



Proposed extension to the Pant-y-wal wind farm, Bridgend, Wales
ENVIRONMENTAL STATEMENT

Volume 5
Non-technical summary
April 2014

Pennant Walters (PYWX) Limited

WYG

Floor 5, Longcross Court, 47 Newport Road, Cardiff, CF24 0AD
Tel: +44 (0)29 2082 9200 Fax: +44 (0)29 2045 5321 Email: planning.cardiff@wyg.com www.wyg.com

Document verification

Client:	Pennant Walters (PYWX) Limited
Project:	Proposed extension to the Pant-y-wal wind farm, Bridgend, Wales
Job number:	A077143
Document title:	Environmental Statement: Volume 5 Non-technical summary
Status:	Final, version 1
Date:	April 2014

This report is copyright: © WYG Environment Planning Transport Limited, 2014
All drawings and photographs are by WYG Group Limited unless stated otherwise
Drawings based on the Ordnance Survey map are reproduced with the permission of
Her Majesty's Stationery Office: © Crown copyright
WYG Environment Planning Transport Limited licence number: AR 1000 17603

Contents

1.0 Introduction

- 1.1 Background
- 1.2 The application
- 1.3 Environmental impact assessment
- 1.4 The existing wind farm

2.0 The need for the development

- 2.1 Climate change and renewable energy
- 2.2 UK energy policy
- 2.3 Wales's energy policy

3.0 The proposed extension to the wind farm

- 3.1 Proposed development
- 3.2 Off-site access route
- 3.3 Construction phase
- 3.4 Operational phase
- 3.5 Decommissioning and site restoration phase
- 3.6 Grid connection

4.0 Landscape and visual amenity

- 4.1 Introduction
- 4.2 Assessment of effects: main findings - landscape
- 4.3 Assessment of effects: main findings - visual amenity
- 4.4 Assessment of effects: main findings - cumulative

5.0 Nature conservation and biodiversity

6.0 Archaeology and heritage

- 6.1 Historic environment

- 6.2 Setting assessment

- 6.3 Conclusions

7.0 Ground conditions

8.0 Noise

9.0 Traffic and transportation

10.0 Land use and socio-economics

- 10.1 Agriculture and forestry
- 10.2 Public access
- 10.3 Employment
- 10.4 Tourism

11.0 Electromagnetic interference, aviation and public safety

- 11.1 Electromagnetic interference
- 11.2 Aviation
- 11.3 Public safety

12.0 Shadow flicker

13.0 Planning policies

- 13.1 Statutory designations
- 13.2 Non-statutory designations
- 13.3 Relevant planning policies
- 13.4 Planning conclusions

14.0 Conclusion

1 Introduction

1.1 Background

1.1.1 This report is the non-technical summary (NTS) of an environmental statement (ES), which records the environmental impact assessment (EIA) of a proposal by Pennant Walters (PYWX) Limited to extend an existing onshore wind farm on land to the east of Ogmore Vale and Price Town, Bridgend, Wales.

1.2 The application

1.2.1 The application seeks full planning permission for the proposed development, which includes the erection of 12 wind turbines, which will generate electricity for the National Grid. The scheme has a maximum rated capacity of 36.0 megawatts (MW). Planning permission is sought for a period of 25 years.

1.2.2 The site for the purposes of seeking planning permission is outlined in red on the application site plan. Surveys and assessments have taken place over a wider area to ensure that any off-site effects of the proposed development are properly considered.

1.3 Environmental impact assessment

1.3.1 EIA is a means of drawing together in a systematic way an assessment of the likely significant environmental effects of a particular development. This helps to ensure that predicted effects are identified and assessed and that the scope for avoiding, minimising, mitigating or compensating for them is considered at the time the decision on the planning application is made.

1.3.2 As part of the process of designing the project and assessing its potential environmental effects, the applicant consulted a wide range of organisations (including the local authority, Bridgend County Borough Council) and held a public exhibition of the proposals in Ogmore Vale.

1.3.3 The ES is presented in five volumes:

- Volume 1: Main text;
- Volume 2: Application plans and other figures;
- Volume 3: Appendices;
- Volume 4: Ecology reports; and
- Volume 5: Non-technical summary.

Copies of the planning application, the ES and the Design and Access Statement may be inspected during normal business hours at the offices of the local planning authority.

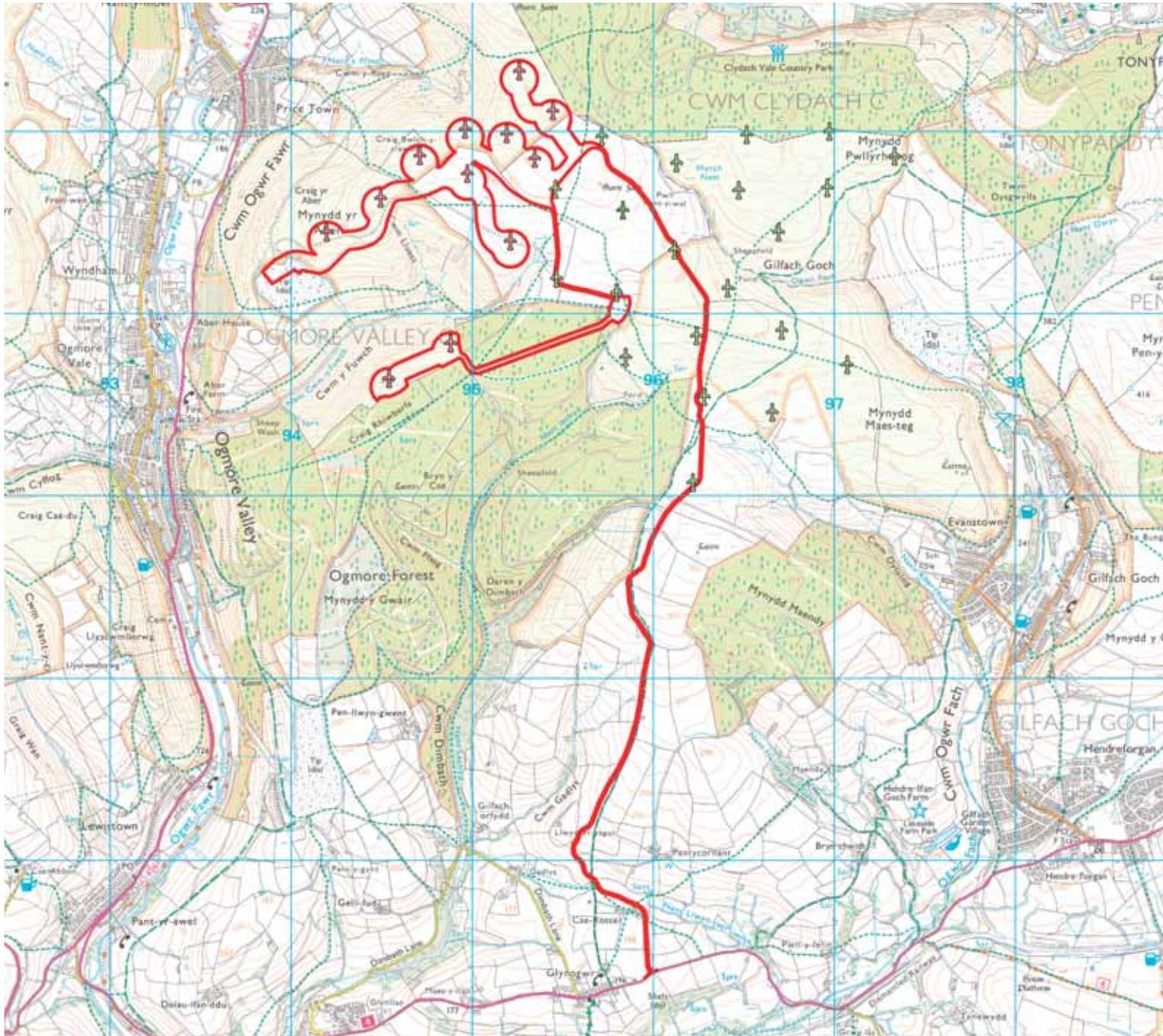
1.3.4 Copies of the ES are available to purchase at a cost of £600.00 (VAT inclusive), excluding post and packaging. Electronic copies on disk are available at a cost of £10.00 (including post and packaging in the UK). Enquiries should be made to the applicant's agent:

WYG

Floor 5 Longcross Court
47 Newport Road
Cardiff
CF24 0AD

Contact: Paul Vining
Telephone: 029 2032 0765
E-mail: paul.vining@wyg.com

1.3.5 Printed copies of the non-technical summary of the ES are available from the Council free of charge while stocks last.



Left Extract from drawing 1.02 **Application site** (not to scale)

Key

- Application site
- + Existing Pant-y-wal turbines
- + Proposed Pant-y-Wal turbines



1.4 The existing wind farm

- 1.4.1 The existing wind farm has 21 turbines, each of which is 115 m high (to blade tip). Each turbine has an installed capacity of up to 2.5 MW, giving a total installed capacity of up to 52.5 MW; this output is sufficient to power approximately 30,000 houses. The wind farm is an amalgamation of what were originally two separate wind farm proposals: 10 turbines at Pant-y-wal wind farm and 11 turbines at Fforch Nest wind farm. The two wind farms were granted planning permission in 2011 and became operational in June 2013.
- 1.4.2 The existing wind farm is served by 11 km of access tracks. At the instigation of Bridgend County Borough Council, a single access was installed to serve both Pant-y-wal and Fforch Nest. This access leads into the site from the A4093, just east of Glynogwr.

2 The need for development

2.1 Climate change and renewable energy

2.1.1 Climate change and energy production are topics increasing in public awareness and importance as the practical consequences of global warming materialise in the form of extreme climatic events and a discernible and sustained increase in ambient temperatures. Countries throughout the world are taking action to tackle the challenges posed by this phenomenon.

2.1.2 Increasingly, emphasis is being placed on producing electricity from renewable sources such as the wind, tides and sun. The development subject of the current planning application will produce electricity sufficient to power approximately 19,000 homes (1 MW will power 450-600 homes) and will contribute to the country's requirement for renewable energy production.

2.2 UK energy policy

2.2.1 The **Climate Change Act 2008** introduced the world's first long term, legally binding framework to tackle the dangers of climate change. It requires the Government to set a limit on the UK's net greenhouse gas emissions over consecutive five-year periods (the carbon budget). The budget must have regard to the legally binding, long term target to reduce carbon dioxide by 34% by 2020 and by at least 80% below 1990 levels by 2050.

2.2.2 The UK is also subject to the requirements of the European Union's **Renewable Energy Directive** (2009) and the UK Government has committed to attaining a target of 15% of energy from renewable sources by 2020.

2.3 Wales's energy policy

2.3.1 Although energy policy is not devolved, the Welsh Government is committed to playing its part in renewable energy production. Its **Energy Policy Statement** (2010) explained its aim, by 2050 at the latest, to meet almost all of Wales' local energy needs from low carbon electricity production. Its **Energy Wales: A Low**

Carbon Transition (2012) document emphasises the importance of the energy system and reiterates the European Union's objective of reducing greenhouse gas emissions by 80-95% by 2050 compared with 1990.

2.3.2 Ten years ago, in July 2004, the Welsh Government announced that its policy was to provide, by 2010, 800 MW of additional renewable capacity from onshore wind energy development, mostly in the form of a small number of large wind farms. In 2005, the Welsh Government acknowledged that onshore wind is the most commercially viable form of renewable energy and has maintained that view over the intervening period. It advised that the best opportunity to meet the national renewable energy target was through the development of a few large scale (defined as over 25 MW) wind farms in carefully located areas, known as Strategic Search Areas (SSAs). One of these - called SSA F: Coed Morgannwg) - is located in part in Bridgend. It was against this background that, in 2011, Bridgend County Borough Council granted planning permission for the Pant-y-wal and Fforch Nest wind farms.

3 The proposed extension to the wind farm

3.1 Proposed development

- 3.1.1 The proposed extension comprises 12 turbines, each capable of generating up to 3.0 MW of electricity, producing a maximum rated capacity of 36.0 MW. The development will also include: an electricity substation and control building; anemometer mast; temporary contractor's compound; and access tracks and cabling.
- 3.1.2 The proposed wind turbine is of the horizontal axis type, with a rotor consisting of three blades. The blades (maximum length of 50 m) are mounted to the turbine hub (or nacelle) at a height of up to 80 m, and the turbine has a maximum tip height of 125 m. The application allows for the turbines to be micro-sited within a radius of 50 m. Within the available land ownership, the application site plan includes for an area of 100 m radius around each turbine, which allows for both micro-siting and the oversail area of the rotor blades. Each turbine requires a hardstanding to be built adjacent to the turbine foundation, to provide a stable base on which to lay down turbine components ready for assembly and erection, and to site the two cranes necessary to lift the tower sections, nacelle and rotor into place.
- 3.1.3 A temporary contractor's compound will be provided within the site and a vehicle control point will be provided at the site entrance. Wheel washing facilities will be provided and the contractor's management system will ensure that vehicles leaving the site will pass through this facility.
- 3.1.4 Within the site, access to the turbines will be via the existing tracks, which will be extended where necessary. Underground cables will link the turbines to each other and to the on-site substation.

3.2 Off-site access route

- 3.2.1 The existing public highway network will be used to deliver plant, equipment and construction materials to the site. It is envisaged that the large turbine components will be delivered via M4 junction 34, the A4119 and the A4093. This is the same route that was used to build the existing wind farm.

3.3 Construction phase

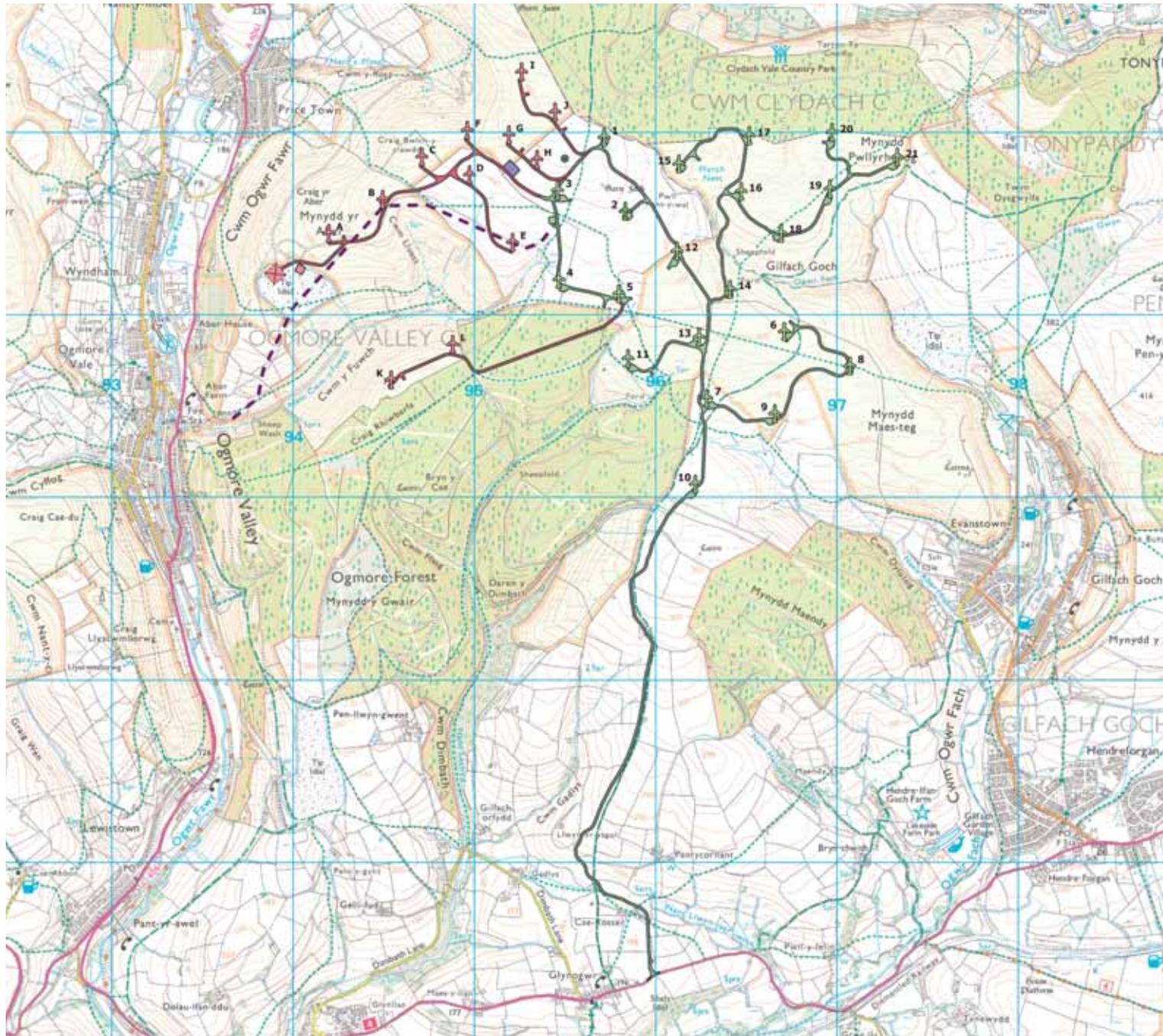
- 3.3.1 The overall construction period is estimated to last approximately 16 months. Many of the operations will be carried out concurrently, in order to minimise the overall length of the construction programme. Site restoration will be programmed to allow restoration of disturbed areas as early as possible and in a progressive manner.
- 3.3.2 All construction areas and activities will be carefully supervised to ensure public safety (particularly in relation to users of the public rights of way network) and safety of stock, as well as the safety of operatives constructing the wind farm.

3.4 Operational phase

- 3.4.1 Planning permission is sought for an operational period of 25 years. During this operational phase, routine maintenance or servicing of turbines will be carried out two to four times a year, with a main service annually and minor services at three to six monthly intervals.

3.5 Decommissioning and site restoration phase

- 3.5.1 At the end of the operational period (25 years), the development will be decommissioned. The turbines and all other plant and machinery will be dismantled and removed from the site and the land will be restored to agricultural use. In the case of turbine foundations, these will be left in place (below the adjacent ground level), with soils spread over them and allowed to revegetate naturally.



Left Extract from drawing 3.01 **Turbine and track layout** (not to scale)

Key

- Existing Pant-y-wal wind farm**
-  Existing turbines
-  Existing anemometer mast
-  Existing substation
-  Existing track
-  Existing overhead grid connection (to be underground near turbines B and E)
- Proposed Pant-y-wal extension**
-  Proposed turbines
-  Proposed anemometer mast
-  Proposed substation
-  Proposed track
-  Proposed temporary contractor's compound
-  Proposed site entrance control



3.5.2 The decommissioning and restoration process is usually controlled by planning conditions (or planning obligations) imposed by the local planning authority, so that all restoration work is carried out in accordance with an approved scheme. It is also appropriate for planning conditions (or obligations) to be used to require one or more turbines (and associated infrastructure) to be removed and that part of the site restored in the event that a turbine ceases to be operational for a given time before the 25 year period expires.

3.6 Grid connection

3.6.1 The wind farm will not be able to operate without being connected to the National Grid. The connection will be made by the Electricity Network Operator - in this case Western Power Distribution - and will be the subject of a separate application by that company for consent under the **Electricity Act 1989**. The connection, which will be by means of overhead lines mounted on wooden poles, will run parallel to the existing overhead line that serves the existing wind farm.

4 Landscape and visual amenity

4.1 Introduction

4.1.1 The landscape and visual impact assessment (LVIA) assesses the effects of the proposed wind farm extension on the landscape and on the views available to people (visual amenity), using the industry standard approach advised. It considers effects on:

- the “study site”, a larger area than the application site;
- the local context, up to about 5 km from the study site;
- views and visual amenity up to 35 km distance, with viewpoints examined up to 20 km: the viewpoints were agreed with Bridgend County Borough Council and Natural Resources Wales (NRW);
- the cumulative effects on the landscape and visual amenity, taking into account other wind farms, existing, under construction, consented and for which applications for consent had been submitted.

4.1.2 The development proposals and potential effects were considered early in the process and measures incorporated into the design in order to avoid or reduce potential adverse effects on landscape and visual amenity as well as on other aspects of the environment. The turbine and access track layout was designed to avoid areas of sensitive vegetation and peat; to avoid conflict with public rights of way; and so the wind turbines would be well related to the ridge and spur landform of the study site. Turbine locations were set back from the break in slope to the valley side, to avoid dominating nearby settlements and to reduce visibility of the turbines from them.

4.1.3 The land disturbed during construction would be remediated and soils removed for construction would be saved for replacement over foundations and edges of tracks and hardstandings, and allowed to revegetate. After the end of the operational life of the wind farm, all above ground elements would be removed and the land restored to upland grazing.

4.1.4 The changes due to the proposed development would be: activity and change intrusive on the remoteness and tranquillity of the upland of the study site, as well as ground disturbance, during construction and decommissioning, and the introduction of large industrial structures and small built elements, and the movement and sounds of the wind turbines, during operation.

4.1.5 The construction period would be about 16 months and the wind farm would be in operation for 25 years, followed by a decommissioning period, after which the land would be restored. Effects during construction and decommissioning would be considered short-term; during operation of the wind farm, long-term. The wind farm would be a temporary albeit long-term development, its effects reversible by decommissioning and restoration of the land.

4.2 Assessment of effects: main findings - landscape

4.2.1 LANDMAP was referred to for information about the study site in its landscape context. All five aspects were addressed as relevant to the proposal and as advised by NRW. Site-specific studies of the landscape of the site and its context identified the aspects of its physical components, characteristics and qualities that would be sensitive to the proposed development.

4.2.2 The main findings of the assessment of landscape effects were that major adverse effects throughout the life of the development would occur only on the Visual & Sensory aspect of the study site itself and its characteristic fine distant views from the higher land. The effects during the operational period would be due to the change in the upland character to one containing large industrial structures and would be long term.

4.2.3 Major adverse effects for the short term of the construction period were identified for the landscape character of the site, arising from construction activity and ground disturbance, reducing to moderate long term once the wind farm was in

operation. Site features and vegetation would be affected to a moderate degree during construction and public paths and access to a minor degree, in both cases assessed as adverse effects.

- 4.2.4 During the decommissioning stage the landscape effects due to the activity and change during this period would be major adverse but short term for the Visual & Sensory aspect of the study site and its characteristic fine distant views. Decommissioning effects would be moderate adverse for the site features and vegetation and for the overall character of the study site, and short term. Other decommissioning effects would be minor or negligible.
- 4.2.5 In all cases, the effects would diminish through the decommissioning period as the structures and elements of the wind farm, the access tracks, and other above ground infrastructure were removed.
- 4.2.6 After restoration, once the surface vegetation had established, there would be no landscape effect on the study site, compared with the baseline condition.
- 4.2.7 No major effects were identified on the landscape context. The greatest effect identified was moderate adverse or neutral and long term during operation of the wind farm, on the character of the setting of the settlements in the adjacent Ogmere Valley, on the overall landscape character, and on the landscape of the Special Landscape Area (SLA). Other landscape effects during operation of the wind farm would be minor or negligible.
- 4.2.8 During the construction and decommissioning periods, short term moderate adverse effects were assessed on the character of the setting of the settlements in the adjacent Ogmere Valley, on the overall landscape character and on the landscape of the SLA. The effects would be minor or negligible for other aspects of the landscape.

4.2.9 As with effects within the study site, after restoration, there would be no effect on the landscape context compared with the baseline condition.

4.2.10 The major and moderate landscape effects are assessed as of “intermediate significance”, and the major effects would be limited in extent and, although long term, would be reversible through the decommissioning and restoration proposals.

4.3 Assessment of effects: main findings - visual amenity

- 4.3.1 Effects on viewers were identified by considering the zone of theoretical visibility (ZTV) of the proposed wind farm and locations where views of the development might be available. The pattern of visibility apparent from the ZTVs closely follows the landform patterns of the area. The higher ridge of Mynydd Llangeinwyr extending to the higher ridges to the north clearly limits the potential visibility of the proposed turbines to the west and north-west. The high ridgeline of Mynydd William Meyrick limits potential visibility to the north-east, only higher ridges further east and north-east falling within the ZTV of either blade tip or hub of the proposed turbines.
- 4.3.2 The higher mountains to the north, within the Brecon Beacons National Park, lie within the ZTV, but at distances greater than 10 km. Most valley bottoms, including the settlements within them, would be outside the ZTV, except the margins of settlements rising on the far valley sides. The main areas of theoretical visibility of the proposal are higher land immediately surrounding the study site and more than 5 km from the study site: the ridge between Mynydd Margam and Cefn Hirgoed to the south-west and south, Bridgend and the Vale of Glamorgan to the south and south-east, and the uplands between Tonypany and the M4 corridor north-west of Cardiff.

4.3.3 Within the areas to the south-west, south and south-east, frequent vegetation and settlements in the lowland would interrupt or screen many views theoretically available.

4.3.4 Thirty viewpoints were studied in order to identify the likely visual effects, selected from locations where the ZTV indicated views available to people within nearby communities, on public access areas and routes, and in areas of landscape importance, such as the Brecon Beacons National Park.

4.3.5 The groups of viewers considered where the **visual effects** were assessed as major were:

- Residents with direct or open views, oriented towards the study site, in nearby settlements in Ogmere Vale and Wyndham where the extension would be a new feature in the view from parts of the settlements, at all stages;
- Other residents with open views in Ogmere Vale and Nant-y-moel during operation, although moderate short term during construction and decommissioning;
- Users of access land within and adjacent to the proposed development;
- Users of other access land on the ridges to the south and south-west and within 5 km of the study site during operation, although moderate short term during construction and decommissioning;
- Users of a short section of bridleway B4 as it crosses the ridge to the south-east of the study site at all stages, due to proximity;
- Users of the nearest public paths within and adjacent to the proposed development and users of footpaths on the eastern side of Ogmere Valley, at all stages;

- Users of the long distance footpath, the Ridgeway Walk, for parts of the route within 5 km to the south, although moderate short term during construction and decommissioning.

4.3.6 The major visual effects, affecting people in nearby settlements, users of access land and routes near and within the study site and nearby parts of the Ridgeway Walk, are assessed as significant.

4.4 Assessment of effects: main findings - cumulative

4.4.1 The cumulative effects on landscape and visual amenity of the proposed development in conjunction with others, existing, under construction, consented and “in planning” were considered. The main cumulative effects of the proposal would be with the existing wind farm, enlarging its presence in the landscape as one larger wind farm.

4.4.2 With the Taff Ely-Mynydd Portref group, it would extend the influence of wind energy development in the south of the study area to a minor or negligible degree. With Ferndale, Maerdy and Pen y Cymoedd (PYC) East to the north-east, it would combine with Pant-y-wal to form one of a number of scattered wind turbine groups on the hills and ridges near and around the Rhondda valleys. With Fynnon Oer, Pen y Cymoedd Central & Pen y Cymoedd West and Llynfi Afan to the north and north-west, it would combine with Pant-y-wal, but would be more loosely connected with the other wind farms. Because of its scale, the combined Pen y Cymoedd-Ffynnon Oer group would appear as an extensive area of large scale wind farms, while Pant-y-wal and its extension would be separate in character and scale to the south.

4.4.3 In summary, the cumulative landscape effects would arise from these combinations and there is little interaction with wind farms in the wider cumulative study area. The proposed extension would be integrated with the existing wind turbines and its effects would be well contained within its local landscape.

- 4.4.4 Visually, the proposed extension would be visible in combination with many other wind farms from the tops of ridges and the upper ridge sides to the east that are oriented towards the study site. To the north, from the high uplands of the Brecon Beacons, the extensive Pen y Cymoedd wind farm would be seen in the nearer landscape. West of the high ridge to the west and rising northwards, there are few areas where combined views of the proposed extension with other wind farms would be available, although other wind farms would be seen without the Pant-y-wal extension. For users of long distance footpath and cycle routes, wind farms would be visible intermittently, and some footpath routes pass through existing or proposed wind farms.
- 4.4.5 The assessment of temporal cumulative effects identifies that the existing Taff Ely wind farm had been in operation for more than ten years without any other wind farm in the study area. Between 2006 and 2014, a further 18 wind farms were constructed and a further four are under construction, with 16 other proposals consented and 12 submitted for consent. Based on a 25 year operational period, most of these, including Pant-y-wal, would be in operation together between 2018 and 2031. After that, older wind farms would be decommissioned and removed from the landscape over the course of about ten years, along with, over time, wind farms have become a more frequent feature of the landscape.
- 4.4.6 The cumulative effects of the proposed extended Pant-y-wal wind farm would not be significant.
- 4.4.7 The assessment finds that the proposed development would not conflict with local policy. The study site is within an area identified as Zone 32 of the original SSA F that is “not needed for 2010 TAN 8 indicative capacity”, although it is not an area where either cumulative landscape and visual impacts or intrinsic landscape sensitivity, value or visual characteristics would make wind farm development “unacceptable”.

5 Nature conservation and biodiversity

- 5.1.1 The application site does not fall within or adjacent to any statutorily designated nature conservation site, the nearest such site being Daren y Dimbath Site of Special Scientific Interest (SSSI), which is 1.2 km away. The non-statutory Mynydd yr Aber Site of Importance for Nature Conservation (SINC) is located to the south-west of the site but no direct impacts are likely. It is unlikely that the study area plays a significant role in maintaining the ecological integrity of any of the designated nature conservation sites within 5 km.
- 5.1.2 A number of habitat types (including semi-improved and unimproved acidic grassland, wet dwarf shrub heath/ mire vegetation, dwarf shrub heath and marshy grassland) were identified within the study area. Watercourses through the site were sparsely vegetated with variable flow based on local rainfall. The majority of habitats were considered to be of local value. Surveys conducted to inform the EIA identified the presence of bats, polecat and the potential occasional presence of otters within the study area, with small numbers of common reptiles likely to occur in areas of suitable habitat. The site was considered to have up to local value for these species.
- 5.1.3 Schedule 1 and Red/Amber List bird species were recorded on site during the breeding and vantage point surveys and the site was considered to have up to county value for a number of primary target species. No Schedule 1 bird species were confirmed breeding within the site, but it was considered likely that goshawk is breeding within the adjacent coniferous plantation, although no nests were recorded within the study area.
- 5.1.4 Ecological constraints have been taken into account during the wind farm design process and mitigation measures have been proposed with the aim of further reducing ecological impacts. Measures proposed include:
- turbine and associated infrastructure has been designed to avoid areas of important habitat (wet dwarf shrub heath/ mire vegetation) and deep peat (greater than 0.5 m) where possible;
 - buffer zones of 50 m around surface watercourses to turbine locations;
 - incorporation of 50 m buffer to turbine tip from suitable bat foraging habitat as recommended in best practice guidance.
- 5.1.5 Further mitigation includes the production of a Construction Environmental Management Plan and Habitat Management Plan with specific mitigation for breeding goshawk, reptiles and otters. By applying effective mitigation measures, mainly through the design process, the residual impacts of this scheme are assessed as not significant in terms of the EIA Regulations.

6 Archaeology and heritage

6.1 Historic environment

6.1.1 The proposed development is located in an area that includes a number of recorded heritage assets, some of which are designated. Only three sites are recorded within the application site: a medieval road, a watercourse and a post-medieval shepherd's hut, none of which is designated. Near the application site, there is a cairn and the remains of an RAF crash site. These five sites will be subject to archaeological mitigation appropriate to their value and location in relation to the application site. It was assessed that the overall archaeological potential within the proposed development is low. However, it should be noted that the lack of disturbance to the area means that any previously unrecorded remains are likely to survive well. It is, therefore, considered likely that any remains found would be of medium or low heritage value.

6.1.2 The north-eastern boundary of the proposed development abuts the Rhondda Historic Landscape Area. Because of this, an Assessment of the Significance of Development on Historic Landscapes (ASIDOHL2) was completed, to assess the level of impact the proposed development will have on this landscape. The proposed development will have no direct or indirect physical impact on the designated historic landscape, but will have an indirect, visual impact on 16 of its 36 character areas. The visual impact on three of these areas (numbers 30, 32 and 34) has been assessed as moderate, and on the remaining 13 of those affected, as slight. The overall affect of the proposed development upon the Special Historic Landscape has been assessed as of slight significance and is not considered to be significant in terms of the EIA Regulations.

6.2 Setting assessment

6.2.1 An assessment was undertaken to determine the level of impact the proposed development will have on the setting of designated heritage assets in the area (within a distance of 5 km); additionally, assets considered to have significant outward views towards the development site were assessed within a distance of

10 km. The study found that the proposed development will have limited adverse effects on the historic environment. Listed buildings and conservation areas are primarily located in the valleys; their characters, as enclosed settlements with an inward focus, are without extensive views of the plateau of the heads of the valleys. St Cein church has more extensive views of the landscape, but there is no adverse impact on its setting, as it looks toward, and is seen from the south.

6.2.2 Upstanding archaeological monuments of older date were also assessed, including a number of prehistoric burial cairns in the surrounding landscape, several of which have visual connections to monuments close to the turbine sites. It was considered that the intrinsic value of the prehistoric ritual/ceremonial landscape was not adversely affected by the existing turbines, because the intervisibility of monuments and an appreciation of their placement in the landscape remained legible and intelligible. It is considered, therefore, that the monuments closest to the proposed development will not be adversely affected. Further afield, monuments falling within the ZTV were considered for adverse effects on their setting, but none was considered to be significant.

6.3 Conclusions

6.3.1 The effect of the proposed development on the setting of heritage assets has been mitigated through design. The wind turbines will be painted mid grey matt, to reduce the contrast when seen against the backdrops of either higher land or the sky, thereby reducing the potential effects upon historic landscapes and setting of heritage features by design.

6.3.2 It is proposed that the topsoil stripping and intrusive ground works for the turbine bases and crane pads will be subject to a "strip, map and sample" exercise. Should significant archaeological remains be identified during this exercise, provision will be made for an appropriate level of recording and sampling of remains according to their significance. The results of the archaeological mitigation will be subject

to post-excavation analysis and publication in a format appropriate to their significance. All recording will be proportionate to the significance of the remains identified and works will be carried out by a suitably qualified archaeologist, in accordance with the Institute for Archaeology's standards and guidance, and a written scheme of investigation agreed with the Glamorgan Gwent Archaeological Trust.

7 Ground conditions

- 7.1.1 Information has been collected to gain an understanding of the existing geological, hydrological and hydrogeological conditions on site. This has been augmented by site walkover and a peat survey. Based on this information, the potential impacts and associated risks of the proposed wind farm extension have been assessed. Potential mitigation measures were formulated and the significance of the residual risks was classified.
- 7.1.2 The underlying bedrock geology consists of the Pennant Sandstone Formation, which contains coal seams that have been worked in the past. The superficial deposits consist of peat, which occurs in separate bodies over the site. Areas of potential slope instability have been mapped within the wider study area.
- 7.1.3 In due course, a detailed geotechnical assessment will be necessary to inform the foundation design of the wind turbines and tracks and this will consider any risk posed by historic coal mining and slope instabilities.
- 7.1.4 The impact of the development on the peat bodies has been assessed and, after mitigation (such as micrositing and the implementation of a Construction Environmental Management Plan), the residual risks are considered negligible. It is concluded that with these suitable controls, the construction and operation of the proposed development can be undertaken without causing any significant negative impact on the surrounding soil and water environment.

8 Noise

- 8.1.1 A number of noise-sensitive receptor locations around the application site have been identified to predict the likely impacts of construction and operational noise from the proposed wind farm extension. The assessment has shown that noise levels from construction activities are predicted to be within the relevant British Standard BS 5228:2009 criteria and that noise levels from the proposed wind farm extension are predicted to be within the relevant ETSU-R-97 and planning permission criteria.

9 Traffic and transportation

- 9.1.1 The main transport impacts will be associated with the movement of commercial heavy goods vehicles (HGVs) and the abnormal indivisible loads (AILs) carrying the large turbine components during the construction phase of the development.
- 9.1.2 The AILs would leave the M4 motorway at junction 34 and travel to the site via the A4119 and A4093; this is the same route that was used when the existing wind farm was constructed. The route is subject to frequent HGV movements and the roads were assessed and mitigation measures introduced for use by AILs as part of the construction requirements of the existing wind farm.
- 9.1.3 Given the temporary nature of the traffic impact, on days with no concrete deliveries the significance of the impact of the construction traffic on the A4119 and the A4093 is assessed as negligible; on days with concrete deliveries the significance of the impact of the construction traffic on the A4119 is also assessed as negligible and the impact of the construction traffic on the A4093 is assessed as negligible or minor.
- 9.1.4 Following construction, traffic associated with the operation of the proposed wind farm will be minimal. Site traffic is limited to small maintenance vehicles attending for general maintenance work and fault repair: two to four visits each month are expected. The effect of operation and maintenance traffic will therefore be negligible.

10 Land use and socio-economics

10.1 Agriculture and forestry

10.1.1 The application site is made up mainly of low quality agricultural land (Grade 5 on the Agricultural Land Classification scale of Grades 1-5) and partly of land in use for forestry (the track leading to Turbines K and L). There are no constraints to the development in terms of agricultural land policy.

10.1.2 The area on which the additional turbines and access tracks would be sited lies predominantly within Penllwyngwent Farm, a large beef and sheep farm. During the construction period, there would be some reduction in the amount of land available for grazing, but this would be very small in relation to the size of the holding. Following construction, stock would be able to graze around the new turbines, as they do at present around the existing ones. The farmer has reported no adverse effects as a result of the existing wind farm; benefits – apart from the diversity of income – include the improved farm access and the use of crane pads as feeding stations for stock.

10.1.3 The existing access track from the A4093 passes through three other farms. As it is established and used already by vehicles involved in maintaining the existing wind farm, no adverse impacts are foreseen in relation to the continued agricultural use of those holdings.

10.2 Public access

10.2.1 Much of the land within the application site comprises open access land and the site is crossed by public rights of way. The proposed turbine layout does not affect any right of way, all of which are at least 125 m from any turbine. The layout of access tracks is such that, in three cases, they will cross a right of way; stopping-up or permanent diversion is not considered to be necessary. The effects on public access within the site can be mitigated by management during the periods of construction and decommissioning.

10.3 Employment

10.3.1 The development would create temporary employment opportunities for approximately 100 persons during the construction period, with between 20 and 40 persons based on site at any one time. During the operational period of 25 years, it is estimated that the additional turbines would provide work for two to three technicians

10.4 Tourism

10.4.1 There is little tourism activity in the area in which the wind farm extension is proposed. Some parts of Bridgend county borough are particularly important for tourism - for example, Porthcawl, the Glamorgan Heritage Coast and Kenfig Nature Reserve - but in view of the distance of the application site from these locations, it is anticipated that the development would have no effect on their tourism potential.

10.4.2 There is a perception among some that wind farms adversely affect the tourism of an area on the assumption that turbines deter tourists from visiting the countryside in the vicinity of wind farms. This perception has been explored in a series of studies over the last 15 years or so, including a very recent study (by Regeneris Consulting and The Tourism Company) commissioned by the Welsh Government. The evidence strongly suggests that the proposed extension to the existing Pant-y-wal wind farm will not negatively affect tourism in the county borough and, in particular, visitor numbers. Overall the effect of the proposed wind farm extension on tourism is anticipated to be neutral.

11 Electromagnetic interference, aviation and public safety

11.1 Electromagnetic interference

11.1.1 The Welsh Government's **Technical Advice Note 8** notes that one of the main characteristics displayed by the selected Strategic Search Areas (SSAs) is that they are largely unaffected by broadcast transmission, radar, MoD Wales Tactical Training Area (TTA) and other constraints. As recommended in TAN 8, the applicant has consulted radio communication operators in the UK. Of those who responded, only one (Joint Radio Company) expressed any concern: as its concern relates to a telecommunications link serving the existing wind farm, it can be addressed through on-site works.

11.1.2 The quality of television reception may be affected by the operation of wind turbines and viewers may suffer loss of picture quality and acoustic interference. Where this occurs, it is of a predictable nature and can generally be alleviated by the installation or modification of a local repeater station or cable connection.

11.2 Aviation

11.2.1 Organisations with aviation interests were consulted and, of those which replied, none objected.

11.2.2 The applicant commissioned National Air Traffic Services (NATS) to undertake a technical assessment of the proposed wind farm. This en-route assessment confirmed that the proposed development would have no impact on navigational aids or air-ground communication systems.

11.3 Public safety

11.3.1 Construction activities are controlled by legislation, which is supplemented by best practice guidelines such as the **Wind Turbine Safety Rules** (WTSR) endorsed by Renewables UK.

11.3.2 As the land on which the wind farm extension is proposed is, in part, open access land and is crossed by public rights of way, public access close to the turbines must be assumed. During the construction phase, the relevant statutory requirements would be strictly adhered to. From the planning standpoint, it is anticipated that observance of a Construction Method Statement would be required by condition imposed on the grant of planning permission. In particular, during construction, all potentially hazardous areas for public safety, such as excavations and electrical installation works, would be fenced in line with established methods for working. All unattended machinery would be stored in a secure site compound or immobilized to prevent unauthorised use.

11.3.3 During the operational phase of the development, no special precautions are considered necessary to preclude public access in the vicinity of the turbines. During decommissioning, similar considerations would apply as during the construction stage.

12 Shadow flicker

- 12.1.1 The ES includes an assessment of "shadow flicker", the effect whereby under certain circumstances the sun may pass behind the rotors of a turbine and cast a shadow over neighbouring properties.
- 12.1.2 The assessment identified three turbines with the potential to cause shadow flicker events on properties during the morning. The data identified three receptors which could experience over 30 minutes of shadow flicker during a day (the threshold at which shadow flicker is deemed significant). Of these receptors, one is also anticipated to experience over 30 hours in a year, based on a worst case scenario. As mitigation, a control system is proposed that automatically shuts down the relevant wind turbine at times when the predicted shadow flicker effect would occur. The turbines that are predicted to give rise to shadow flicker effects are Turbines A, B and C, which would need to be shut down for a maximum of 109 hours, or a maximum of 0.1% of potential generation time for the whole wind farm in a year.
- 12.1.3 With this mitigation measure in place there will be no significant shadow flicker effects from the proposed development.

13 Planning policies

13.1 Statutory designations

- 13.1.1 The site is not located in an area of restraint such as a National Park or an Area of Outstanding Natural Beauty (AONB). The closest such areas to the site are at some distance: the Brecon Beacons National Park to the north (13 km) and the Gower AONB to the west (31 km).
- 13.1.2 The site does not contain or form part of any area that has been designated for its nature conservation value on an international or a national basis, such as a Special Area of Conservation Area (SAC), National Nature Reserve (NNR) or Site of Special Scientific Interest (SSSI); or for its local interest, such as a Local Nature Reserve (LNR).
- 13.1.3 The site does not contain any scheduled monuments, designated conservation areas or buildings listed for their special architectural or historic interest and does not contain any trees that are protected by a Tree Preservation Order.
- 13.1.4 The site includes open access land and several public rights of way.

13.2 Non-statutory designations

- 13.2.1 The western slope of Mynydd yr Aber, adjoining the most south-westerly part of the site, is a Site of Importance for Nature Conservation (SINC).
- 13.2.2 The site does not form part of an area identified in the non-statutory **Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales**. The nearest such area in Bridgend is Bryngarw Country Park (5.5km to the south-west). In Rhondda Cynon Taf, the Rhondda Historic Landscape Area lies close to the north-eastern side of the site.
- 13.2.3 The site lies within a Special Landscape Area shown on the Proposals Map of the **Bridgend Local Development Plan**.

13.3 Relevant planning policies

- 13.3.1 The ES reviews in detail the planning policy framework within which the application for the proposed development should be considered. In summary, this comprises:
- the development plan: the adopted **Bridgend Local Development Plan 2006-2021**;
 - the national spatial plan: **People, Places, Futures: The Wales Spatial Plan Update 2008**;
 - national planning policy guidance: particularly **Planning Policy Wales Edition 6** and the series of Technical Advice Notes, especially **TAN 8: Planning for Renewable Energy**.
- 13.3.2 TAN 8 identified seven Strategic Search Areas (SSAs) in Wales: considered by the Welsh Government to be the most appropriate locations for large scale wind farm development. The application site lies partly within and partly immediately adjacent to SSA F: Coed Morgannwg. The proposed development therefore has the benefits of:
- being sited within/immediately adjacent to a defined SSA;
 - containing the locational advantages and characteristics associated with a SSA;
 - the Welsh Government's encouragement (a) to the industry to focus attention on the SSAs and (b) to local planning authorities to generally respond positively to such developments; and
 - the ability to make an important contribution to meeting the assessed potential for energy production from the SSA.
- 13.3.3 In 2005 Bridgend County Borough Council commissioned a "refinement" study of SSA F. As the report was predicated on the 2010 targets set out in TAN 8, it is of limited relevance today. Notwithstanding this, it is worth noting that the application

site falls principally within a zone which was not defined as an “unacceptable zone” on the basis of either (a) cumulative landscape and visual impacts or (b) intrinsic landscape sensitivity, value or visual characteristics, but was assessed as not being required at that time to meet the 2010 target.

13.4 Planning conclusions

13.4.1 Consideration of the planning policy framework for the application leads to the following conclusions:

- The **development plan** (Policy ENV18 of the adopted **Bridgend Local Development Plan**) permits the development of large (over 25 MW) onshore wind farms subject to compliance with nine criteria. Criterion 1 gives preference to projects located within the refined SSA boundary shown on the LDP Proposals Map but does not preclude projects located outside that boundary. All the policy criteria are met by the proposal.
- Current **national planning policy** supports the development of onshore wind farms and the application site is located partly within and partly immediately adjacent to one of the areas expressly designated for large scale (over 25 MW) wind farms. TAN 8 envisages that such development may also occur on the margins of SSAs as well as within them. In the local TAN 8 refinement study, the site lies principally within an area that, although not required to meet 2010 targets, was not assessed as “unacceptable”.
- Recent **clarification of national planning policy** (Ministerial letter, July 2011) reaffirms the Welsh Government’s commitment to renewable energy (including onshore wind energy) and states that the identified maximum capacity for SSA F (430 MW) should be achieved but should not be exceeded. Currently, operational and consented wind farms in SSA F are below this level.

14 Conclusion

- 14.1.1 The proposed extension to the Pant-y-wal wind farm is sited partly within and partly immediately adjacent to an area (SSA F) that the Welsh Government has specifically identified as a suitable location for large scale wind farms. Although the site is located outside the refined boundary for SSA F shown on the LDP Proposals Map, the relevant LDP policy does not preclude wind farm development there. Reference to the relevant planning policy framework indicates that, subject to the consideration of detailed environmental criteria, the proposed wind farm extension should be acceptable. In particular, the development complies with policies of the adopted **Bridgend Local Development Plan**.
- 14.1.2 The ES has assessed the potential significant environmental effects of the proposal and, where necessary and practicable, has proposed appropriate mitigation measures. During its refinement, the layout has been adjusted to take account of constraints, including areas of deep peat, “visual dominance” (the term used in LDP Policy ENV 18), public rights of way, etc.
- 14.1.3 Allowing for proposed mitigation, residual significant effects are confined to some of those associated with landscape and visual amenity. Major visual effects, assessed as significant, would be restricted to some people in nearby settlements and users of some access land and routes within and near the site. The proposed development does not unacceptably impact upon any features of significance, such as scheduled monuments, listed buildings, statutory nature conservation designations, etc. Cumulative landscape and visual effects – such as visual intrusion on settlements, valued landscapes and routes – have been assessed and found to be not significant. The site is principally within an area (Zone 32 of the original SSA F) which, although not then needed for 2010 TAN 8 indicative capacity, is not an area where either cumulative landscape and visual impacts or intrinsic landscape sensitivity, value or visual characteristics would make wind farm development “unacceptable”.
- 14.1.4 The proposal seeks to extend an existing wind farm and, as such, would not introduce a new element into the landscape of this part of South Wales. It can use much of the same infrastructure as the existing wind farm. The extension has the capability of generating up to 36 MW of clean, renewable energy, sufficient to power approximately 19,000 homes. It will assist in meeting the UK Government’s and Welsh Government’s target for renewable energy and will contribute to tackling the challenges posed by global warming and climate change. In the planning balance, these benefits have to be considered alongside the limited significant effects identified by the ES.

