terms of windfarm development.
Zone 32	Mynydd William Meyrick (SW)	Turbines on the northern and western edges of this zone are likely to have dominating effect on settlements on Ogmore vale. Turbines in the south eastern area are likely to be visible over a wide area to the south and south west but at a distance and also from Penrhys.
Zone 33	Mynydd Maesteg (North)	Turbines on the eastern edges of this zone are likely to be prominent when viewed from settlement in the upper Ogwr Fach. Turbines in the area is likely to be visible over a wide area to the south and south west but at a distance and also from Penrhys.
Zone 34	Mynydd Maesteg (South)	Turbines on the eastern edges of this zone are likely to be dominant when viewed from Evanstown and settlement in the upper Ogwr Fach and should be avoided. Turbines in the area is likely to be visible over a wide area to the south and south west but at a distance and also from Penrhys.
Zone 35	Mynydd y Glifach (Trane)	This area performs poorly in relation to effects on settlement within 2km to the west, south east and possibly north east in the upper Ogwr fach, Ely and Rhondda Fach valleys respectively. Windfarm development is likely to have a dominant effect on settlement at Gilfach Goch and around Tonyrefail. Overall there is no satisfactory location for strategic windfarms. The effect on adjacent receptors is likely to be so severe that the area is considered unacceptable in terms of windfarm development.

Zone 36	Mynydd Maendy Gilfach Goch	Turbines on this exposed south facing slope would be likely to have a dominating effect on the rural settlement of Glynogwr, Gilfach Goch to the south east and the Cwm Ogwr fach valley. Only turbines at the far northern part of this area are likely to have reduced effects and are still likely to be prominent in views from the south.
Zone 37	Mynydd y Gaer	Turbines on this ridge would be likely to have a dominating effect on the rural settlement of Glynogwr and others in the Cwm Ogwr fach to the north and on rural settlement to the south. They would be prominent in views from the south including from the M4. It is likely that the effects would be significantly adverse.
Zone 38	Mynydd Maendy (Taff Ely wind farm)	Turbines on this ridge would be likely to have a dominating effect on the southern edge of Gilfach Goch and settlements to the east which already have views of the Taff Ely windfarm turbines at a lesser scale. They would be prominent in views from the south including from the M4. It is likely that the effects would be significantly adverse.
Zone 39	Mynydd Margam (East)	Turbines on this zone would be prominent from the Llynfi valley as the area lies on the edge of the valley slopes. The old settlement of Llangynwydd would be likely to be significantly adversely affected.
Zone 40	Cefn y Rhondda	This area performs poorly in relation to effects on settlement within 2km to the south west and north east in the Rhondda and Rhondda Fach valleys respectively. Windfarm development on this narrow ridge is likely to have a dominant effect on settlement in these steep sided valleys. Overall there is no satisfactory location for strategic windfarms. The effect on adjacent receptors is likely to be so severe that the area is considered unacceptable in terms of windfarm development.
Zone 41	Mynydd Merthyr North -East)	This area performs poorly in relation to effects on settlement within 2km to the south west and north east in the Cynon and Taff valleys respectively. Windfarm development on this narrow topped ridge is likely to have a dominant effect on settlement such as Heolgerrig, Winchfawr to the north east and be highly prominent when viewed from Aberdare in these wide valleys. Overall there is no satisfactory location for strategic windfarms. The effect on adjacent receptors is likely to be so severe that the area is considered unacceptable in terms of windfarm development.
Zone 42	Mynydd Merthyr	This area performs poorly in relation to effects on settlement within 2km to the south west and north east in the Cynon and Taff valleys respectively. Windfarm development on this narrow topped ridge is likely to have a dominant/high prominent effect on settlement such as Troedyrhiw to the north east and Mountain Ash to the south west in these wide valleys. Overall there is no satisfactory location for strategic windfarms. The effect on adjacent receptors is likely to be so severe that the area is considered unacceptable in terms of windfarm development.
Zone 43	Mynydd Portref (Taff Ely wind farm east)	Turbines on this ridge would be likely to have a dominating effect on the settlements around Tonyrefail to the north and Llanharan to the south. They would be prominent in views from the south including from the M4. It is likely that the effects would be significantly adverse.

Zone 44	Mynydd Pwllyrhebog	This area performs poorly in relation to effects on Gilfach Goch and settlement in the upper Ogwr fach which is within 2km to the south. The effect on adjacent receptors is likely to be so severe that the area is considered unacceptable in terms of windfarm development.
Zone 45	Ffynnon Oer (west)	Turbines on the northern and western edges of this area may affect parts of the Neath valley and the whole area would be prominent from Cilfrew on the opposite valley side. There a few dwellings in close proximity.
Zone 46	Mynydd Bwllfa (south east)	The A4233 passes through the zone and turbines may have a significant adverse and dominating effect on Aberdare to the north east or Cwmaman to the south east. Turbines should avoid these effects and be located further to the west of the area.