

Eich cyfl/ Your ref: -

Gofynner am/ Please ask for: Mr Richard Jones

Fy nghyf/ My ref: BWF/S.42/REJ

Llinell Uniongyrchol/ Direct Line: (01267) 224844

4th April 2011

Ms. Bethan Thomas
RWE Npower Renewables
Unit 22
Technium Sustainable Technologies
Central Avenue
Baglan Energy Park
Port Talbot
SA12 7AX

COPY

Dear Ms. Thomas

RE: Brechfa Forest West Wind Farm – Infrastructure Planning Commission Consultation Exercise (Section 42, Planning Act 2008)

I refer to your letter dated 2nd February 2011 and your subsequent consultation in accordance with the above Act which commenced on 10th February 2011.

The attached report represents Carmarthenshire County Council's response to the consultation and provides assessment, commentary and review of the draft Environmental Statement. The report was endorsed by members of the Council's Planning Committee on 31st March 2011.

Should you require clarification on any aspect of the report it is advised that you contact my colleague Richard Jones on the above number.

Yours sincerely


MR EIFION BOWEN
HEAD OF PLANNING

This report comprises Carmarthenshire County Council's (CCC) response to the consultation carried out by RWE Npower Renewables (the developer) under Section 42 of the Planning Act 2008 for the construction of a Wind Farm on Forestry Commission Wales (FCW) land in the Brechfa Forest, Carmarthenshire. The site has been referred to by the developer as Brechfa Forest West and is located approximately 10km northeast of Carmarthen. The developer has submitted preliminary environmental information in the form of a Draft Environmental Statement (DES) as part of the consultation.

The proposed wind farm consists of the installation of 28 wind turbines (each with a height to blade tip of up to 145m), construction of approximately 9.1km of new onsite access tracks and the upgrading of 12.7km of existing forestry access tracks. The scheme's other components include the construction of an on-site sub-station, hard-standing areas, external transformers, underground connecting cabling and one permanent wind monitoring mast. Temporary development will include two construction compounds, whilst an on-site borrow pit will be used for the extraction of stone

It is the developer's intention to submit an application to the Infrastructure Planning Commission for development consent under the provisions of the Planning Act 2008 and subsequent secondary legislation, therefore Carmarthenshire County Council will not be the determining authority.

Section 31 of the Planning Act 2008 states that "consent under this Act is required for development (that) forms part of a nationally significant infrastructure project". The proposed Brechfa Forest West Wind Farm is classed as a nationally significant infrastructure project (as defined in Section 15(2) of the Planning Act 2008), by virtue of the fact that it is an onshore generating station with an installed capacity of over 50MW.

The application will be determined by the IPC (or subsequent body identified by the Localism Bill) in accordance with relevant National Policy Statements (NPS), except where this would result in any breaches of international obligations, duty or law. In addition to NPSs, Section 104 of the Planning Act 2008 states that the IPC Panel or Council must also have regard to reports, documents or other matters that "are both important and relevant to (the) decision". As such other national policy and development plan policy maybe material considerations in the decision making process e.g. Carmarthenshire Unitary Development Plan (2006).

The report has been set out in a systematic format that provides commentary, review and assessment where necessary of the individual chapters, appendices and figures contained within the Draft Environmental Statement (DES). In addition to the Planning Department, other CCC Department's have contributed to the content of this report. Consultants appointed by CCC have assisted with the review of aspects of the DES that relate to Noise, Access, Traffic and Transportation, Landscape and Visual and Shadow Flicker.

General Comments/Observations

Section 115 Development for Which Development Consent May Be Granted

It is for the decision maker to decide on a case by case basis whether or not development should be treated as associated development. In principle it comprises works not considered to be integral to the development but subordinate and necessary for the effective operation to its design capacity of the NSIP. There is CLG guidance on associated development which, however, mainly relates to England as the Act limits associated development in Wales to very narrow circumstances (S.115 (4)).

It would clarify matters and make the process more transparent if the submission made it clear whether everything is considered as associated development.

Relationship Between Welsh Assembly Government (WAG) and the IPC

A Memorandum of Understanding (MoU) has been agreed between the WAG and the IPC setting out their respective roles and the way that the infrastructure planning system relates to Wales and explains the working relationship and arrangements between the two bodies.

WAG is distinctive among the bodies that the IPC interacts with, because of:-

- Its role in devolved areas of policy formulation in Wales;
- The direct regulatory functions it performs;
- Its role as the decision-maker for certain appeals and other consents;
- Its duties in overseeing the operations of other bodies, including the Environment Agency and Countryside Council for Wales; and
- The context of the Assembly Government having a statutory duty to support and promote the Welsh language.

This relationship needs to be recognised by the developer and referred to in the Environmental Statement.

CHAPTER 2: APPROACH TO THE EIA

The EIA Process

Para 2.4

This paragraph makes reference to the requirements of Schedule 4 of the EIA Regulations. The second bullet point states that an Environmental Statement should include an outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental

effects. This approach, however, has not been taken in the Draft Environmental Statement (DES) when assessing Access and Grid Connection.

Cumulative Impact

Para 2.18

It will be essential that the in combination impacts are considered by all competent authorities in relation to Brechfa West, Brechfa East and Bryn Llewellyn wind farms. The proposed grid connection should be examined thoroughly by all parties. At present the impacts of the grid connection and access requirements do not appear to have been considered in cumulative impact assessments.

Site Access

Para 2.28

RWE NRL has also prepared a Consultation Report. It is considered that this sentence requires clarity as it is premature for the Consultation Report to have been prepared, given that the developer is unlikely to have summarised Section 42 and 47 consultation responses at this stage.

General Comments/Observations

A recurrent typing error has been noted in Chapter 2, whereby the header on the top right corner of each page makes reference to 3. Scheme Description and Design Strategy.

CHAPTER 3: SITE DESCRIPTION AND DESIGN STRATEGY

Figure 3.1

Clarification is sought on whether the hub height of 100m is a maximum case scenario? Allied to this it is noted that there are no fixed maximums in relation to hub and blade heights. Is the picture of the turbine an example of a 145m turbine? A comparative photo with a turbine pertaining to Alltwalis Wind Farm would be of use.
Description of Site and Surroundings

Para 3.6

In the interests of clarity it is advised that distances from existing and proposed wind farms are provided.

Para 3.8

Reference made to the fact that several minor roads surrounding the site provide links to the wider road network. In light of the recent partial collapse of a bridge on the B4310 near Brechfa school (08/02/11) causing detours of up to seven miles and

lengthy traffic delays, what assessments have been carried out on local access routes in respect of diversionary works during the construction period?

Para 3.10

A list of four dwellings has been provided giving distances from the nearest turbine. It is unclear if the distance given is measured from the residential dwelling's themselves or the curtilage land pertaining to the dwelling. Clarification on this matter is sought. Grid coordinates for the dwellings mentioned should also be provided.

Para 3.11

It is advised that reference is made to the 'closest turbine' in addition to the distance from the red edged site.

Project Description

Para 3.12

There are no grid references provided for the individual turbines in the ES. This information should be provided and will be essential in assessing the micro-siting of any turbines, which should be within 50m of the current proposed location.

Site Access

Para 3.27

There does not appear to be a Design and Access Statement (DAS).

Whilst a DAS is not part of the planning application, it is a statutory requirement and is required by legislation to accompany all planning applications (outline and full), in accordance with TAN 12 and guidance provided by Carmarthenshire County Council.

CCC is not aware of the options that were considered for accessing the site for the delivery of turbines. When making reference to CCC the developer is advised to indicate which Section / Department discussions took place with. It is understood that a highway study was submitted by the developer in 2009; however, this is not contained within the appendix as background information.

More details on what options were discussed in respect of accessing the site would help to inform the IPC in support of the preferred option presented. Evidence of swept path analysis in the form of figures / drawings should also be provided. The onus on the applicant in respect of this requirement for IPC consideration is set out in the Revised Draft of the NPS (EN-3), Cl.2.7.76 to Cl.2.7.78.

Para 3.28

More details of the preferred route need to be provided.

The route identified for delivery of stone from Dinas Quarry, has this been included as part of the permitted access routes and has the suitability of the route been assessed?

Is there an increase in the HGV % for the additional deliveries from Dinas Quarry for stone that cannot be sourced from the borrow pit.

Again reference to the requirements for IPC consideration is set out in the Revised Draft of the NPS (EN-3), Cl.2.7.76 to Cl.2.7.78.

Access Tracks

Para 3.29

There needs to be more detail provided in respect of geometrical alignment of the access tracks on the development site. Have the routes identified been discussed and/or agreed with the Forestry Commission Wales?

Cross reference to ES Appendix 3.1 (3), penultimate paragraph under the heading 'Procedure' reinforces the fact that further information is required. Final paragraph refers to peat, have ground conditions been considered?

It appears that some existing tracks offer feasible connections to turbine locations, therefore an explanation of why these are not necessary. Details of the design evolution of the access tracks in the form of scaled drawings would assist this explanation.

Para 3.30 – Bullet Point 1

The ES states that one of the main objectives for the design of the track layout was to maximise the use of existing forest tracks where possible. However having examined the site layout (Figure 1.2) and the presence of existing tracks, there appears to be areas where additional length of new tracks are proposed, but where there are existing tracks that appear to offer feasible connections (Turbines 3, 6, 11, 12, 22, 24, 26 and 28). The ES should clearly document the reasons why, in these instances existing tracks are not proposed to be used and why new tracks are required.

Para 3.31

Figure 3.4 referred to in this paragraph appears to be very basic. It does not take into account the possibility of sidelong ground and the potential for increased earthworks as a result – as illustrated in the Forestry Commission (Road Specification) document.

Overtaking/Passing Places

Para 3.33

Details of potential overtaking/passing places would be useful.

Drainage

Para 3.34

Have discussions with the Environment Agency taken place in respect of discharge rates and/or consents required?

Watercourse Crossings

Para 3.36

Have discussions with the Environment Agency taken place in respect of these watercourse crossings? Will there be a need for any flood defence consent applications for construction of new or upgraded structures over watercourses?

Borrow Pit

Para 3.37

Anecdotal evidence suggests that the borrow pit referenced in this paragraph is already in existence. Some details of the environmental effects of the proposed borrow pit should be submitted e.g. whether felling will take place?

Construction Details

Para 3.40 to 3.43

The indicative construction programme needs to be directly linked with the Transport Management Plan (TMP).

Does the construction programme and TMP take account of the rotational harvesting of the forest within and outside the proposed development?

Para 3.44

Not clear why felling isn't included as part of the construction details given that it contributes to the number of HGV movements. The peak months for HGV movement were found to be 12th-15th of the 22 month construction programme in contrast to Chapter 9 which shows months 10-13 to be the peak months for vehicle movements.

Para 3.45

Have the details of the Draft Construction Method Statement (DCMS) been discussed with any of the relevant parties identified?

Reinstatement Post-Construction

Para 3.50

See comments under Para 13.242.

Operational Details

Para 3.54

It is understood that the route used for the operational wind farm near Alltwalis is being identified as the preferred access route for this site. Are the turbine components the same as those installed at Alltwalis? - Will different abnormal vehicles be used and have these factors been taken into consideration in assessing the route?

Decommissioning

Section 3.56

No decommissioning method statement has been provided.

Design Strategy

Para 3.72

Second bullet point – has the feasibility of this been assessed?

Modifications to the Scheme

Table 3.1

It would be useful to cross reference the detail indicated in the table with layout drawings in order to gain a clearer understanding of how the scheme has evolved.

Micrositing

Para 3.75

The developer needs to be mindful of the recent decision by the Planning Inspectorate which dismissed 19 wind turbines at Mynydd y Gwair, Swansea. The decisions letter makes reference to the impact of the turbines on peat bog habitat and a micrositing tolerance of 30m being the acceptable limit in the Welsh context.

Notwithstanding the above the content of Section 2.7.25 of Revised Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) should be taken into i.e. - Whilst it is for the applicant to specify the level of tolerance they are seeking, a tolerance of between 30m and 50m of elements of the required infrastructure is typical. However, there may be some circumstances where the IPC considers that the micrositing tolerance requested by the applicant is too great, and that on the

evidence of the EIA and its own assessment of the proposal, that it is necessary to restrict either the overall tolerance for the scheme or the tolerance of specific elements of the proposal. When making this judgement, the IPC should take into account the reason for the applicant having requested the micrositing.

Other Associated Works

Para 3.78

Grid Connection Route subject to separate application – no survey or discussions with relevant interested parties have taken place – ES Appendix 3.2 (2)

What is the timing of the Grid Connection? Is the separate planning application being co-ordinated with other major renewable developments in the area.

Based upon information presented in ES Appendix 3.2, the route appears to be located along a sensitive corridor. Have any alternatives been considered?

Do WPD have statutory powers to obtain land under CPO?

The Grid Connection appears to identify the inclusion of Brechfa Forest East development, but does it include the proposed wind farm at Bryn Llywelyn?

Will this increase the voltage of the power lines, thus requiring pylons instead of wooden pole installation? Can increased underground cable installation be considered or is 33kV the maximum for underground installation?

Para 3.79

Makes reference to Appendix 3.3 for offsite access works, this is not sufficient detail. Further details of the offsite access works need to be provided.

Requirements for sufficient land outside existing the highway boundary are not clear – ES Appendix 3.3 (9).

As set out in the Revised Draft of the NPS (EN-3), Cl.2.7.84, “it may be appropriate for any non-permanent highway improvements carried out for the development (such as temporary road widening) to be made available for use by other subsequent wind farm developments. The IPC may consider that a planning obligation is necessary to secure appropriate measures.”

APPENDIX 3.1: DRAFT CONSTRUCTION METHOD STATEMENT (DCMS)

Section 3 Access Track Construction

New Access Track Construction - The first paragraph of this sub-section states that floating roads are not considered necessary as it is not anticipated that peat of any significant depth will be encountered. An assessment of what constitutes a ‘significant depth’ of peat needs to be given to provide further clarification on the

potential impact upon this habitat. The recent Planning Inspectorate decision at Mynydd Y Gwair makes reference to a figure of 300mm. On this basis it is considered that further survey work is carried out within the site to establish coverage.

The developer should carefully consider the requirements of Revised Draft National Policy Statement for Renewable Infrastructure (EN-3) where peat habitat is a known environmental factor. Para 2.7.38 states: the IPC should be satisfied that the wind farm layout and construction methods have been designed to minimise soil disturbance when building and maintaining roads and tracks, turbine bases and other infrastructure. This is to ensure the development will result in minimal disruption to the ecology and that the carbon balance savings of the scheme are maximised.

The fourth paragraph of this sub-section refers to two crossings on watercourses shown on 1:25,000 scale topographical mapping (references W001 and W002). In the interests of clarity it is advised that the location of these plans within the DES is indicated.

Section 5 Culverts and Watercourses

The ES states that a detailed statement for work around watercourses will be provided by the contractor to the EAW prior to works being undertaken and the method included in the finalised Construction Method Statement (CMS). This should also be provided to CCC for comment.

It is suggested that the CMS include provision of a hydrological clerk of work and/or monitoring officer to inspect measures.

Section 9 Turbine Foundations

A scaled cross section drawing of the proposed turbine foundation is considered necessary in order to provide an illustrative interpretation of the descriptive text in this section.

Section 12 Reinstatement

It is considered that the main principles of a Restoration Statement are given at the submission stage in order for CCC to agree in principle.

Section 13 Pollution Prevention Measures

The seventh paragraph of the sub-section entitled Silt states that small dams will be placed in roadside ditches to aid silt retention. It is advised that a typical section of the proposed dam is provided with the submission of the application.

Section 17 Environmental Monitoring

The sub-section entitled Description states that ecological monitoring will be set out in a Habitat Management Plan(HMP) to be drawn up by a working group including the developer, FCW and CCW. Officers from CCC would expect to be involved in

these discussions given the expertise retained and also the likelihood that the HMP will have to be enforced by the Council.

Section 18 Working Hours

CCC would expect the Construction Management Plan (CMP) is accompanied by a light pollution impact assessment which will detail flood light height, light specification and proximity from residential dwellings, in order for potential impact to be adequately assessed.

APPENDIX 3.2: GRID CONNECTION

Appendix 3.2 Grid Connection Route Assessment Paragraph 15.

The two SSSIs noted in paragraph 15 have not been denotified.

Appendix 3.2 Grid Connection Route Assessment Paragraph 17.

A relevant search for the grid connection should be undertaken by the West Wales Biodiversity Information Centre (WWBIC) as undertaken for the main scheme and mentioned in the CCC scoping response.

Appendix 3.2 Grid Connection Route Assessment Paragraph 31.

The wording and/or procedures detailed in this paragraph are incorrect and are of concern. The use of the term 'compensatory habitat' in the penultimate sentence is not correct. Regulation 61 of the Conservation of Habitats and Species Regulations (2010) will require the proposal to be assessed for likely significant effects by the relevant competent authority following a specific procedure. This procedure will involve carrying out a test of likely significant effects (TLSE) and an appropriate assessment (AA) (as necessary). When carrying out a TLSE or AA only mitigation (avoidance and reduction measures) can be considered when assessing and concluding no likely significant effects, however compensation and compensatory habitats cannot be considered in this assessment. Taking mitigation into account, if there is a likely significant effect still identified the developer will then need to show there is no alternative to the proposed scheme and secondly if there are no alternatives, the scheme will need to be presented to WAG and they will need to agree that the scheme fulfils the IROPI criteria (imperative reasons of overriding public interest). Only if WAG confirm the scheme meets these criteria, that there are no alternatives and IROPI is fulfilled, will compensation be acceptable.

General Comments/Observations

It is a concern that no alternatives for the grid connection have been considered and the most direct and economical route has been presented. Furthermore the wind farm has been developed on the basis that the grid connection is assumed to be to the south. It is considered that the proposed grid connection should be fit for purpose and should ideally provide the necessary infrastructure for all the proposed developments and for further schemes that may be forthcoming in the SSA. The

connection should also provide enough capacity for these schemes, to avoid the connection requiring further upgrading in the future, which may result in greater ecological disturbance. The cumulative effects with the proposed developments and the grid connection should be considered thoroughly including ecological issues.

Before submitting the application to the IPC the developer needs to be satisfied that it has complied with Para 4.9.3 of Revised Draft Overarching National Policy Statement for Energy (EN-1) and must ensure they provide sufficient information to comply with the EIA Directive including the indirect, secondary and cumulative effects, which will encompass information on grid connections.

CHAPTER 5: ENERGY POLICY CONTEXT AND SCHEME RATIONALE

Para 5.24

CCC recognise the proposed wind farm could produce a large annual generation of electricity, however, would question whether this output is 'significant' in making a contribution to the UK Government's target of cutting emissions of CO₂, by 34% on 1990 levels by 2022.

CHAPTER 6: PLANNING POLICY CONTEXT

Planning and Regulatory Framework

Para 6.6

The developer will be mindful that the status of the IPC will be confirmed by Parliament's passing of the Localism Bill. An update of this paragraph is likely to be required at the time of submission.

Planning Policy Wales

Para 6.25

Planning Policy Wales fourth edition was published in February 2011 and included an updating of the Renewable Energy chapter. The developer is advised to make reference to this when updating the ES.

The Development Plan

Para 6.27

In addition to Policy UT5 of the UDP reference should also be made to the Policy UT6, which provides more specific assessment criteria for wind turbine development.

CHAPTER 8: GEOLOGY AND HYDROLOGY

Appendix 5.1 – Assessment of Carbon Savings and Payback Period and Various Paragraphs relevant to Peat (Chapter 8).

Para 1.3 of Appendix 5.1 states that part of the area is covered by soils described as possibly having a peaty surface layer where wet depressions occur and by a soil type which has a wet peaty surface layer of 0.1 m which may include peat on higher ground.

Para 3.1 of Appendix 5.1. The assessment states that the methodology used for the assessment is designed for developments on peat land. The geological map shows no peat within the site. However the assessments have **assumed** an average peat depth of 0.1m across the site in order to avoid underestimating potential carbon losses from peat.

Private Water Supplies

Para 8.8

During the inspection of the site and surroundings, officers from CCC's Planning Department were informed that the occupiers of Lan Farm and Lan Du have private water supplies. The dwelling at Twyllwyd in Llanllawddog is also known to be fed by a private water supply. Without full knowledge of properties on private water supplies it will be difficult to provide comprehensive mitigation details of the construction impacts.

Consultation

Table 8.1

CCC's scoping response also requested the inclusion of long term average monthly rainfall figures within the ES and their significance in relation to the development. Discussions have also taken place with hydrologist consultants acting on behalf of the developer regarding the creation of wetland habitats as a means of providing sustainable drainage on the site as well as new habitats.

Topography, Rainfall and Land Use

Para 8.44

Over what period has the average annual rainfall been calculated? Rainfall experienced at the site is likely to be greater than the catchment average. Has rainfall been recorded along with wind speed?

Geology

Para 8.47

Peat habitat should be identified by on-site surveys. If there are any wet peaty areas the trees will have failed and this might be an indicator of where to look for peat.

States that there are no peat deposits shown within the area. The geological mapping indicates there is little peat present in the general area around the site.

Para 8.50

It is advised that the division/section of CCC which has provided the information is indicated.

Soils

Para 8.53

States that there are some peaty topped, slowly permeable, seasonally waterlogged, loamy soils in the southern part of the site. This section states that peat may be present on higher ground in some areas.

Para 8.55

States that soils mapping data obtained from the FCW indicates that there are no peat soils present on the FC land within the site boundary, but highlights that peaty gley soils are present in approximately half the site. The ES highlights that soils descriptions were not available with the mapping, but considers the soils classification issued by the forestry commission research and development division, this indicates that peaty gley soils may have a **maximum peat thickness of 0.45m** and that peat overlies gley in the soil profile.

Modifications to the Scheme

Para 8.76

Reference is made to Figure 8.8 which shows watercourse crossings and constraints. It is advised that the sub-station and temporary construction compounds are shown in relation to 50m buffers along watercourses.

Predicated Impacts

Para 8.79

States that indications from available soils mapping, provided by FCW are that peat is only likely to be present on the site as an upper soil layer overlaying gley soils. The section states that there is no indication of peat deposits on FCW soils mapping, other than in combination with gley soils.

It is considered that the FCW soil mapping methodology and data should be provided as an appendix to the ES to indicate the quality of the previous mapping work and identify the extent of the mapping undertaken. It is a concern that the soil descriptions are not available with the mapping.

Based on the information submitted currently it is considered that peaty deposits may be present up to a depth of 0.45m and this may affect the results of the assessment of carbon savings and payback period (which assumed depths of 0.1m only) and may also be pertinent to ecological and hydrological impacts. In the recent Mynydd y Gwair appeal decision, peat was a major consideration in the dismissal of the appeal highlighting the importance of peat with a depth above 300mm. There is a general lack of clarity and information regarding peat in the ES and no firm data or information is contained within the ES which gives certainty to whether peat deposits are present and to what depths. Para 8.79 states that in order to confirm information presented in the ES, a site reconnaissance for peat deposits will be undertaken at turbine locations, along sections of new tracks and at locations for other site infrastructure, following felling but prior to construction. This is not considered adequate and the presence of peat should be considered upfront and should be subject to further investigation and the data should be presented in the ES.

It is advised that a comprehensive assessment of potential peat habitat at turbine locations and along new access tracks accompanies the application to the IPC, rather than an assessment at pre-construction stage.

As indicated above in the commentary on Appendix 3.1, reference to the consideration of peat habitat is made in Revised Draft National Policy Statement for Renewable Infrastructure (EN-3). 2.7.38 of this document states “In addition to Section 5.3 of EN-1 there are specific considerations which should inform IPC decision-making where developments are proposed on peat. In these cases the IPC should be satisfied that the wind farm layout and construction methods have been designed to minimise soil disturbance when building and maintaining roads and tracks, turbine bases and other infrastructure. This is to ensure the development will result in minimal disruption to the ecology and that the carbon balance savings of the scheme are maximised.”

Water Chemistry

Para 8.103

The section states that felling may need to be managed to control nitrate loss. It is considered that this should be monitored as it may have implications for quality of the Afon Tywi SAC (see Para 8.67) and remediation measures and management measures put in place as necessary (also see suggestion under **Appendix 3.1**).

Proposed Mitigation Measures

Para 8.121 & Paras 8.200 – 8.207

Many of the proposed mitigation measures and SUDS features could be multi purpose and create wetland habitats as enhancement features. This concept has not

been explored in the ES in either the hydrology chapter or the non avian ecology chapter and such concepts should be considered and described where appropriate. This could be considered in a combined water management plan, flood risk plan and habitat enhancement plan.

Water Pollution

Para 8.142

It is suggested that a hydrology clerk of works and/or monitoring officer be employed to inspect measures, ensure the delivery of the pollution prevention and response plan and authorise and agree certain works, particularly in periods of heavy rain or when working in close proximity to watercourses.

Natural Surface Water Drainage Pattern

Para 8.164

The intention should be to keep more water on the site for longer via SUDS and the design of wetland habitats.

Cumulative Impacts

Para 8.211

The ES for Bryn Llewellyn is available and more accurate figures will therefore be available. Consideration should be given to carrying out the analysis with the actual data or at least verifying if the calculations which are described in the ES as being a very approximate assessment. This will be particularly useful in undertaking any habitats regulations in combination assessment.

Future Monitoring Requirements

Para 8.220

This section states that research in mid Wales has indicated that impacts on water quality can occur over a period of about three years following felling. The ES therefore states that water quality sampling will continue for a period of about three years following the completion of felling in each area. It is considered that if impacts on quality can be expected for three years following felling, it would be useful to continue monitoring for a period longer than three years. Details of proposed water quality monitoring should be provided in the CMS and agreed with various parties including CCC and EAW prior to implementation.

General Comments/Observations

An ecological/hydrological clerk of works is recommended during the construction phase. The role could authorise certain agreed works during or after periods of heavy rain, or working near watercourses.

The habitat beneath the turbines should be designed to retain water and sediment, thus reducing the chances of it getting into watercourses.

This chapter should set out clearly the hydrological regime that the development is seeking to achieve within the application area and how this will be managed through the lifetime of the scheme. SUDS and wetland habitat creation are expected to play a significant role in this, and more details are required at this stage.

The ordinance survey map shows the presence of a sheep dip in the area of the alignment of the proposed access track. The ES should consider any pollutants or contamination or potential impacts that may be associated with the feature.

CHAPTER 9: ACCESS, TRAFFIC AND TRANSPORTATION

Assessment Methodology

Para 9.7

Are the IEMA guidelines the most appropriate guidance for this assessment? It follows that the assessment is based on a 10% threshold impact for the A485 (see para 9.49). – The ‘Transport Assessment Guidelines for Development Proposals in Carmarthenshire – May 2009’ would more appropriate, which follows the principles set out in TAN 18?

Table 9.1

States discussions took place with CCC regarding committed development in the locality and highway and infrastructure schemes which may have an effect on the feasibility. However, no comment on this subject has been made within the Development Control Section and no reference made to the aspects of LPA’s scoping response in relation to scaled drawings and cross sections of the proposed access; advised Npower to consult with the developer of Alltwalis Wind Farm to discuss potential problems associated with the delivery route; details of a wear and tear agreement were also requested. It would be useful to see a comment regarding committed development and highway schemes even if it is to simply state there are no committed developments or highways schemes that would impact upon this proposal.

Para 9.13

Second and forth bullet point – what criteria was used to assess the residual capacity on the existing local road network?

Para 9.14

It is noted that the Welsh Assembly Government have responded, but no reference is made to any liaison with Traffic Wales in their capacity as the network managers for the motorway and trunk road network in Wales. In addition no response has been received from the maintaining agents SWTRA and MWTRA.

Para 9.17

Concern that no dry-run has been carried out. This will identify potential physical barriers / obstacles that a desk-top assessment may not pick up.

Planning Policy Context

Para 9.23 & 9.24

A DAS is not part of the planning application, but it is a statutory requirement and is required by legislation to accompany all planning applications (outline and full), in accordance with TAN 12 and guidance provided by Carmarthenshire County Council. Additional information in respect of the preferred access route and the implications of abnormal loads should be provided, outlining where improvements are necessary.

Para 9.39

States that a detailed Traffic Management Plan (TMP) should be agreed with the council before any development takes place. Given that the TMP is referred to throughout the chapter and later used as part of the proposed mitigation, it would be useful for a timetable for the TMP development and agreement to be identified.

CCC is keen to discuss the draft principles of a TMP before the developer submits to the IPC.

Subject to these discussions it may be necessary for the local highway authority to request that the IPC impose controls on the number of vehicle movements to and from the wind farm development in a specified period during its construction and, possibly, on the routing of such movements particularly by heavy vehicles as set out in the Revised Draft of the NPS (EN-3), Cl.2.7.82.

Existing Conditions

Para 9.41

The proposed turbines are larger than those at Alltwalis Wind Farm, therefore the developer needs to confirm the dimensions of the components being delivered along the proposed route.

Reference has been made to three alternative construction routes, yet there is little in the way of assessment of the merits or problems associated with these routes from a highway safety / transportation perspective. One of the principles of EIA development is to assess alternatives.

Para 9.42:

States that a new junction arrangement is to be created between the proposed access track on private land and the existing A485. Has such a direct access from the trunk road been discussed with the Welsh Assembly, Traffic Wales and / or the local highway authority?

Para 9.45

States that as the traffic data obtained from CCC is not classified then a nominal 10% has been assumed to be HGV traffic. This is considered to be an appropriate assumption.

Para 9.46 and 9.47

Discuss the felling operations by the Forestry Commission Wales (FCW). It is noted that these operations may create large HGV movements. It would be relevant to know if there is any proposed felling phased to coincide with the construction period.

Regarding Personal Injury Accidents (PIA) (Para 9.49-9.53) the information provided is very broad with no details provided for any particular junctions along the A485 route. Therefore it cannot be established if there are any accident patterns. Whilst it is noted that the total PIA over 4 years appears to be quite high, no context is given regarding average or expected accident rates along this length of route. As a result, further consideration of PIAs may be needed in order to fully identify the existing conditions and likely impacts.

Table 9.4

PIA column total is incorrect. Correct figure is 5 not 4.

Para 9.54

Plans, maps etc showing the evolution of the scheme's design modifications will better explain how the proposal has advanced.

Assessment of Construction Impacts

Para 9.56 and 9.57

States that night time or Sunday work will not be permitted, however some work may be required during these times. It is not clear to what extent this may occur, but it is not considered to be a significant factor.

Para 9.59

Discusses a route from a preferred quarry, this route needs to be agreed with CCC.

Confirmation also required that the quarry has the relevant licences in place and capacity to provide stone for the proposed development. Cumulative impact on working this quarry needs to be assessed given that other proposed wind farms may be using it.

Para 9.60

The assumption that half of the stone for the various activities could be sourced from the borrow pit appears to provide a robust assessment of residual HGV movements required. It is therefore noted that appropriate management of borrow pit stone resources could form a further mitigation measure.

Para 9.64

Discusses the average number of construction staff (70) on site and concludes that the movements are minimal and should not be considered further. However the assessment should take the worst case scenario of the peak number of staff (150), although it is acknowledged the impact is still likely to be minimal.

Para 9.74 & 9.75

Noted and agree with the additional 10% in order to produce a robust assessment of the length of track required.

Para 9.75

It is noted that it has been assumed that existing tracks require half the amount of stone of that required for all tracks undergoing a full upgrade. This is an important assumption and further justification would enable it to be verified. Notwithstanding this a key factor will be the determination of the optimum footprint based upon the acceptable geometrical alignment, which again is a fundamental aspect of determining the volumes of material required depending upon the existing topography and resultant earthworks balance.

Traffic Generation

Para 9.103

Mentions 2 additional months felling which is in contrast to the 3 months felling as stated in Para 9.55

Table 9.5

Shows total vehicle movements for the permanent anemometer mast and foundations as 170 in contrast to the 168 movements in para 9.86.

Para 9.108 & 9.109

Makes reference to NRTF used to factor base traffic from 2009 to 2013 and a local growth factor from Carmarthenshire, however does not state where this has been taken from, assume TEMPRO?

How has the 1.054 figure been reached?

Table 9.7

No assessment of impact or traffic flow increases along the A48 and A40, particularly at roundabouts (e.g. Cross Hands, Pensarn).

Para 9.112

This paragraph states there will be a 19% increase in HGV movements (weekdays) along the A485 during the construction period. Concern that the cumulative impact of construction traffic relating to the proposed wind farms at Brechfa East and Bryn Llywelyn could result in a significant increase in overall HGV movements and a higher %. This cumulative impact needs to be addressed in the Chapter.

Para 9.114

Agree that the 10% threshold has been exceeded and therefore requires assessment.

Predicted Impacts

Para 9.116

Cumulative impact could potentially exceed the 30% figure quoted in this paragraph. Also the movements may be intensive at certain times of the day especially if they take place primarily in the morning to coincide with the daily commute.

Para 9.125

Although the pedestrian levels may be minimal on the A485 it would be helpful to have a better understanding of any affected communities along the route including widths of footways, pedestrian crossing locations and the number of properties within close proximity to the route.

Para 9.127

As referred to in Para 9.125 above, the pedestrian levels may be minimal on the A485 it would be helpful to have a better understanding of any affected communities along the route including widths of footways, pedestrian crossing locations and the number of properties within close proximity to the route.

Are there any schools or other sensitive receptors in the area or directly affected along the access routes?

Proposed Mitigation

Para 9.136

It appears that the TMP is a fundamental aspect of this proposal and needs to be closely co-ordinated with the construction programme.

A TMP should also contain details of a road damage methodology. The condition of the road before construction traffic commences will need to be assessed in order to establish future liability.

Para 9.137

Detailed method statements for all mitigation measures need to be provided prior to commencement of construction operations.

Para 9.139

Highway improvements – have any assessments been carried out pre-application stage?

Concern that plans showing where road widening will take place do not accompany the draft ES. There could be third party land consent implications, retaining works, ecological impact etc at these widening areas. These uncertainties make a dry run even more important. The responsibility for this is clearly defined in the Revised Draft of the NPS (EN-3), Cl.2.7.81.

Will there be land issues outside the highway boundary to be dealt with?

Residual Impacts

Para 9.140

Road damage is a potential residual impact.

Cumulative Impacts

Para 9.141

No mention made of proposed wind farm at Bryn Llywelyn, Llanllwni?

Para 9.142

The assessment does not take account of Bryn Llywelyn development going ahead at the same time?

Table 9.9

Do the figures contained here include the percentage HGV's to/from Dinas Quarry for the additional stone requirements?

Do the figures contained here include the percentage HGV's to/from the Brechfa Forest Area in general during routine forestry harvesting?

Cumulative assessment lacking in analysis/content. Brechfa East figures can be obtained. Also Bryn Llywelyn figures should be sought as an application has been submitted to the Local Planning Authority. Impact could be significant. Some form of

commitment to phasing of construction movement is required as set out in the Revised Draft of the NPS (EN-3), Cl.2.7.83.

Para 9.145

Is confusing and appears to be incorrectly worded.

Agree the percentage change in total number of vehicles is low and unlikely to have a major impact, however the percentage change of HGVs is more significant and so a full understanding of the impacts on the communities along the route is required.

Assessment of Operational Impacts

Para 9.146

Does not provide detail as to how 4-5FTE equates to 40-50 vehicles movements, however agree that the 40-50 vehicle movements stated is unlikely to provide any significant traffic related impact.

Decommissioning

Agree that it is not feasible to estimate traffic impact with a 25 year horizon and that decommissioning is likely to be less of an impact than construction.

Summary of Impacts

Table 9.10

Cumulative missing from Summary table.

General Comments/Observations

In summary the reviewed sections have produced no significant issues based upon the way the information has been presented in the draft ES. That said the assessment criteria and relevant guidance used needs to be clarified further to demonstrate and confirm that the significance of the impacts are as stated in the draft ES. The conclusions of the assessment require further evidence and the effect of the cumulative impact needs to be considered on a wider scale.

More detail regarding the personal injury accident data and impacts upon local communities is requested. The importance of the TMP in managing the impact is underlined and it would be useful for a timetable for the Construction Programme / TMP development and agreement to be identified.

Additional details with regard to the access to the site and within the site need to be evidenced and presented as part of the development proposal. Further review of the scoping correspondence would be beneficial.

CHAPTER 10: INFRASTRUCTURE, TELECOMMUNICATIONS, TELEVISION AND AIR SAFEGUARDING SYSTEMS

Television

Para 10.33 and 10.39

Para 10.33 states that the BBC Ofcom wind farm tool predicts that the proposed wind farm would be likely to affect 43 homes for whom there is no alternative off air-air service and up to 2 homes for whom there may be an alternative service. Clarification is required as to whether these properties will be affected and whether the wind farm tool takes into account the recent digital switcher. Those properties that could be affected should be listed in the ES in order to inform the relevant occupiers of potential interference.

CHAPTER 11: PUBLIC ACCESS, RECREATION AND SOCIO-ECONOMICS

Figures 11.1 - 11.3

A turbine layout overlaid on these plans would indicate the proximity from relevant footpaths, bridleways etc. Turbine proximity cannot be accurately gauged at present. It is advised that a distance chart is provided detailing the proximity of each turbine from the nearest access track. The measurements provided should be based on the nearest point of the 50m micro-siting area.

Given the Brechfa Forest's use as a recreational resource for walkers, cyclists and horse riders, the developer should consider increasing the separation distance from tracks. The British Horse Society's 200m exclusion zone is considered an acceptable dimension in this context.

Consultation

Para 11.6 and 11.11

CCC Planning Services Department has discussed the proposal with members of the Carmarthenshire Access Forum. The feedback provided indicated the condition of existing tracks, bridleways and footpaths. Based on this information the developer is advised to enter into discussions with Forestry Commission Wales, Countryside Council for Wales, CCC and local access groups to establish an Access and Recreation Management Plan that sets out over the construction period and the lifetime of the proposed development, how public access and recreation in the forest will be managed and enhanced. This approach will be consistent with the provisions of TAN8 (Para 2.10, bullet 4).

Para 11.8

Revised Draft Overarching National Policy Statement for (Energy EN-1) recognises at 5.12.5 that a wind farm's visual impact may also have an impact on tourism and local businesses

Other Guidance

Para 11.15

The developer is advised to consider Carmarthenshire County Council's Right of Way Improvement Plan (ROWIP) 2007 – 2017. Details of which can be provided by CCC's Rights of Way Section.

Recreation and Tourism

Para 11.21 – 11.24

More detail of the baseline conditions relating to tourism in the area is required. For example data derived from the Scarborough Tourism Economic Activity Monitor (STEAM) may establish statistics relating to tourist accommodation in the area. Discussions with the Visit Wales and local tourism agencies are encouraged.

Are there any figures relating to visitor numbers from Ireland and further afield?

Walking

Para 11.31

This paragraph needs to highlight the 'right to roam' in the forest.

Para 11.36

There will be alternative tracks for cyclists to use elsewhere in the Brechfa Forest; however, these may be impacted upon by possible building operations associated with the proposed Brechfa Forest East wind farm.

Tourism

Para 11.46, 11.72 and 11.89

It is considered that the importance of tourism in north Carmarthenshire has been underestimated in the ES. Strong anecdotal evidence suggests that visits to the Brechfa Forest area linked to the quality of the landscape. The development of wind turbines could have a detrimental impact upon tourists' perception of the area. It is advised that further assessment is made of the proposal's impact upon tourism as a socio-economic resource.

Mitigation measures could include investment in improving the access network in the forest and surrounding area and the use of appropriate promotion and publicity.

Proposed Mitigation Measures

Para 11.52 – 11.55

Consideration of less able bodied / disabled users of the forest needs to be taken into account.

Summary of Impacts

Table 1.5

The residual impacts upon public and equestrian access during the construction phase are described as 'minor adverse'. It is considered that the impacts of a project of this scale on an area used by the public for a range of recreational activities, is going to be greater than 'minor adverse'.

General Comments/Observations

Overall it is considered that the various tables in the chapter misrepresent the impact of the proposals. The construction of a large engineering project in forest that the public use for a range of recreational activities could have a negative impact upon these users, both during construction and operational phases.

CHAPTER 12: LAND USE AND FORESTRY

Modifications to Scheme Design

Para 12.32

It would be useful if maps of the modifications to the scheme design were provided as part of the ES to give a clearer understanding of the schemes evolution and to examine alternatives that have been disregarded.

Impacts on Compliance with FDP Guidelines

Para 12.44

See comments under Para 13.242.

General Comments/Observations

Confirmation is required of the legal aspect of taking forest land out of the forest and using for development i.e. turbine bases, crane pads and new access tracks. The same clarity is required for land designated under the CROW

CHAPTER 13: NON-AVIAN ECOLOGY

Spatial Scope

Para 13.8 – Footnote

The footnote states that a short stretch of 110m of the new track and the substation located in the south east corner of the site was not subject to a full phase 1 survey. The ES states that data was collated using local field data. There is no information however on what constitutes local field and what information/actual methodology was used in assessing the area. Phase 1 is an important baseline and this information should be provided. Furthermore the ES states that the area is distinguished on the phase 1 habitat map. However this does not appear to be the case. This area should be clearly highlighted on the phase 1 map.

Legislation

Para 13.21

There is insufficient evidence of relevant biodiversity enhancement within the ES.

National Policy

Para 13.26

The ES does not recognise the opportunity that this proposal creates for enhancing, extending and re-creating habitats of significant wildlife and landscape value. This application should be demonstrating a net gain for biodiversity.

Forestry Guidance in Relation to Biodiversity

Para 13.32

'Managing for Environmental Quality' section of WAG strategy for Woodland and Trees makes reference to the following:

All woodlands are managed to high standards of environmental stewardship, Safeguarding and enhancing biodiversity, water quality and water resources, soil resources and soil function, landscape and the historic environment

Woodland, Scrub and Trees

Para 13.53

This section references Japanese Knotweed as a controlled non native invasive species under the Wildlife and Countryside Act (WCA) 1981. The document also considers its presence and necessary management during the development, however there is no mention of Himalayan Balsam. The presence of Himalayan Balsam (which is also listed under the same schedule in the WCA) should be

considered and reported in the ES and where necessary, measures should be put in place to control or eradicate the species as appropriate.

Non-Statutory Designated Sites

Para 13.238

The ES states that no detrimental impacts are predicted on the Rhos-wen Pib Conservation Pond, however it should be noted that the pond is located close by to the borrow pit, access tracks and a bend where the access track crosses the Afon Pib. It is therefore considered that this area should be examined closely within the CMS to ensure adequate and robust pollution control measures are in place.

Habitats and Flora

Para 13.242

The ES states that a radius of 47m around each turbine base will remain free of trees. The ES states that natural colonisation will be permitted but it will be managed to ensure a scrub layer does not establish. The ES when examining the impact of certain species including bats and birds does not appear to have considered the effects this change of management may have on species within the area. It is considered that the management of the 47m buffer zones may encourage invertebrate populations to increase, which may in turn alter bat foraging patterns and may encourage bats/birds into the areas and as a result these species may be more vulnerable to direct collision or barotrauma. The ES should be clearer about the proposed management of the 47m radius areas and the management proposals should be detailed as part of the Habitat Management Plan (HMP). It is considered that the ES should set out a strict monitoring plan to monitor vegetation development and invertebrate numbers within the 47m buffers post construction. Bat and bird mortality monitoring should also be undertaken and a methodology detailed in the HMP. This should ideally be undertaken for the lifetime of the development. If any correlation is identified between bat and bird mortality and the vegetation and invertebrate data in the 47 metre radius areas, then measures should be put in place to reduce mortalities, this may include removing vegetation from beneath the turbines.

Phase 1 Habitat Loss Calculations

Table 13.30

Habitat mitigation and enhancement should be provided for all semi natural areas that will be subject to losses as identified in Table 13.30. This should include marshy grassland, marshy grassland and scattered scrub, broadleaved woodland, standing water (ponds), wet dwarf heath and wet heath/grassland mosaic. Some of these habitats are biodiversity action plan habitats and listed on section 42 of the Natural Environment and Rural Communities (NERC) Act, 2006, and therefore are a material consideration in the planning process. A scheme of this size should provide mitigation/enhancement for all Biodiversity Action Plan (BAP) and Section 42 habitats. The Assembly Government sets out its commitment to the BAP process in

section 5.2 of Planning Policy Wales which indicates that planning authorities should further the conservation of habitats and species of principle importance through their planning function. Technical Advice Note 5 - nature conservation and planning states that a key principle for positive planning for nature conservation should look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally.

TAN 5 also states that where development proposals may affect national or local BAP habitats or species, the same principles as to locally designated sites apply. It is therefore considered that the developer should avoid harm to BAP habitats or species where possible and where harm is unavoidable it should be minimised by mitigation measures and offset as far as possible by compensation measures designed to ensure there is **no** reduction in the overall nature conservation value of the area or feature.

Given the size of the proposed development and that much of the site will be opened up for the installation of the turbines, provision of mitigation and enhancement for these habitats should be fully achievable and it is considered that this should be fully addressed in the ES and the HMP (despite not being assessed as significant in Table 13.32). Monitoring the success of the proposed mitigation should also form part of the HMP.

The field pond referred to in Para 13.67 as a pond with good water clarity, aquatic vegetation and adjacent scrub habitats will be lost to the proposal and this should be fully mitigated. A check for amphibians using the pond should be made prior to works and any amphibians found should be translocated elsewhere if possible to avoid harm.

Linear Phase 1 Habitat Loss Calculations

Table 13.31

Mitigation should also be included for any hedgerows/tree lines that will be lost as documented in Table 13.31.

Para 13.244

Is the proposed management of the 47m felling areas intended as habitat mitigation for the scheme? This should be made clear and fully documented in the ES and HMP if this is the case. Also see relevant comments under Para 13.242. If remediation is required due to monitoring findings for bat mortality, then alternative mitigation for habitat should be proposed and put in place, this should be assessed by the HMP steering group on a regular basis.

Para 13.247

See comments under Para 13.53.

Riparian Mammals

Paras 13.261 – 13.263

Para 13.261 highlights an otter shelter approximately 115m from the access track between turbines 9 and 10. This will be considered as a resting place under the Conservation of Habitats and Species Regulations 2010. The assessment undertaken under Paras 13.261 – 13.263 have not considered the impacts of noise and the associated disturbance on otter. It is considered that noise and disturbance is a likely significant impact which has not been addressed in the ES and may alter the significance assessment as detailed in Tables 13.33 and 13.34. Furthermore it is considered likely that a WAG otter licence will be required to carry out the works, the requirements of such should be discussed with CCW. If a licence will be required a mitigation statement considering otter disturbance should be detailed as part of the ES. This issue should also be considered more fully in the ES even if a licence is not required.

Non-Statutory Designated Sites - Offsite Enhancement

Para 13.276

Section 13.276 states that offsite mitigation will be delivered through the restoration of PAWS habitat within the wider Brechfa Forest area. It is considered that this proposed mitigation is inadequate. The mitigation is largely offsite and addresses a habitat which is not significantly affected by the proposals. Furthermore it is considered that clarification should be sought on the PAWS project, if the project is existing, is underway and there is a commitment or statutory obligation to undertake the work anyway, it is considered that this should not be considered adequate mitigation for the development proposal. An activity or commitment which will be delivered anyway should not count as adequate, mitigation or compensation for the proposed wind farm scheme.

Habitats and Flora - Onsite Enhancement

Para 13.282

See comments under Para 8.121 & Paras 8.200 – 8.207, Para 13.242 and 13.244.

On site enhancement - "Creation of undulating topography" - this needs to be expanded so it is clear in the ES exactly what is being created and over what area and with what objectives.

Para 13.283

It is considered that the eradication of Japanese Knotweed should be undertaken as a general site/habitat enhancement and details of a Japanese Knotweed control/eradication strategy should be included within the HMP/CMS. The presence of Himalayan Balsam should also be considered as detailed in Para 13.53.

Pine Marten and Polecat – Offsite Enhancement

Para 13.289

Details of the proposed enhancement measures should be detailed in the HMP and monitoring should also be put in place and detailed in the HMP. Also see comments under Para 13.276.

Residual Impacts – Habitats and Flora

Para 13.304

See comments under Table 13.30.

Cumulative Construction Impacts

Para 13.308

See comments under Para 2.18.

High Risk Bat Species

Para 13.320 & 13.321

See concerns detailed under Para 13.242, this may affect the significance assessment?

Cumulative Operational Impacts

Para 13.340

The ES for Bryn Llewellyn is available and more accurate figures will therefore be available. Consideration should be given to carrying out the analysis with the actual data.

General Comments / Observations

The pond above Tyllwyd, at SN 489307, is not referred to in the ES

Habitat Mitigation and enhancement is considered necessary regarding the losses of the semi-natural areas identified in the ES, and the opening up of the forest for the installation of turbines does provide an opportunity to do this. As stated above wetland habitats should be a feature of a habitat enhancement scheme, together with heathland habitats, scrub some grasslands etc.

Mitigation should address the loss of the Phase 1 habitats noted in table 13.30 regardless of the significance of impact noted in table 13.32

CHAPTER 14: ORNITHOLOGY

Nightjar

Para 14.72

Surveys/assessment should also be undertaken for all nesting birds prior to vegetation clearance or vegetation clearance should be undertaken outside the nesting bird season. The proposed measures detailed in this section of the ES only appear relevant to schedule 1 birds. However all nesting birds are protected under the Wildlife and Countryside Act 1981 and should be a consideration.

Paras 14.62 – 14.68, 14.76, 14.85 – 14.86, 14.91 - 14.102, 14.121 – 14.122, 14.125 – 14.128 and Appendix 13.10 DHMP

Nightjars are sensitive to disturbance at breeding sites. An analysis of operational noise on nightjars concluded that approximately 40% of the population within the site could be affected. There is currently no information on whether the presence and movement of operational turbines might have any displacement affect on nightjars. The ES highlights there is no published information on whether nightjars can be displaced by the noise created by operating turbines, but the ES highlights that it is reasonable to expect that impacts will reduce with distance. Para 14.125 of the ES states that the severity of the potential effects of most wind turbine related impacts, including noise, decreases with the distance away from the turbines and that the most effective forms of mitigation for potential operational noise impacts on nightjar are likely to include ensuring that nesting habitat is available away from turbine locations and that areas near the turbines are less attractive for nightjar nesting. The ES and DHMP sets out mitigation including making areas around the turbines unattractive to nightjar and carrying out a programme of post construction monitoring for nightjar to gather evidence as to whether nightjar are negatively affected by the turbines. It is considered this would be valuable and details of the monitoring protocols should be detailed in the HMP. No other mitigation is proposed and the ES states that only if the monitoring finds that nightjars are being affected by the turbines, will mitigation be put in place. This is considered inadequate and it is considered prudent that offsite mitigation for nightjar should also be put in place prior to the development commencing (following the precautionary principle assuming that there will be a significant negative effect on nightjar) and monitored. This will also allow the direct comparison between mitigation areas and non mitigation areas and also provide valuable monitoring data, this approach will also ensure that there will not be a time lag in delivering mitigation, if a significant affect is identified by monitoring, the provision of offsite nightjar mitigation and monitoring should be ongoing and detailed in the HMP.

Para 14.138

The ES for Bryn Llewellyn is available and more accurate figures will therefore be available. Consideration should be given to carrying out the analysis with the actual data.

Comments on Draft Habitat Management Plan (DHMP).

Para 1.5

Para 1.5 states that six conservation features have been identified in the DHMP, however it appears to contain only five. Taking into account the comments above I consider the DHMP is generally lacking and it should also include sections on the management of the 47m buffer zones, mitigation measures for heath and grassland habitats, details of mitigation and the protection of ponds, details of pine marten and pole cat mitigation, hedgerow and tree line mitigation and details of monitoring where relevant, including, vegetation monitoring, invertebrate monitoring, bat mortality monitoring, nightjar monitoring etc.

Para 3.7

There is no indication/consideration of costings for the proposed mitigation, this should potentially be considered to ensure the proposed mitigation is feasible and deliverable in the long term.

Table 3.1

Due to the timescales and the types of management involved, reptiles and bryophyte mitigation may be a consideration at the decommissioning stage. This is currently not considered. Any potential impacts should be documented and mitigation proposed.

Para 4.2 and Section 5

See comments under Para 13.276.

CHAPTER 15 LANDSCAPE AND VISUAL IMPACTS

Assessment Methodology

Paras 15.4 - 15.57

The ES description of computer modelling and methods employed for creating visualisations are in line with best practice. It is considered that the assessment methodology is reasonable and clearly set out; methodology for defining baseline, magnitude of change and significance criteria is broadly consistent with current best practice and widely-accepted national guidelines published in relation to the assessment of landscape and visual impacts.

However, with reference to Significance Criteria paras. 15.50 to 15.53 and Table 15.2 the following observations are noted: -

The ES states that in para. 15.52. *that 'The predicted impacts in this LVIA are based on a multifaceted assessment using professional judgement and consideration of the sensitivity of the receptor/resource and the magnitude of change..... it should be noted that there is a **gradual transition** between categories and the two axes are not*

necessarily evenly weighted and therefore the final decision on significance comes down to a professional judgement.

It is considered that the *'gradual transition between categories'* described in the ES reflects the continuum of levels of sensitivity and magnitude of change. The same gradual transition between categories also applies to significance. It is noted that the ES assessment utilises interim categories for impacts of minor/ negligible significance [e.g. Viewpoints 21, 30 and 31] i.e. the ES provides an indication that the impact is assessed to be between minor and negligible. This effectively addresses the nature of significance as a *'gradual transition'* and acknowledges that the significance of impact is judged to be between the levels limited by the defined categories. It is noted that interim categories are not utilised for definition of assessments for other levels of significance. It is considered that a more transparent representation of the gradual transition of significance assessments would be provided through utilising interim levels of significance.

Otherwise, it is considered that the assessment methodology is generally, and appropriately consistent with criteria set out in the Scoping

The CCC review of ES assessments provided under the following sections of this report follows the methodology of the ES, however, interim levels of significance are utilised to allow an overview of the transition between categories.

Existing Conditions

Para 15.91.

'There are several existing forest tracks which pass through the wind farm site.'

The Brechfa Forest area is open access land, this factor, and the nature of public access within the site boundary has not been addressed in the description of 'existing conditions.'

Designated Landscapes

Table 15.10

Typo: SLA reference to Sensitive Landscape Area - should read **Special** Landscape Area as CCC Adopted UDP.

Visual Baseline

Para 15.110-15.116 incl. Table 15.11

The visual baseline is described in terms of representational viewpoints and views from settlements. Representative viewpoints are in accordance with recommendations and comments presented as part of the consultation process. The settlements identified within the visual baseline are appropriate and representative.

However, the visual baseline does not take into consideration the visual receptors using the Brechfa Forest area as a recreational resource.

Otherwise, it is considered that the visual baseline is generally, and appropriately consistent with criteria set out in the Scoping

Modifications to Scheme Design [Designed in Mitigation]

Para 15.129

...The wind farm has been designed.... The following aims were observed to achieve a visually acceptable design:

- *Turbines were placed to relate to the topography of the landscape;*
- *Avoidance of turbines seen at a great variety of levels;*
- *Avoidance of turbines specifically located at high points were avoided, which may then look prominent above the rest;*

Locations [grid references] of proposed turbines have not been provided in the ES. Elevations [AOD] of proposed turbine locations have not been provided in the ES to allow the statements concerning design of the relative elevations of turbines to be corroborated. This information should be provided.

It is noted that the CCC Scoping Response specifically identifies [at 3.13] the requirement for the specification of materials – colour, reflectivity and texture. It is considered that appropriate details of the finishes of the proposed turbines have not been provided in the ES.

Para 15.132

Comments on Site Access

The ES does not present details of alternative access options, from the A485, considered in the design process in terms of landscape and visual impacts.

Modifications to scheme design, in para.9.54 [Access, Traffic and Transportation] does not present any evidence of consideration of alternative access routes.

Further to the above, the ES states [para 3.27.] *'A number of options were considered for accessing the site for the delivery of turbines and other construction parts and machinery. Following discussions with CCC and an assessment of the routes using swept-path analysis, a preferred access route has been assessed in the EIA (illustrated in **Figure 9.1**).' It is unclear from the ES whether the options considered included alternative access options from the A485. Discussions have **not** been directly undertaken with CCC in respect of the potential landscape and visual impact of access options.*

Para. 9.41 states that 'the 2009 Access Study', considered three routes for the transportation of abnormal loads including a route via an unclassified road at New Inn. However, details of this study have not been provided in the ES; as such, transparent reasons for selection of the preferred route have not been provided.

The ES states para. 3.28. *'The preferred access route to the site assumes that vehicles will leave the M4 at Junction 49 before turning north of the Alltwallis Wind Farm onto a new access track across agricultural land to the west of the site...*

It should be noted that the proposed entrance is located approximately 200m to the north of the existing Alltwallis wind turbine development site entrance. The proposed access would entail creation of a new site entrance accommodating sufficient swept path area for turbine component delivery and visibility splays.

The eastern highway boundary at this point is formed by existing tree line [possibly mature remnant hedge] interspersed with smaller apparently naturally regenerated vegetation to an earth bank. The existing roadside boundary forms an important element of local landscape character to the road corridor and provides screening of views, both of the existing Alltwallis wind turbine development and the proposed Brechfa West development, from the A485, and from residential properties to the west of the A485 orientated towards the combined developments.

The formation of a new site entrance and associated removal of a section of the eastern highway boundary would result in local landscape and visual impacts. In addition to these impacts, the formation of approximately 2km of new access track from the proposed site entrance would result in additional landscape and visual impacts. The new access track would climb, predominantly perpendicular to the contours, from approximately 200m AOD to 335 AOD to the forested area. The track would traverse open hill land which has depleted hedgerow cover. It is considered that the new access track would be visible in even medium and long range views from the west and north west and would result in adverse visual impacts and landscape impacts to the area traversed by the access road.

An iterative design approach, as recommended in best practice guidance, would suggest consideration of alternative access options from the A485 to mitigate for these impacts. As stated above it is considered that the ES does not provide transparent evidence of this process or justification for the preferred route.

Further to the above, observation of the scheme proposals indicate two obvious alternative access options from the A485: -

- A** Utilisation of the existing site entrance for the Alltwallis wind turbine site, and existing track to a suitable point for access to the proposed Brechfa West development. This option would avoid the landscape and visual impacts arising from creation of a new site entrance and construction of 2km of new access tracks outside the forested area.
- B** Continuation north along the A485 to the right turn junction in New Inn [SN472367]. It should be noted that this is the proposed access route for the proposed Bryn Llywelyn wind turbine development [subject to a current

planning application – E/23947 refers)]. From this junction, a minor road leads to potential site access options on existing road/tracks to the forested area [junction south at SN486354; or, existing forestry track access at SN495354]. This option would not require construction of new access tracks outside the forested area, and as this route has been identified for a proposed development for 127m to blade tip turbines it would be expected that this would represent a viable route.

Whilst the alternatives identified above have not been detailed in the ES, it would appear that both of the above options would appear to provide favourable alternatives to the proposed access route from the A485. It is not clear within the ES whether these options have been considered, and if so, justification for the proposed entrance and access as a preferred route from the A485 has not been provided.

Notwithstanding the above, it is considered that the landscape and visual impacts of the proposed access track from the A485 to the forested area have not been adequately addressed within the ES.

Compatibility with other Wind Farms

Para 15.134

Discussion of general design issues

'Brechfa Forest West Wind Farm was also designed to be as compatible as possible with the existing turbines of the Alltwalis Wind Farm - bearing in mind that the turbines at Brechfa Forest West Wind Farm are likely to have hub heights of around 100m to avoid areas of turbulence above the tree canopy.'

The proposal is based upon 145m to blade tip turbine structures with, as stated, hub heights of around 100m to avoid areas of turbulence above the tree canopy. The ES does not provide transparent justification of the relationship between turbine size and the dynamics of turbulence.

An obvious design stage mitigation to landscape and visual impacts would be the specification of smaller turbines. Draft NPS EN-1 - para 5.9.20 states *'Reducing the scale of a project can help to mitigate the visual and landscape effects of a proposed project. ...'* It would be expected that a reduction in turbine size would have potential mitigation benefits beyond landscape and visual impacts - e.g. access.

Further to the above, the ES states that permission is being sought for turbines with capacity of 2-3MW [para. 3.14]. It is considered that the ES does not provide satisfactory details of the relationship between turbulence effects and justification for the requirement for the turbine size selected. It should be questioned whether capacity within this range could be achieved with a smaller turbine than the maximum for which permission is sought. Whilst the general principle of turbulence is accepted, it is considered that the requirement for turbines to 100m hub height should be interrogated and additional information provided to justify the design size of the turbines and to allow the decision maker to fully consider the appropriateness of the scheme design.

Further to the above, it is noted that an area of 47m radius is proposed for permanent clearance around each turbine site. The potential trade off of impacts between area cleared and required turbine height for the same generation capacity objective does not appear to have been explored. It would be expected that greater clearance could help to result in a smaller turbine for the capacity objective.

In addition, there would be a benefit, in terms of mitigation of landscape and visual impacts by selecting turbines of a dimension more comparable to Alltwallis [110m to blade tip] in terms of the ES aspirations to achieve a better overall relationship with Alltwallis Wind Farm [ES 3.70]

It should be noted that all landscape and visual assessment has been based upon a turbine of 90m diameter, as such all identified impacts relate to this dimension. It is considered that this should be defined as a maximum design parameter upon which decisions are based, as all impact assessments have been based upon this dimension.

Further to the above it is recommended that additional graphic material, in the form of a scaled elevation, be requested, providing an image in which direct visual comparison between the existing Alltwallis turbines and the proposed Brechfa Forest West turbines can be made. This would provide a useful additional assessment tool for the decision maker. Details of tower diameters [at base, midpoint and top] would be beneficial.

Para 15.134

Brechfa Forest West Wind Farm was also designed to be as compatible as possible with the existing turbines of the Alltwallis Wind Farm - ... The Alltwallis turbines have a hub height of 68.5m and are located on higher land whereas the Brechfa Forest West Wind Farm turbines will have a hub height of around 100m and are located on lower ground...

This statement has been interrogated and is found to be factually inaccurate. In the absence of AOD information in the ES, an approximation using contours on OS Explorer Map 1:25000 with estimation to the nearest 5m has been used to compare relative elevations of both existing Alltwallis and proposed Brechfa West Turbines.

The following tables summarise the findings: -

Alltwallis
Base AOD [Tip AOD]
335 [445]
330 [440]
330 [440]
320 [430]
320 [430]
320 [430]
315 [425]

Brechfa West			
Turbine	Base AOD [Tip AOD]	Turbine	AOD Base [Tip AOD]
13	350 [495]	5	310 [455]
23	345 [490]	10	310 [455]
17	340 [485]	22	310 [455]
18	340 [485]	26	310 [455]
8	330 [475]	2	305 [450]
19	330 [475]	15	305 [450]
4	325 [470]	16	305 [450]

Alltwallis
Base AOD [Tip AOD]
310 [420]
305 [415]
300 [410]

Brechfa West			
Turbine	Base AOD [Tip AOD]	Turbine	AOD Base [Tip AOD]
24	325 [470]	27	305 [450]
9	320 [465]	28	305 [450]
14	320 [465]	6	300 [455]
20	320 [465]	1	290 [445]
21	320 [465]	11	290 [445]
3	315 [460]	12	290 [445]
25	315 [460]	7	285 [440]

The table demonstrates the following points:-

- The base AODs of 4 no. Brechfa West turbines are higher than base AODs of the highest Alltwallis turbine.
- Only four Brechfa West turbines have lower base AODs than the base AOD of the lowest Alltwallis turbine.

Accordingly, the statement that the Alltwallis turbines are located on higher ground relative to proposed Brechfa West turbines is not considered to be an accurate representation of the proposal.

The table above also demonstrates the following:-

- The highest Brechfa West turbine base AOD is 15m higher than the highest Alltwallis turbine base AOD.
- All but one of the Brechfa West turbines have a higher tip AOD than the highest Alltwallis turbine tip AOD.
- The nearest Brechfa West turbines to the Alltwallis development [3, 4, 8, 9, 13, 14, 17, 18, and 19] are amongst the highest within the proposed development. This would suggest that the stated aims to achieve a design as compatible as possible with the existing turbines of the Alltwallis Wind Farm have not been effectively delivered in the scheme design.
- The highest Brechfa West turbine tip AOD [no.13] is **50m** higher than the highest Alltwallis turbine tip AOD, ie. 45% higher.

In light of para 5.9.16 of Draft NPS EN-1; that *'the The IPC should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by reasonable mitigation'*.

It is suggested that design stage in mitigation could be expected to consider the following opportunities *'to minimise harm to the landscape:-*

- A Reduce the size of all turbines [within the scope of the 2-3MW capacity objectives]
- B Increase clearance areas around turbines to allow reduction in turbine height.
- C Reduce the size of western turbines [potentially 3, 4, 8, 9, 13, 14, 17, 18, and 19] to improve visual compatibility with existing Alltwallis turbines

It is considered that alternatives have not been transparently explored and sufficient justification has not been provided to demonstrate that design stage mitigation has been undertaken to minimise harm to the landscape.

It is recommended that further information be provided to inform decision makers of the design parameters in relation to turbulence/ turbine size/ clearance and whether the options outlined above have been explored to provide mitigation for significant landscape and visual impacts.

Para 15.135

'The other proposed wind farm partially within the SSA is Bryn Llywelyn...– this layout showed 21 turbines and accompanying literature proposed a maximum tip height of 127m...'

A smaller turbine size for Brechfa West would also improve visual compatibility with the proposed turbines at the adjacent site at Bryn Llywelyn.

Assessment of Construction impacts

Para 15.136

The description of effects resulting in potential impacts on landscape and visual amenity during construction, **only** identifies the plan areas of the infrastructure elements and does not provide a quantification of associated areas of clearance and peripheral construction requirements, as such it is concluded that the assessment of impacts does not include the landscape and visual effects arising from the following:-

- Temporary felling areas as referenced in para. 15.139 as 19% of existing coniferous forestry cover. Illustrated on Fig.15.2
- Permanent felling areas around turbine locations of 47m radius. [Para 13.242]
- The extent of cut and fill operations to achieve level areas for construction of all infrastructure elements.
- Additional widths of [up to] 2.7m width for cable array trenches associated with access tracks, plus any required offset and any associated drainage requirements.

It is noted that extended dimensions are used in Habitat loss calculations described in para.13.228 and Table 13.29. Para 13.228 acknowledges that *'Habitat loss dimensions are larger than the dimensions for infrastructure to allow for excavation slope edges, and peripheral habitat loss...'* These extended dimensions have not been described under landscape and visual effects. It is considered that this is an oversight in the ES and would result in an understatement of the landscape and visual impacts arising from the construction phase of the scheme.

Para 15.137

Cross reference to Appendix 3.3 para 29.

It is considered that the local impacts to landscape character arising from the removal of roadside boundary vegetation; and the visual impact upon residents to the west of the A485 at the proposed site entrance have not been sufficiently covered within the ES.

Para 15.137

*'In addition, some limited construction related impacts will occur offsite.....Further to these, offsite impacts will arise due to the creation of the grid connection to Swansea North via an overhead line (subject to a separate application), as described in **Appendix 3.2.***

Comments relating to Grid Connection Route Assessment.

It is stated in the ES that the proposed Grid Connection will be subject to a separate planning application by Western Power Distribution.

It should be noted that baseline visual conditions in the form of features/ receptors are not identified in Table 1: Summary of baseline conditions. Some brief commentary upon visual impacts is provided in paras 41 to 52 however the assessment is not comprehensive. The CCC Scoping Opinion response states that *"Landscape and visual impacts arising from ancillary and related elements of the proposal should be included within the ES to provide full representation of the potential impacts. Ancillary elements related to this proposal with potential landscape and visual impacts would be expected to include the following:-*

- *Proposed connections to the National Grid, including connection point, pylons and proposed route corridor."*

It is not considered that a full or sufficient representation of the potential impacts has been provided in the ES.

Based upon information presented in ES Appendix 3.2, the route appears to be located along a sensitive corridor. Initial broad scale review of the route reveals that approximately 70% of the combined Brechfa East and West grid connection route passes through LANDMAP Visual and Sensory Aspect Areas of either High or

Outstanding value. The ES identifies important historic landscape features and visitor attractions within the route corridor or within the study area

Further to the above, the ES does not explore alternative options for the Grid Connection which may represent less significant impacts upon landscape and visual amenity. It is noted that Draft NPS EN-1 para. 4.4.2 [first bullet] states that *'applicants are obliged to include in their ES, as a matter of fact, information about the main alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility;*

It should be noted that the paragraph above refers directly to environmental and social effects which can be considered to relate to impacts upon landscape and visual amenity.

It is considered that the proposed grid connection should be fit for purpose and should ideally provide the necessary infrastructure for all the proposed developments and for further schemes that may be forthcoming in the SSA. The connection should also provide enough capacity for these schemes, to avoid the connection requiring further upgrading in the future, which may result in landscape and visual impacts of greater significance. The cumulative landscape and visual impacts of the effects with the proposed developments and the grid connection should be considered as part of an appropriate landscape and visual assessment.

Predicted Construction Impacts on the Landscape of the Surrounding Area

Para.15.146.

'Beyond the wind farm site, perception of construction activities will be limited to views of cranes and assembly of turbines above the tree canopy, offsite works to access routes, and abnormal loads using these routes. Coniferous forest will screen views of ground level elements and activity. The extent of visibility of cranes and partly constructed turbines will be the same as for the turbines during operation which is described in detail in the assessment of operational indirect effects on the landscape'

It should be noted that the additional effects of clearance works for infrastructure and access tracks; i.e. temporary felling areas [19% of existing coniferous forestry] will be evident in views from the surrounding area and would be expected to contribute to indirect impacts on landscape. These elements of the construction phase have not been included in description of the predicted impacts within the ES. It is considered that landscape character areas represented by the following viewpoints will be subject to these additional effects: - Viewpoint 1 - Mynydd Llanfihangel-rhos-y-corn summit; Viewpoint 3 - Gwarallt; Viewpoint 5 - Plasmawr/Danybanc; Viewpoint 8 - East of Gilfach-y-rhiw.

Predicted Construction Impacts on Views

Para. 15.148

Further to comments relating to existing conditions and visual baseline, [ie. the ES does not take into consideration the visual receptors using the Brechfa Forest area **within** the site boundary as a recreational resource.] Assessment of impacts of these receptors has not been addressed in the ES. Chapter 3 addresses the nature of access and concludes that public access will be maintained during construction. Assessment of construction impacts upon the visual amenity of recreational users of the Brechfa Forest area **within** the site boundary should be included in the ES. It would be expected that the impacts would be **major significance** and of an **adverse** nature.

Assessment of Operational Impacts

Para. 15.154.

The presence of permanent clearance areas of 47m radius per turbine is not identified as a main potential impact on landscape and visual amenity.

Anemometer mast description [second bullet] states '*on **concrete** hardstanding of 1000m²*'; this specification is not detailed elsewhere in the ES - Clarification should be requested.

Predicted Operational Impacts on Character of the Landscape

Table 15.13 Impact on Wales Landscape Character Areas within 35km of site

21 Cambrian Mountains

The ES concludes an assessment of overall **negligible** impact upon the LCA as a whole, however, it should be noted by the decision maker that the assessment identifies landscape impacts of **major** significance in areas of high sensitivity up to about 2-3 km of the site and impacts of **moderate** significance up to about 5 km from the site. It is acknowledged that these impacts are considered in more detail in the LANDMAP aspect area assessments.

Table 15.14: Impact on LANDMAP Aspect areas directly affected

Brechfa Forest CMRTVS330

The ES only addresses the turbine structures in the commentary on magnitude of change and does not include the effects arising from infrastructure and permanent clearance within the forested areas; however, it is not considered that this would have any implication to the overall significance of effect. It is considered that the proposed development would have a **major, long term, adverse, direct** impact upon the area defined by the aspect area [as ES assessment]

Mynydd Trebeddau CMRTVS870

This aspect area is assessed in terms of the direct impacts of the proposed access track from the A485 to the forested area. However, it is noted that this aspect area will also be indirectly affected by the impact of the turbines within the adjacent aspect area. The ES does not provide an assessment of these impacts upon landscape character. This should be provided. It would be expected that the impacts would be of **moderate** significance and of an **adverse, long term** nature.

Table 15.15: Significant Impacts on LANDMAP Visual and Sensory Aspect areas within 10km of site

Mynydd Llanllwni CRMRTVS734

It is considered that the significance of impacts to this visual and sensory aspect area has been **understated** in the ES. The sensitivity to Wind Farm Development is assessed as high in the ES; this is considered appropriate. However, the magnitude of change is considered to be of a **medium/high** order, as the proposed development will represent a prominent interruption within the 360 degree views for which the aspect area is identified as important on a county scale in LANDMAP.

It is considered that the impact upon this visual and sensory aspect area would be **major/moderate, long-term, adverse [Significant]**

Predicted Operational Impacts on Designated Landscapes

15.161 and Table 15.16:

Typo: SLA reference to Sensitive Landscape Area - should read **Special** Landscape Area as CCC Adopted UDP. Otherwise no adverse comments or observations

Predicted Operational Impacts on Views from Viewpoints

General Comments:

Viewpoint plans and associated data are well presented and thorough in terms of information provided.

Viewpoint visual representations and photomontages are of good quality, however, the following should be noted by decision makers when viewing the representations:

Viewpoint representations to be viewed at 45 cm [recommended viewing distance] are generally not able to be viewed as a continuous panorama i.e. continuations are on separate pages or separated by A3 page bindings [this is not in compliance with best practice as set out in Visual Representation of Wind Farms: Good Practice Guide; it may be considered appropriate to request fold out copies of representations, to aid assessment.

Wireframe representations indicate all turbines in an unnatural arrangement in terms of blade orientation, all rotors are presented symmetrically. This may result in a visual perception of order which would not be evident in an operational situation. It is acknowledged that photomontages indicate a natural randomisation of rotor angles.

CCC review of ES Viewpoint Assessments.

The CCC review of ES assessments provided below follows the methodology of the ES, however interim levels of significance are utilised to allow an overview of the transition between categories [as described in commentary under Assessment Methodology of the ES in this report].

Viewpoint	ES Assessment Table 15.49	CCC Review
Viewpoint 1 - Mynydd Llanfihangel-rhos-y-corn Cairn Summit	Major adverse, long-term	<p>It is noted that forestry clearance is not represented in photomontages from this viewpoint, at this proximity it would be envisaged that this would have an effect on the view, and as such the combined impact of this, plus the extended turbine tower [assumedly shown concealed by forestry] should be considered when viewing this image. From this viewpoint the ‘stacking’ of turbines 1, 13 [not numbered] and 19 would result in additional adverse visual effects. It is considered that the proposal would represent a major adverse, long-term impact [as ES] Significant</p>
Viewpoint 2 - Alltwalis	Moderate adverse, long-term	<p>It is considered that the magnitude of change to the view at this viewpoint has been understated in the ES. The location of turbine 3 is distinctly prominent within the view framed by topography and is significantly taller than the existing Alltwallis turbines, representing a medium magnitude of change. The ES identifies a high sensitivity at this viewpoint. It is considered that this would represent a major/moderate adverse, long term impact Significant</p>

Viewpoint	ES Assessment Table 15.49	CCC Review
Viewpoint 3 - Minor road, close to Gwar-allt	Moderate adverse, long- term	It is considered that visual impacts from this viewpoint have been understated. The character of the viewpoint is of a recreational nature [nearby car park and picnic site] hence a medium/high sensitivity would be appropriate. It is also considered that the proposal would result in a high magnitude of change, due to the relative proximity to the viewpoint [2.21km] and the effects of 'stacking' and 'overlapping', [particularly turbines 27 and 13] This would represent a major/moderate adverse, long term impact. Significant
Viewpoint 4 - Gwyddgrug	Moderate adverse, long- term	A limited number of turbines are visible from this viewpoint. Although further away than the existing Alltwallis turbines, as stated in the ES, Turbine 17 would represent a new significant prominent element. It is considered that medium magnitude of change would more accurately represent the nature of the proposal in the view, receptor sensitivity is assessed in the ES as high, as such it is considered that the impacts would be of a major/moderate adverse, long term nature. Significant
Viewpoint 5 - Plasmawr/ Danybanc	Moderate adverse, long- term	It is considered that the magnitude of change to the view at this viewpoint has been understated in the ES. The magnitude of change is closely consistent with that from viewpoint 8 - East of Gilfach-y-rhiw; with all 28 turbines visible across the skyline. This viewpoint is at a closer distance than viewpoint 8 as such it is considered that the magnitude of change would be high [as VP 8]. It is considered that the sensitivity assessment in the ES [medium] is appropriate and that the proposal would represent a major adverse, long term impact. Significant
Viewpoint 6 - Brechfa	Minor adverse, long-term	Minor adverse, long-term [as ES]

Viewpoint	ES Assessment Table 15.49	CCC Review
Viewpoint 7 - Horeb Road Crossroads B4310	Moderate adverse, long- term	It is considered that the visual impact on viewers at this viewpoint has been understated in the ES. The viewpoint is located within an SLA [designated landscape] and is located on the promoted Tywi-Cothi Tour as such a medium/high sensitivity would be considered a more appropriate assessment. The turbines will be viewed as prominent elements within a framed view and a significant extent of 'stacking' and 'overlapping' will add to the visual effects, as such, it is considered that a medium/high magnitude of change would be experienced at this viewpoint; representing a major/moderate adverse, long term impact. Significant
Viewpoint 8 - East of Gilfach- y-rhiw	Major adverse, long-term	Major adverse, long-term [as ES] Significant
Viewpoint 9 - Llanllwni	Moderate adverse, long- term	It is considered that magnitude of change from this viewpoint has been understated in the ES. Turbines 7, 13, 17, 18, 19 and 23 introduce significantly taller elements into the view and as such a medium/high magnitude of change is considered an appropriate assessment. The ES sensitivity assessment [medium] is considered appropriate, representing a major/moderate adverse, long term impact. Significant
Viewpoint 10 - West of Pencader	Moderate, long- term, neutral	The ES states that the impact from this viewpoint is of a neutral nature. It is considered that this is an error as impacts from all other viewpoints are assessed as adverse; however, clarification should be requested. It is considered that the magnitude of change is understated in the ES; the proposal extends the angle of view affected by turbines and the highest turbines within the proposed development are prominent within this view; representing a medium/high magnitude of change. The ES assessment of viewpoint sensitivity is appropriate, representing a major/moderate adverse, long term impact. Significant

Viewpoint	ES Assessment Table 15.49	CCC Review
Viewpoint 11 - Crug-y-biswal, Pen Llwyn- uchel	Moderate, long- term, neutral	<p>As for viewpoint 10 the ES states that the impact from this viewpoint is of a neutral nature. It is considered that this is an error as impacts from all other viewpoints are assessed as adverse; however, clarification should be requested.</p> <p>It is considered that the sensitivity is understated in the ES; the viewpoint is on open access land within a Special Landscape Area as such medium/high sensitivity would be an appropriate assessment. Turbines are prominent within the view with a significant extent of 'stacking' and 'overlapping', as such it is considered that a medium/high magnitude of change would be appropriate representing a major/moderate adverse, long term impact. Significant</p>
Viewpoint 12 - Llanpumsaint	Moderate adverse, long- term	<p>The Brechfa West proposal significantly extends the angle of view affected by turbines from this viewpoint; it is considered that the magnitude of change has been understated and that a medium assessment would be more accurately represent the effects of the proposed development. [Using VP 17 as calibration guide it is evident that the proposal would result in a greater magnitude of change than the low/medium ascribed in the ES] The ES assessment of sensitivity [high] is appropriate, representing a major/moderate adverse, long term impact Significant</p>
Viewpoint 13 - Llidiad Nenog	Moderate adverse, long- term	<p>It is considered that the magnitude of change is understated in the ES; all 28 turbines are visible as prominent elements within the view representing a medium/high magnitude of change. The ES assessment of sensitivity [medium] is appropriate; representing a major/moderate adverse, long term impact. Significant</p>

Viewpoint	ES Assessment Table 15.49	CCC Review
Viewpoint 14 - Llanfihangel - ar-Arth	Moderate adverse, long- term	It is considered that the view is representative of residents of the nearby Heol Mafon, as such it is considered that the sensitivity of the viewpoint should be more appropriately assessed as medium/high resulting in a major/moderate adverse, long term impact. Significant
Viewpoint 15 - Blaenuad Forest	Moderate adverse, long- term	It is considered that the magnitude of change is understated in the ES; all proposed turbines are visible with significant 'stacking' and 'overlapping', this viewpoint also clearly demonstrates the relative elevation of Brechfa West turbines in relation to those of the existing Alltwallis wind farm, [it should be noted that the Alltwallis turbines are located closer to the viewpoint] It is considered that a medium/high magnitude of change. Using VP 17 as calibration guide it is evident that the proposal would result in a greater magnitude of change than the medium ascribed in the ES. This would result in a major/moderate adverse, long term impact Significant
Viewpoint 16 - Llandysul	Moderate adverse, long- term	Moderate adverse, long-term [as ES] Significant
Viewpoint 17 - A475, lay-by west of Cwm- sychbant	Moderate adverse, long- term	At 11.96 km the ES identifies the magnitude of change as medium . CCC concurs with this assessment and have used this viewpoint to cross calibrate mid to long range views. Moderate adverse, long-term [as ES] Significant
Viewpoint 18 - Mynydd Cynros	Moderate adverse, long- term	Moderate adverse, long-term [as ES] Significant

Viewpoint	ES Assessment Table 15.49	CCC Review
Viewpoint 19 - Paxton's Tower	Moderate adverse, long-term	Moderate adverse, long-term [as ES] Significant
Viewpoint 20 - Forest Picnic Site, Blaen Esgair	Minor adverse, long-term	It is considered that the ES assessment of sensitivity is understated from this viewpoint; a medium/high sensitivity due to the recreational nature of the viewpoint is considered to be a more accurate assessment, resulting in increased significance. However, the increase will not result in a significant impact in EIA terms Minor/moderate adverse, long term Not Significant
Viewpoint 21 - Dinefwr Park	Minor/negligible adverse, long-term	The location of the individual tree in the view is unhelpful to assessment of photomontages from this viewpoint. The viewpoint is in an SLA and a designated historic park and, as such it is considered that the sensitivity is understated , however, this would not result in a significant change in the ES assessment of minor/negligible adverse, long-term. Not Significant
Viewpoint 22 - A475, Aberbanc	Minor adverse, long-term	Minor adverse, long-term impact [as ES] Not Significant
Viewpoint 23 - Dinefwr Castle	Minor adverse, long-term	Minor adverse, long-term impact [as ES] Not Significant
Viewpoint 24 - Gelli Aur Country Park	Minor adverse, long-term	The viewpoint is in an SLA and a recreational landscape; as such it is considered that the sensitivity is understated from this viewpoint. An assessment of high sensitivity would be considered appropriate, representing, with a low magnitude of change a minor/moderate adverse, long-term impact. Not Significant
Viewpoint 25 - Crwbin	Minor adverse, long-term	Minor adverse, long-term impact [as ES] Not Significant

Viewpoint	ES Assessment Table 15.49	CCC Review
Viewpoint 26 - A482 Lay-by south west of Banc Goleugoed	Minor adverse, long-term	Minor adverse, long-term impact [as ES] Not Significant
Viewpoint 27 - Beacons Way Footpath, Carn Goch	Minor adverse, long-term	Minor adverse, long-term impact [as ES] Not Significant
Viewpoint 28 - Scotch Pine Public House, Mynydd y Betws	Minor adverse, long-term	Minor adverse, long-term impact [as ES] Not Significant
Viewpoint 29 - Carn Pen Rhiw-ddu	Minor adverse, long-term	Minor adverse, long-term impact [as ES] Not Significant
Viewpoint 30 - Y Pigwn Roman Camp	Minor/negligible adverse, long-term	Minor/negligible adverse, long-term impact [as ES] Not Significant
Viewpoint 31 - Near Fan Foel	Minor/negligible adverse, long-term	Minor/negligible adverse, long-term impact [as ES] Not Significant

Summary comments on CCC Review of ES Viewpoint Assessments

The review of the viewpoint assessment has identified some instances in which it is considered that the magnitude of change or viewpoint sensitivity has been understated in the ES. Where this is considered to be the case a revised assessment has been provided as part of the CCC review. These revised assessments are based upon professional judgement on the information presented in the ES and site observation.

The CCC review has utilised interim levels of significance [between criteria identified in the ES Table 5.12] to allow identification of significance between moderate and major.

Notwithstanding the outcome of the review, it should be noted that the revised assessments do not change the **pattern** of significance of impacts from that presented in the ES. A summary of the viewpoint assessment review and the ES assessments reveal the following:-

- All viewpoints within 13km of the nearest turbine [with the exception of viewpoint 6 -Brechfa] will be subject to significant adverse visual impacts.

It is recommended that comments made in relation to scheme design, particularly in terms of turbine heights should be fully considered in the context of the pattern of significant visual impacts. It is considered that a reduction in turbine height, particularly of the westernmost turbines would provide mitigation for these significant adverse visual impacts.

Visual Impacts on settlements during operations

Table 15.48

Settlements 0 to 5km from nearest turbine

Alltwallis

As stated in CCC commentary of Viewpoint 2 it is considered that the ES has **understated** the visual impacts from this representative viewpoint and that properties and areas of Alltwallis with views to the proposed development will be subject to **major/moderate adverse, long term** impacts. **[Significant]**

Gwyddgrug

As stated in CCC commentary of Viewpoint 4 it is considered that the ES has **understated** the visual impacts from this representative viewpoint and that areas and properties within Gwyddgrug will be subject to **major/moderate adverse, long term** impacts. **[Significant]**

New Inn

It is considered that the ES assessment is appropriate but more fully described as **minor adverse, long term [Not Significant]**

Gwernogle

It is considered that the ES assessment is appropriate - **Negligible [Not Significant]**

Pontarsis

It is considered that the ES assessment is appropriate - **Moderate [Significant]**

Brechfa

It is considered that the ES assessment is appropriate - **Minor [Not Significant]**

Pencader

It is considered that the ES assessment is appropriate - **Minor [Not Significant]**

Dolgran

It is considered that the ES assessment is appropriate - **Minor [Not Significant]**

Llanllwni

As stated in CCC commentary of Viewpoint 9 it is considered that the ES has **understated** the visual impacts from this representative viewpoint and that that properties and areas of Llanllwni with views to the proposed development will be subject to **major/moderate adverse, long term** impacts. **[Significant]**. However, it is acknowledged that the nature of topography and the form of the settlement will result in this impact being experienced from limited areas.

Settlements between 5 and 10km from nearest turbine

Llanpumsaint

As stated in CCC commentary of Viewpoint 12 it is considered that the ES has **understated** the visual impacts from this representative viewpoint and that that properties and areas of Llanpumsaint with views to the proposed development will be subject to **major/moderate adverse, long term** impacts. **[Significant]**. However, it is acknowledged that the viewpoint is not representative of the settlement and as such this impact will be experienced from limited areas.

Llanfihangel-ar-arth

As stated in CCC commentary of Viewpoint 14 it is considered that the ES has **understated** the visual impacts from this representative viewpoint and that that properties and areas of Llanfihangel-ar-arth with views to the proposed development will be subject to **major/moderate adverse, long term** impacts. **[Significant]**. However, it is acknowledged that the viewpoint is not representative of the settlement as a whole and as such this impact will only be experienced from areas with views of the proposal, and that the main body of the settlement would not be subject to significant impacts.

Rhydargaeau

It is considered that the ES assessment is appropriate - **Moderate [Significant]**

Llandysul

It is considered that the ES assessment is appropriate - **Moderate [Significant]**

Additional mitigation

Para 15.170

The Habitat Management Plan would not be expected to provide additional mitigation to visual impacts.

General Comment on Additional Mitigation

The opportunities for further visual mitigation through toning the turbine tower bases is not stated as having been addressed as part of designed in mitigation. It is considered that, for this site, in which the turbines are based in forested areas, and with some close to mid range views including the base of the tower against a backdrop of forestry, this approach may provide effective visual mitigation. It is recommended that this opportunity be explored.

Micrositing

Para 15.173

The micrositing scope of 50m may result in adjustment of turbine locations to higher elevations. It is considered that this would lead to an increase in the magnitude of change of landscape and visual effects and would lead to an increase in the significance of impacts. It is recommended that these effects be fully considered in micrositing. It may be considered appropriate to impose a constraint on micrositing, which would restrict adjustment to a location of higher elevation than that used for the ES assessments.

Cumulative Landscape and Visual Impact Assessment

The cumulative landscape and visual impact [CLVIA] assessment undertaken in the ES addresses the effects in cumulation with existing, consented and pre application wind farm schemes, as agreed through the consultation process. The methodology adopted is in line with best practice and the assessment is clearly set out.

APPENDIX 15.8: RESIDENTIAL VISUAL AMENITY ASSESSMENT

General Comments

Further to comments made in relation to Table 15.2 under commentary on overall methodology above, the following is noted: -

In **all** residential viewpoint assessments in which a 'medium' magnitude of change has been identified, experienced by a residential receptor [high sensitivity], the impact has been assessed as of 'moderate' significance. Table 15.2 would provide a

significance of 'Moderate or major' in this situation. It is considered that the assessments do not transparently demonstrate the nature of significance, and provide an overall picture of a lower significance than would be suggested by Table 5.12. It is considered that for the purpose of the decision maker it should be noted that all impacts of 'Moderate' significance recorded in the residential viewpoint have been derived from a 'Moderate or major' assessment. Further to the above, it is considered that the significance assessments would be more usefully identified with the interim category of '**major/moderate**' to clarify the level of significance to the decision maker as within the transition between moderate and major.

Likewise, Table 5.12 would identify a significance of 'minor or moderate' for a 'low' magnitude of change, experienced by a residential receptor [high sensitivity]. The ES presents assessments of 'minor' significance for **all** viewpoints of this nature. As above, it is recommended that these viewpoint assessments would be more usefully identified with the interim category of '**minor/moderate**'

Notwithstanding the points above, which relate to an issue of calibration, the ES generally provides a thorough assessment of residential visual amenity; CCC have undertaken site visits to corroborate the observations and assessments and are broadly in agreement with the magnitude of change assessments.

CHAPTER 16: NOISE AND VIBRATION

CCC has commissioned consultants Parsons Brinkerhoff Ltd (PB) to undertake a review of the noise assessment presented in the Environmental Statement. The format of the noise review differs to that used throughout this consultation report, and rather than a systematic commentary of the individual paragraphs within the chapter, the appointed consultant has divided the review into sub-categories for assessment. The review is detailed as follows:

Baseline Noise Measurements

The applicant has undertaken noise measurements at eight locations around the proposed wind farm which were agreed in advance with CCC. These locations appear to provide a good coverage of the closest affected properties around the wind farm. Measurement positions within the properties also appear to comply with amenity space areas, and away from undue influences such as reflective barriers or alternative noise sources. The time periods covered the necessary range of day parts, and there is both weekday and weekend measurements. The rain affected data that has been removed is helpfully shown in Appendix 16.5.

Wind speeds have been measured at heights of 70 and 50 metres above ground on a met mast located to the north of the site. Given that this was the only met mast on the site, and with such a large site, there is perhaps some doubt of how representative these wind data are to the southern end of the site. The data file of wind data was made available by the applicant for this review, and there is no reason to doubt the validity of the wind data obtained.

A review of the raw wind data also provided by the applicant confirms that a suitable range of wind speeds and directions were also measured during the survey.

Analysis of the ambient noise data is provided in Appendix 16.5 Figures 1 – 26 for the ETSU time periods of “Amenity hours” and “Night Time”. The range of data points illustrated in these figures appears to suggest a relationship between ambient noise and increasing wind speed in all cases, once rain and extraneous data has been removed.

CCC and the appointed consultant undertook a site visit in March 2011, and visited the general area around the proposed wind farm close to the nearest residential receptors. My subjective impressions were that the area is extremely quiet even for a rural area, and following discussions with CCC’s Environmental Health Section, the consultant has no concerns that the data recorded and collected by the applicant is in any way untypical for the area. PB are also satisfied that where proxy locations have been used to be representative of properties, these appear to be accordance with their subjective impressions of the locations.

Some concern is raised in relation to the background noise levels at several properties from the consented Alltwalis wind farm, which has been assessed against for this proposal. For example, the property at Gellifelen shows higher background noise levels than that obtained by the applicant for Blaen – Gwyddgrug, which appears to be in an equally sheltered location. This could be indicative of a change in the ambient noise level since the Alltwalis data was obtained.

ETSU-R-97 Derived Noise Limits

The applicants have submitted their calculated noise limits for the proposed wind farm in Tables 16.9 & 16.10. These all appear to be calculated correctly.

In Table 16.10, a lower night time fixed limit of 43 dB(A) has been applied to all properties other than residents that have a financial involvement for which the higher 45 dB(A) limit is available. It is noted that the only properties making use of the higher limit are properties Pen Llwydcoed and Blaengwen Farm, both as a result of their financial involvement in the Alltwalis farm. It is perhaps questionable as to whether these locations would be prepared to accept a higher noise level as a result of the proposed wind farm on top of those levels currently experienced.

A lower fixed limit of 40 dB(A) has been proposed by the applicant for the ETSU –R-97 daytime hours, by virtue of the low number of properties affected, the effect of the noise limits on the kWh generated, and the duration and level of exposure.

Turbine Noise Immission Calculations

The applicant has used “warranted” noise data for a candidate turbine, and the propagation algorithms of ISO 9613-2. This is the preferred method of calculation of Immission levels at the nearby receptors. It would be helpful if a sample calculation could be provided in spreadsheet form to assist validation of the calculations made. Preliminary checks appear to have replicated the reported results to an acceptable level of accuracy; however the topography information was not available.

Compliance with ETSU-R-97 Limits

The applicant has demonstrated that the candidate turbine is compliant with the ETSU-R-97 derived noise limits for the proposed Brechfa Forest West wind farm.

Recent experience has demonstrated that compliance with the ETSU-R-97 limits does not necessarily result in the prevention of noise disturbance from the wind farm development. Introducing ETSU compliant wind turbine generators into an area of already very low background noise has resulted in complaints being made to the Local Authority from another wind farm in close proximity to the proposed development site. It is recognised that this, however, must be balanced with the overall need for energy production, as discussed below.

The key considerations are therefore as follows:

- Low Frequency Noise & Infrasound
- Wind Shear
- Excessive Amplitude Modulation of Aerodynamic Noise (AM)

The applicant has considered the potential for Low Frequency Noise and Infrasound in a qualitative way by review of the available literature. No calculations have been offered to supplement their conclusion that it will not be a factor, and this is not considered to affect the conclusions of the ES. A Low Frequency Noise Investigation procedure is available to Local Authorities (Defra report NANR 45) in the event that any final installation exhibits Low Frequency Noise, and can be dealt with by suitable planning conditions and/or existing Statutory Nuisance provisions.

Many papers have explored the potential impact that wind shear can have on the prediction of wind turbine noise immission. This is noted, and the implementation of the methodology detailed in Paragraphs 16.48 to 16.50 satisfactorily addresses this issue in accordance with current good practice.

The remaining issue is that of the potential for excessive Amplitude Modulation (AM). The applicant has drawn from the 2007 Salford Report and the subsequent Government statement. This will undoubtedly be the issue of most concern for nearby residents, as it is widely reported in the press as being an area of uncertainty in wind turbine noise assessments.

In layman's terms, AM is how much the signal varies in a given time period. Wind Turbine Noise exhibits properties with a cyclical nature, usually about once per second, and it is reported that these effects are perceived more at lower wind speeds when the turbine noise is less likely to be masked by other wind induced noise.

There is still much debate on whether AM can be predicted, with the current consensus being that it cannot. Consideration has been given in this instance to the Inspectors Report for the Wadlow Wind Farm (2007), where the inspector gives regard to two kinds of AM, namely that considered in the ETSU-R-97 methodology and "Other AM" factors. He dismisses AM as reported in ETSU-R-97 as being

inclusive in the methodology, and not requiring further consideration. In relation to “other” AM, he states:

“The position regarding noise is more complex. I am satisfied that the proposal meets the requirements of ETSU-R-97 and that planning conditions can be formulated to act as an additional safeguard to ensure that the noise immission accordingly predicted would not be exceeded. However, as matters currently stand, I cannot affirm that local residents would not be exposed to “other” AM that ETSU-R-97 does not recognise. It might be possible to come to a different conclusion in the future if on-going work by the Appellant Company reaches fruition, the Noise Working Group or others are commissioned to undertake further research, or ETSU-R-97 is reviewed.(Para 12.119)

In the case of the Fullabrook Wind Farm application the then Secretary of State for Trade and Industry accepted the Inspector’s finding, in similar circumstances, that the possible basis for a departure from PPS22 (paragraph 22) and ETSU-R-97 “...is not there and that to impose Option 2 (a condition incorporating noise limits for the night-time period) would be to unnecessarily curtail power output from this development”. That finding was reached given the “unlikely event that AM were experienced”. (Para 12.120)

There is similarly by no means any certainty that “other” AM would arise in this case if this appeal was to be allowed – it remains no more, and no less, than a potential risk. All the evidence to date indicates that such risk is very small indeed. Even if “other” AM did occur, and to the extent it is directional rather than all-pervading at any particular distance, it would be likely to affect a relatively small number of people and properties and, at least in some of its alleged forms, only periodically, very infrequently and for short periods of time. The effect, although audible, might also be judged to fall within a threshold of acceptability. Weighing against that potential risk is the relative certainty of climate change and the importance attached by Government to measures designed to address it, among which is the increased generation of electricity from wind turbines. Increased diversity and security of energy supply are also of relevance to the public interest. In the circumstances of this particular case, where separation distances to even the few nearest properties are all in excess of 800m, I come to the conclusion that it would be a disproportionate response to the uncertain nature and small scale of the risk involved to dismiss this particular appeal on the basis of “other” AM, and that nearby residents would be adequately protected from likely turbine noise by the “normal” ETSU-R-97 style of condition. That, however, is a finely balanced conclusion given the potential severity of effect should “other” AM actually occur.” (Para 12.121)

It is considered that this decision, whilst not setting a precedent, highlights several key points. Firstly, it notes that “Other” AM should be considered as a potential risk, of which there is a small chance of occurrence, rather than a material fact. Secondly, it notes that the ETSU-R-97 guidance (and by implication the agreement reported in the IOA paper) are appropriate to demonstrate compliance with Government Policy on Wind Farm Noise. Thirdly, No conditions or penalties for AM should be applied, as any condition would not meet the six tests of Circular 11/95.

There is another Inquiry (Den Brook 2010) where the inspector took a different view on the issue of “other” AM, and did set an AM condition. The facts of the Den Brook Inquiry could potentially be similar to those under consideration here.

In this instance, there are several properties who would be directly downwind of several turbines at the same time in the prevalent wind directions, such as locations 10, 15, 12 & 27. Clarification should therefore be sought from the applicant as to the increased risk of “other” AM.

Cumulative Impact

The proposed wind farm at Brechfa Forest West would sit alongside the existing wind farm at Alltwalis, as well as the proposed wind farms at Brechfa Forest East and Bryn Llywelyn. The applicant has offered an analysis of the noise data in their Appendix 16.6 which shows, for the same common wind speed across all sites, the cumulative noise levels that could occur at the assessment locations. This is an important assumption that needs clarification since the noise data (and therefore noise limits) for the three proposed wind farm sites is correlated with hub height wind speed, and the noise data for the consented Alltwalis wind farm is correlated with 10m wind speed measurement. There will be some difference between the two methods, and it is unclear what the effect of wind shear would have on the Alltwalis consented locations in relation to cumulative impact.

Of further concern is where receptor locations are subject to noise limits, but could be impacted from more than one wind farm. ETSU-R-97 states that the noise limits at receptor locations should include all noise from other wind farms, yet the planning conditions only relate to the wind farm being assessed at the time. It is therefore possible for the existing consented wind farm to use all the available noise “headroom”, leaving nothing available for the contribution from other wind farms, and potential breaches of the ETSU-R-97 limits.

In this case, consideration needs to be given to this occurring for properties that are currently consented as part of the Alltwalis wind farm that would be affected by the Brechfa Forest West wind farm proposal, and those locations that would be affected by both the Brechfa Forest West and the Bryn Llywelyn sites. The dwelling at Gellifelin, Gwyddgrug could be one such property and therefore will need to be carefully assessed.

The applicant has not shown graphically how the noise from each respective wind farm would influence noise levels at the surrounding receptors, but the following Figure 1 shows the area affected by the existing Alltwalis wind farm, the proposed Brechfa Forest West wind farm, and the southern edge of the proposed Bryn Llywelyn wind farm.

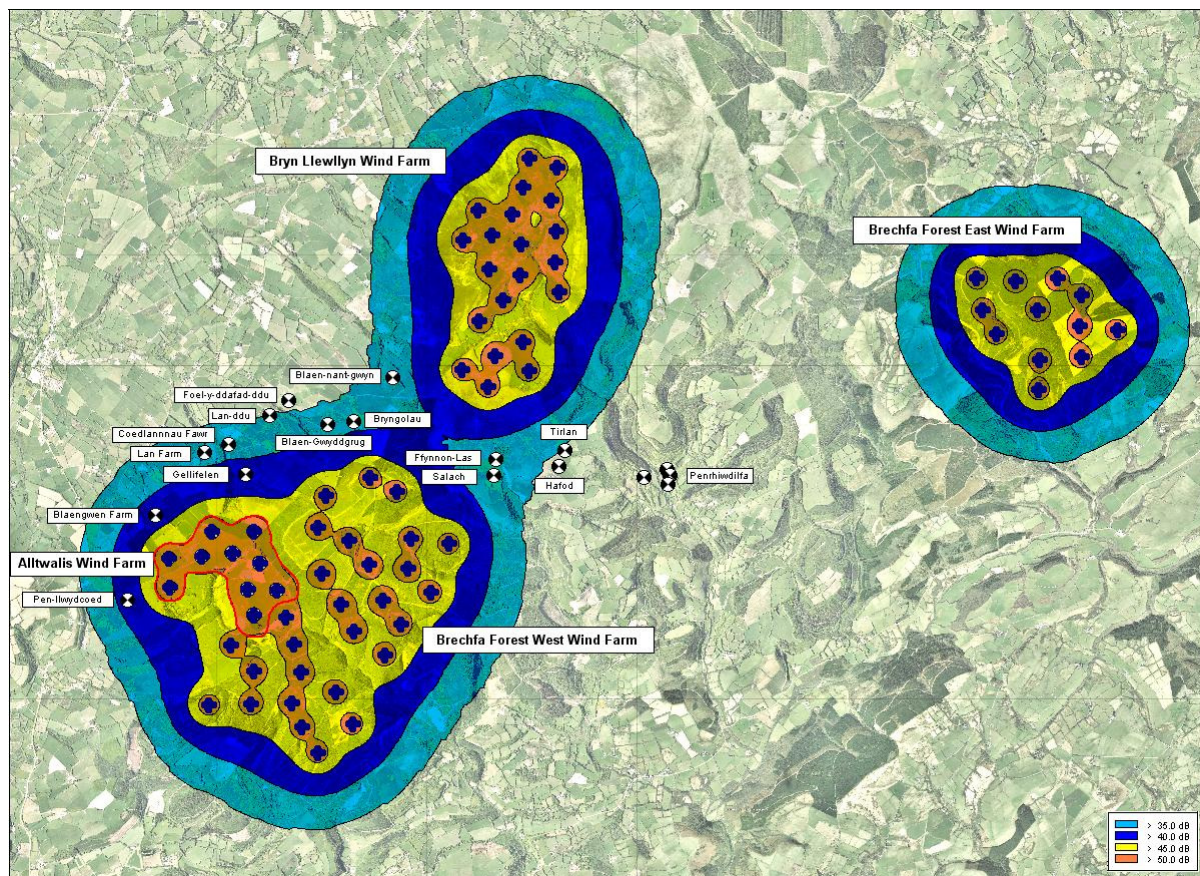


Figure 1 – Noise Contours and receptor locations affected by the consented Alltwalis, and the proposed Brechfa Forest West and Bryn Llywelyn wind farms.

It can be seen from Figure 1 that there are a number of properties that lie approximately north east of the existing Alltwalis and proposed Brechfa Forest West wind farms, and approximately south of the proposed Bryn Llywelyn wind farm. It is therefore likely that these properties would be exposed to wind turbine noise for a greater proportion of time than they would from the Brechfa Forest West wind farm alone.

Whilst this issue is not covered in ETSU-R-97, I am aware of the Planning Appeal decision for the proposed wind farm at Gorsedd Bran, Nantglyn (App/R6830/A/08/2074921). In this case, the Planning Inspector considered that the cumulative impact of noise, whilst within the ETSU-R-97 derived noise limits, would be experienced from one wind farm at a time when residents may expect some periods of relative quiet from another wind farm. He therefore considered that the cumulative impact of noise would result in a level of harm that would conflict with UDP planning policy. The developer took it to Judicial Review and won, but Welsh Ministers took it to the Court of Appeal who overturned the Judicial Review decision.

This aspect of cumulative impact has not been considered by the applicant, and should therefore be required by way of an analysis of the annual wind data for the site, considering the times when properties may be exposed to noise from each wind farm respectively. Only then can a judgement be made as to the suitability or otherwise of the noise impact of the proposed wind farm.

If it is judged that the proposed cumulative impact could harm the amenities of neighbouring residential occupiers, a possible course of action may be to remove specific turbines from the scheme. In the case of the dwelling at Gellifelin, these could be Turbines 17, 18 and 23.

General Comments/Observations

The developer should make reference in the Noise chapter of the ES whether it will be applying for immunity from actions brought by third parties in respect of nuisance, under Section 158 of the Act.

Noise Recommendations

In summary, the ES is generally compliant with the ETSU-R-97 approach. However, some concerns arise which require further clarification or consideration before the overall acceptability of the noise impact of the scheme can be determined. These are:

- Uncertainty in the appropriateness of the noise limits set for the previous consented Alltwalis wind farm and its applicability to the Brechfa Forest West application, both in terms of the data presented, and the applicability of noise limits for a financially involved property to increased wind farm noise from another wind farm without financial involvement;
- The potential for the increased risk of “other AM”;
- Uncertainty in the method of cumulative impact assessment in light of the Appeal decision at Gorsedd Bran, Nantglyn; this is particularly relevant for those properties affected by wind farm noise from the existing Alltwalis site, and the proposed sites at Brechfa Forest West, and Bryn Llywelyn.

CHAPTER 17: SHADOW FLICKER

CCC has appointed Jacobs consultants to carry out the review of the Shadow Flicker chapter of the Draft Environmental Statement. The table below lists the review criteria considered and summarises the results of the review. Further commentary follows the table.

Shadow Flicker Assessment Review

Review Criteria	Comments
UK Shadow flicker impact area defined correctly (130 degrees either side of north and within 10 rotor diameters).	Yes, paragraph 17.5.

Review Criteria	Comments
Is the methodology for assessment clearly set out and is it appropriate?	Yes, methodology for assessment is appropriate. Statement on exclusion of photosensitive epilepsy could be added for completeness.
The criteria used to indicate the magnitude and significance of an impact should be stated clearly and defined.	Significance criteria not normally defined for shadow flicker. The assessment includes criteria based on magnitude of change, however these rely on subjective terminology.
Has reference and use been made of appropriate technical guidance for the subject?	References to: TAN 8 (WAG, 2005). PPS 22 Companion Guide (ODPM, 2004). PAN 45 (Scottish Executive, 2002). PPS22 is not listed in the references section (i.e. only its companion guide is referenced).
Have necessary surveys been undertaken and reported?	No surveys referred to – assumed that no site visit/verification was undertaken.
Are the potential environmental impacts clearly identified?	Yes, paragraph 17.20 and Table 17.2.
Does the chapter clearly set out mitigation?	No impacts identified, however a commitment is made to undertaking turbine shutdowns if micro-siting were to create the potential for shadow flicker to occur.
Is the mitigation appropriate, implementable, committed and timetabled?	Mitigation unlikely to be required, however as noted above there is provision for a review of shadow flicker potential (though no process confirmed for this).

Review Criteria	Comments
Does it state the means by which monitoring will be carried out?	Yes, paragraph 17.29 states that monitoring will be undertaken if shadow flicker impacts are reported by local residents.
Does the chapter clearly report the significant residual environmental effects?	n/a (no impacts identified).
Does the approach set out any difficulties encountered (e.g. uncertainty, limitations, data gaps)?	Paragraph 17.11 sets out modelling assumptions, however, not all expected parameters are defined.
Are there any important procedural or technical omissions from the chapter?	No reference to whether a site visit was undertaken to determine/verify property parameters for modelling or which std assumptions were applied to properties included in software model run. However, given that there are no properties within the potential shadow flicker zone (i.e. 900m from a turbine and within 130 degrees either side of north of the turbine), then a site visit may not have been considered necessary.

Introduction

Para 17.7

Paragraph 17.7 notes that potential environmental issues identified as impacts on residential amenity only. A statement on potential impacts on members of the public using the outdoors (such as photosensitive epilepsy) could have been included, however this would just be for completeness as this is typically scoped out on the basis that turbine flicker frequency is below trigger for photosensitive epilepsy.

Assessment Methodology

Para 17.8 – 17.12

Potential impact zone for shadow flicker defined as 900m (10 rotor diameters), and within 130 degrees either side of north for each turbine. These parameters are in accordance with accepted guidance on shadow flicker extent.

ReSoft Windfarm Software was used to model potential shadow flicker. This software is accepted as a suitable tool for determining potential shadow flicker areas and effects.

A list of assumptions used during modelling in ReSoft are provided in paragraph 17.11, however, under these assumptions there should be more detail in relation to assumed property details (in the absence of a site visit) such as number of elevations, number of windows, window sizes and window positions).

Significance Criteria

Para 17.13 – 17.15

Table 17.1 does not define magnitude using subjective criteria; terminology such as 'large in scale' and 'small in scale' should be defined. In addition, although criteria have been defined, paragraph 17.14 refers to an acceptability threshold for shadow flicker, which does not appear to have been incorporated into the criteria defined in Table 17.1.

There is no published guidance on defining significance for shadow flicker effects. The difficulty in defining significance for shadow flicker is due to the nature of effect, shadow flicker is essentially considered nuisance and consequently an impact on amenity. The effects of shadow flicker will vary from person to person. Consequently shadow flicker assessments often avoid the use of impact criteria and categorisation, and instead simply identify areas and duration of shadow flicker effects, with appropriate mitigation defined to prevent effects where potential has been identified.

Modifications to Scheme Design

Para 17.21

Paragraph 17.21 does not consider modifications on scheme design to be necessary, noting instead that impacts can be addressed through micro-siting. Potential for shadow flicker should be a consideration during scheme design rather than relying solely on micro-siting, as where the effects occur is a function of turbine and property positions (as noted later in paragraph 17.26). However, given the location of properties at this site, it is accepted that modification to scheme design would not have been required.

Assessment of Operational Impacts

Predicted Impacts

Para 17.22

No impacts identified; only 2 properties within 900m of turbines and both outwith shadow flicker areas as modelled by ReSoft. During this review by Jacobs re-modelling of shadow flicker has not been undertaken to validate the assessment. As noted previously, a number of parameters in relation to property orientation; number,

position and dimensions of windows required by ReSoft to model shadow flicker have not been stated in the methodology. These parameters can be defined using standard assumptions or specified based on information collected during site visits, and it is not clear from the chapter which approach has been used in the assessment. This information is important when properties fall within a shadow flicker area as it is used to determine the time and length shadow flicker effects will occur. However, as both properties within 900m of turbines do not fall in areas of potential shadow flicker effect this omission is not a crucial weakness.

Proposed Mitigation

Para 17.23

No mitigation identified as no impacts were identified in the assessment.

Cumulative Impacts

Para 17.25

No cumulative impacts identified as no impacts were identified in the assessment.

Micrositing

Para 17.26

An appropriate mitigation strategy (turbine management) is identified for the scenario where micrositing may result in shadow flicker affecting residential properties.

A requirement could be proposed for the developer to reassess the potential for shadow flicker effects once micrositied locations are known. Depending on the micrositing amendments required, this reassessment may be either a review of locations (with reference to the 130 degrees either side of north and within 900m) and/or remodelling with ReSoft. Neither of these are onerous tasks and may be preferable to relying on complaints being raised by local residents as noted in paragraph 17.29.

General Comments/Observations

The assessment is undertaken using appropriate software to determine impacts and accepted technical guidance on shadow flicker is referenced, with some minor omissions as set out in this review.

There is no published guidance on defining significance criteria for shadow flicker, however, the assessment attempts to define criteria based on magnitude of change. The criteria provided are not sufficiently detailed, and terminology used subjective.

Clearer commitments could also be made with regard to review of potential for effects to occur as a result of turbine locations being amended through micrositing during construction.

Due to the proximity and positioning of proposed turbines relative to nearby residential properties, the conclusion of the assessment that there are no potential shadow flicker issues is considered to be valid.

CHAPTER 18: SUMMARY

Para 18.8 (Bullet 6)

Significant adverse residual impacts will occur in relation to 18 viewpoint locations rather than *10* which is referred to in the ES. Moreover these locations are within 13km of the site, not *10km*.