



Secretary of State for Business, Energy and Industrial Strategy
Department for Business, Energy and Industrial Strategy
1 Victoria Street
Westminster
London
SW1H 0ET

18 June 2019

FAO Denise Libretto
Dear Madam,

Electricity Act 1989 (As Amended) Application for Section 36C Variation of Consent for Llandinam Windfarm to Extend the Implementation Timescale for the Development for a Further 5 years

Introduction

Celt Power Ltd ('the Applicant') have commissioned Arcus Consultancy Services ('Arcus') to present under The Electricity Act 1989 a Section 36C consent application ('the Variation Application') to the Secretary of State for Business, Energy and Industrial Strategy ('the Secretary of State') to apply for a variation to the Section 36 consent ('the Original Consent') issued on 7th September 2015 under Section 36 of the Electricity Act 1989 for the repowering of the Llandinam Windfarm, Powys, Mid Wales.

The Variation Application seeks to amend the Section 36 repowering consent that was granted on 7 September 2015. The Variation Application has been prepared in accordance with 'The Electricity Generating Stations (Variation of Consents) (England and Wales) Regulations 2013' ('the 2013 Variation Regulations') and the guidance issued by the Government in respect of variation applications ('Varying consents granted under Section 36 of the Electricity Act 1989 for generating stations in England and Wales, July 2013').

The Variation Application includes Information to inform the Environmental Impact Assessment ('EIA') Screening decision.

The Applicant is also seeking a direction under Section 90 (2) of the Town and Country Planning Act (Section 90 Direction) that planning permission be deemed to be amended in line with the Variation Application.

Background

The Applicant received Section 36 consent (Appendix A) for the repowering of the Llandinam Windfarm to build 34 wind turbines and associated infrastructure ('the Development') following a multi scheme Public Inquiry held between June 2013 and May 2014. Consent was granted on 7th September 2015. Condition 5 of the Section 36 consent requires that the Development is implemented within 5 years of the date of consent. If not implemented the consent will expire on 7 September 2020.

The Original Consent repowering application submitted in 2008 was screened as an Environmental Impact Assessment project (EIA) and an EIA was submitted as part of the Section 36 consent application. Supplementary environmental information was prepared and submitted in 2011 and 2013 as part of the consenting process.

The Proposed Variation

The principal reason for seeking to vary the 2015 consent is that the Section 37 Consent for the grid connection for the Original Consent was not approved as part of the mid Wales Inquiry and discussions are ongoing between the Applicant and Manweb, the grid provider in mid Wales, with regard to alternative connection options. The grid situation is complicated as there are other large windfarm schemes at Llanbrynmair and Carnedd Wen that were part of the same mid Wales Inquiry for which a consent decision from BEIS remains outstanding. Manweb advise the Mid Wales Grid Connection project (NG/SP Manweb project) is on hold until decisions are made on the above applications. This grid project is essential to securing a connection for the Original Consent as it will create further grid/transmission capacity in Mid Wales.

A grid solution for Llandinam alone is cost prohibitive for the project and a collaborative developer led solution is required where costs can ideally be apportioned or shared.

SP Manweb have no other current plans to upgrade the mid wales grid network and have advised that a developer based solution is the only way forward.

The Applicant is requesting more time to evaluate the outcome of these windfarm decisions and the resulting outcome/potential of the Mid Wales Connections project, and whether this will generate further developer interest surrounding developer led solutions to resolve the grid capacity issues/and costs associated with projects within SSAC.

The Variation Application seeks a variation of Condition 5 of the Original Consent to allow for a five-year extension of time for implementation to 7th September 2025, to allow the Applicant to rectify outstanding grid connection issues and implement the development. The Section 36C variation will not represent any intensification or material change which would alter the scale or nature of the Original Consent necessitating an amendment to the development or material change to any of the conditions attached to the original consent other than Condition 5.

Consultation

The original application which resulted in the 2015 consent was subject to an extensive programme of consultation and was examined at a Public Inquiry between June 2013 and May 2014. This included consultation with Statutory Consultees such as NRW and Powys Council who despite initial objections ultimately supported the scheme as well as a programme of community consultation. Public exhibitions were held in Newtown, Dolfor, and Llandinam on three consecutive days in December 2007. Members of the public were invited to view the proposals. Comments received from these exhibitions were taken into consideration in the Development layout design and in the production of the original ES. A further round of public consultations was undertaken following the submission of the Section 36 Application in May and June 2008.

The consultation exercise undertaken is outlined in full in the original Consent Environmental Statement and Planning Statement.

In addition the Applicant sought an EIA Scoping Opinion from The Department of Energy and Climate Change (now BEIS) in April 2007 with a response received in June 2007.

Given the very limited scale of change being sought via the Variation Application the Applicant has taken a proportional approach to pre-application consultation for the Development. A pre-application meeting took place with BEIS on May 1st 2019 to introduce the proposal and discuss

the planned approach, proposed consultations and timescales. Further pre application consultation has taken place with Powys Council 2019 and The Welsh Government between May 28th and June 5th, various contacts and discussion by both email and telephone to advise them of plans to submit the S36C application. A further round of public exhibitions was not at this stage considered to be necessary.

In each case the Statutory Consultees identified above have been contacted by telephone and follow up e-mail and provided with an outline of the proposal and the approach being taken to the Variation Application. The following responses have been received to date:

Consultee	Date of Response	Comment	Applicant response
Powys Council	Advice 4 th June 2019	Area and case Officers do not deal with wind applications so Liaise with the Senior Professional once the application was made and an email was provided for the submission of application documentation	Application will be made to the email address given and follow up to the Senior Professional will be made once the application is submitted
Welsh Government	Written Response 5 th June 2019	Thanked Celt Power for contacting them and advised of contact details for the application to be submitted at which point an individual for further discussion will be appointed for the scheme	Application will be made to the contact email provided and followed up once a named individual is allocated.

It was acknowledged that BEIS would Screen the Variation Application BEIS advised that the following considerations should be applied:

- Whether the effects have changed from the previous application.
- Whether it is possible to rely on the previous Environmental Information with cross references or if new information is required.
- The Environmental Information must demonstrate that the 2017 EIA Regulations have been considered.

The Applicant's response to the request from BEIS is documented in the supporting information to advise an EIA Screening decision at Appendix B.

Planning Policy Background

National, Regional and Local planning policy in Wales has also been subject to change since the original Section 36 consent application was submitted. The main changes are summarised below. It should be noted that whilst there have been changes, the underlying policy framework remains supportive of a move towards tackling climate change and renewables development,

including onshore wind developments. Developments are supported where the environmental impacts are considered to be acceptable.

Planning Policy Wales Edition 10, December 2018

Section 5.7 Energy Context is particularly relevant to the Development. Paragraph 5.71 states that planning plays a key role in delivering clean growth and the decarbonisation of energy, as well as being crucial in building resilience to the impacts of climate change.

Planning Policy Wales Ed 10, paragraphs 5.9.23-24 related to Re-powering, Life Extension, Decommissioning and Remediation state that *"The extension and re-powering of existing renewable energy infrastructure is important in meeting renewable energy and decarbonisation targets. Planning authorities should support such schemes and take into account changes in renewable energy technology and viability, which may mean, for example, that the format of a repowered wind farm will be different from an existing scheme. Planning authorities should set out broad criteria for the determination of life extension and re-powering applications, based on the additional impact of the new scheme."*

The Environment (Wales) Act 2016 sets a legal target of reducing greenhouse gas emissions by at least 80% by 2050, with a requirement for interim targets every 10 years.

Planning Act (Wales) 2015

The Planning (Wales) Act 2015 principally amends the Town and Country Planning Act 1990 and the Planning and Compulsory Purchase Act 2004, to introduce a number of reforms that strengthen the 'plan-led' approach to planning in Wales and improve the development management and enforcement systems¹. This Act introduces new objectives. The following have been identified as relevant to the Development:

- Strengthening the plan-led approach – introduction of a legal basis for the preparation of a National Development Framework and Strategic Development Plans. Therefore, new applications will have to accord with the National Development Framework and the Strategic Development Plan.

The Act reinforces the transition to sustainable development: *"any statutory body carrying out a planning function must exercise those functions in accordance with the principles of sustainable development as set out in the Well-being of Future Generations (Wales) Act 2015."*

Environment (Wales) Act (2016)

The Environment (Wales) Act puts in place legislation to plan and manage Wales' natural resources in a more proactive, sustainable and joined-up way and to establish the legislative framework necessary to tackle climate change. Sustainable management of natural resources must be in a way that delivers outcomes for the environment, people, the economy and communities. Central to the Act is the need to adopt an integrated approach to managing our natural resources in order to achieve long-term sustainability².

Powys County Council Local Development Plan, April 2018

The Powys Local Development Plan (PLDP) was adopted in 2018³, and sets out the Council's vision, objectives and policies for the development of Powys up to 2026.

Policy RE 1 Renewable Energy

Proposals for renewable and low-carbon energy development will be permitted subject to the following criteria:

¹ <http://www.legislation.gov.uk/anaw/2015/4/contents/enacted>

² <http://www.legislation.gov.uk/anaw/2016/3/contents/enacted>

³ <https://en.powys.gov.uk/article/4898/Adopted-LDP-2018>

1. Within or close to the Strategic Search Areas (SSAs), proposals for wind energy greater than 25MW will be permitted subject to criteria 3 to 5;
2. Within Local Search Areas (LSAs) [...] proposals for renewable and low carbon energy will only be permitted where they can demonstrate they would not prejudice the purpose of the LSA;
3. Proposals for all types of renewable and low carbon energy development and associated infrastructure either on their own, cumulatively or in combination with existing, approved or proposed development, shall comply with all other relevant policies in the LDP;
4. Satisfactory mitigation shall be in place to reduce the impact of the proposal and its associated infrastructure. Proposals shall make provision for the restoration and after-care of the land for its beneficial re-use; and
5. Where necessary, additional compensatory benefits will be sought by agreement with applicants in accordance with Policy DM1 - Planning Obligations.

The Development is considered to remain compliant with updated policies and the previous planning assessment submitted as a part of the Original Application submitted is considered to remain relevant.

Environmental Assessment

The Original Consent included an Environmental Statement ('ES') that was prepared in accordance with 'The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000'.

The Original Consent was granted following an application that included an Environmental Statement (ES)⁴, comprising:

- The 2008 ES;
- The Supplementary Environmental Information (SEI) dated 2011; and
- The SEI dated 2013.

'The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017 (the '2017 EIA Regulations'), came into effect on 16 May 2017 and replaced the 2000 EIA Regulations. In terms of Environmental Impact Assessment (EIA), this application falls under the 2017 EIA Regulations⁵. Schedule 2 of those EIA Regulations identifies "*development requiring screening if no EIA Report is provided*". Paragraph 3 of Schedule 2 specifies "*development to provide a change or extension of (a) a generating station ... where the generating station ... is already authorised ... and the change or extension may have significant adverse effects on the environment.*"

The wording of the paragraph above confirms that the focus for the consideration of screening has to be whether the change or extension would have significant effects on the environment. The only change proposed by the Variation Application is to extend the period allowed between consent and the start of construction for a further 5 years.

It is the opinion of the principal author of the Information to advise Screening provided at Appendix B⁶ that, based on the information the change will not have significant adverse effects on the environment, and hence the conclusion of the screening process should be that the application does not require EIA.

⁴ The ES comprised the original ES document submitted in 2008, and Supplementary Environmental Information (SEI) submitted in 2011 and 2013.

⁵ The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017. SI 2017/580. Available at: <http://www.legislation.gov.uk/uksi/2017/580/contents/made> [accessed on 04/06/2019].

⁶ Dr Paul Phillips, a Registered EIA Practitioner, as set out in Section 6 of this document.

The change of period prior to construction will, itself, have no effects on the environment, because during this period the Development will continue not to have started. The potential for the change to have significant adverse effects in terms of the EIA Regulations is therefore limited to changes to the EIA Regulations since the EIA was last updated (2013). For the purposes of completeness, changes to the baseline environment since the EIA was last updated (2013) have also been set out, to provide commentary on whether there would be any change to the assessment of likely significant effects.

The following sections are included at Appendix B:

- **Baseline review:** a review of the baseline environment referred to in the Environmental Statement (ES)⁷ that accompanied the application for the Section 36 Consent that was granted, to understand if the baseline environment may have changed sufficiently to change the assessment of likely significant effects;
- **Cumulatives development update:** a summary of changes to windfarm developments in the vicinity of the Development, to understand if the cumulative situation may have changed sufficiently to change the assessment of likely significant effects;
- **Assessment of effects on climate change:** updating the assessment to meet the requirements of the latest EIA Regulations, to demonstrate no significant adverse effects;
- **Assessment of effects on human health:** providing a summary of potential effects on human health, to meet the requirements of the latest EIA Regulations, to demonstrate no significant adverse effects;
- **Authorship of this document:** providing commentary on the experience and professional status of the authors of this document, in response to requirements for EIA Reports in the latest EIA Regulations; and
- **Conclusions.**

Conclusion

The Applicant has applied for a Section 36C variation of consent and deemed planning permission for the Llandinam Windfarm to extend the implementation of the Original Consent for a further five years following ongoing uncertainty in respect of the grid solution for connecting the Development to the wider electricity network, and are requesting more time in support of seeking resolution.

The Development in terms of the 2017 EIA Regulations requires to be Screened for EIA, A detailed review of the potential for the Development to have significant effects, together with a review of changes to baseline conditions and cumulative developments has been carried out, which identifies minimal changes and in the professional opinion of the assessor identifies no issues that would require an EIA to be undertaken. This information is appended to this letter to advise BEIS in undertaking Screening.

Planning Policy (and indeed the political importance afforded to combatting the effect of climate change) has evolved and has taken a stronger pro renewables stance since the original consent was granted. New planning policy provides support for the Development and the original planning assessments undertaken as a part of the Original Application demonstrating the acceptability of the development in environmental terms are considered to remain relevant.

A proportional consultation exercise reflecting the nature of the variation sought has been undertaken and all comments received have been incorporated as far as possible into the Variation Application approach.

⁷ The ES comprised the original ES document submitted in 2008, and Supplementary Environmental Information (SEI) submitted in 2011 and 2013.

It is therefore respectfully requested that BEIS approve the Section 36C variation for a 5 year consenting period extension in order to allow for an appropriate grid solution to be identified.

Yours Faithfully,

A handwritten signature in black ink, appearing to read 'Clare Walters', is written over a light blue horizontal line. The signature is cursive and includes a period at the end.

Clare Walters MA CEnv MRICS
Technical Director



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7 September 2015

Dear Sirs

ELECTRICITY ACT 1989

TOWN AND COUNTRY PLANNING ACT 1990

**APPLICATION FOR CONSENT TO CONSTRUCT AND OPERATE A WIND
TURBINE GENERATING STATION AT LAND IN POWYS, MID WALES
(LLANDINAM REPOWERING)**

I. The Application

- 1.1 I am directed by the Secretary of State for Energy and Climate Change (the "Secretary of State") to refer to the request by CeltPower Limited ("Applicant") to the Secretary of State for consent to be granted under section 36 ("section 36 consent") of the Electricity Act 1889 ("the 1989 Act") to decommission the existing Penrhyddlan & Llidiartywaun ("P&L") wind turbine generating station and construct and operate a new wind turbine generating station known as Llandinam Repowering ("the Development") at land at Powys, Mid Wales, and for a direction under section 90(2) of the Town and Country Planning Act ("section 90 direction") that planning permission for the Development be deemed to be granted.
- 1.2 The initial application for section 36 consent and planning permission was submitted by the Applicant on 9 May 2008 ("the Original Application") for 42 turbines and an installed generation capacity of up to 126MW. In 2011 the scheme was reduced to 39 turbines and in 2013 it was reduced further to 34 turbines and a maximum generating capacity of 102MW. The application is therefore considered and determined on

the basis of this amended scheme and in this letter "the Development" refers to this amended scheme.

- 1.3 Whilst the application site is located just outside the 'broad brush' boundaries of SSA C the Secretary of State agrees with the Inspector that it should be considered to effectively be within, given its close proximity to the boundary.
- 1.4 The Development will include the decommissioning of the turbines that comprise the existing Penrhyddlan & Lidiartywaun wind farm ("P&L") which was granted consent in 1991 by Montgomeryshire District Council. As there is no decommissioning condition associated with the P&L wind farm it can be considered to be permanent. The proposed re-powering scheme would remove the existing wind farm and includes a decommissioning condition to ensure it is removed at the end of its lifecycle.
- 1.5 The application for section 36 consent was published in accordance with the Electricity (Applications for Consent) Regulations 1990 ("the 1990 Regulations") and served on the relevant persons.
- 1.6 In accordance with the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 as amended ("the 2000 Regulations") an environmental statement was submitted with the application. It was supplemented by additional information in the form of Supplementary Environmental Statements in August 2009, September 2011 and July 2013. The documents are collectively referred to hereafter as "the Environmental Statement". The Environmental Statement describes the Development, gives an analysis of its environmental effects, and has been disseminated publically in accordance with the 2000 Regulations.

II. Public Inquiry

- 2.1 Following an objection from Powys County Council ("the Council"), to the application, the Secretary of State was obliged to cause a public inquiry in to the Application to be held under Schedule 8 to the 1989 Act.
- 2.2 In addition the Council also objected to 4 other wind turbine generating station applications made under section 36 of the 1989 Act (schemes known as "Llanbadarn Fynydd" "Llaithddu" "Llanbrynmair" "Carnedd Wen") and a proposal under section 37 of the 1989 Act to install and keep installed a 132kV overhead electric line connection from the Llandinam Repowering scheme to Welshpool Substation ("Llandinam 132kV line"). The Secretary of State was therefore also obliged to hold a public inquiry under Schedule 8 to the 1989 Act into those other applications. The Secretary of State took the view that the proximity and possible cumulative impact of the proposals made it appropriate to use

the power conferred by section 62(3) of the 1989 Act to direct that the inquiries into all 6 applications should be combined.

2.3 The Secretary of State appointed Mr A D Poulter BArch RIBA ("the Inspector") to preside over the conjoined public inquiry. The public inquiry ("the Inquiry") was governed by the Electricity Generating Stations and Overhead Lines (Inquiries Procedure) Rules 2007 ("the Inquiries Procedure Rules").

2.4 When the Public Inquiry was announced the Secretary of State issued a statement of matters to be considered at the Inquiry. Those matters are set out in paragraph 12 of the Report.

2.5 The Inquiry commenced on 4 June 2013 and concluded on 30 May 2014. An Introductory meeting was also held on 28 November 2012 and a pre-Inquiry meeting was held on 18 and 25 February 2013. During the Inquiry, the Inspector was assisted by Inspector Emyr Jones BSc(Hons) CEng MICE MCMI in matters pertaining to the Llandinam 132kV line. The Inspector submitted his Report of the Inquiry ("the Report") to the Secretary of State on 8 December 2014. A copy of the Report and annexes is available at: <https://itportal.decc.gov.uk/EIP/pages/recent.htm> (click on 'More Information' to view documents).

2.6 Welsh translations of the decision letters in respect of all the applications considered at the Inquiry and the Inspector's report are also, or will shortly be, published at <https://itportal.decc.gov.uk/EIP/pages/recent.htm>, or are available on request.

Mae cyfieithiad Cymraeg o'r llythyrau penderfynu ar gyfer pob un o'r ceisiadau a ystyriwyd yn yr Ymchwiliad ac adroddiad yr Arolygydd wedi'u cyhoeddi, neu i'w cyhoeddi'n fuan, yn <https://itportal.decc.gov.uk/EIP/pages/recent.htm>, neu maent ar gael drwy wneud cais.

III. Summary of the Inspector's Recommendation

3.1 The Inspector's recommendation in respect of the *Llandinam Repowering* application is that Section 36 consent and deemed planning permission be granted subject to the conditions set out in Annex A of the report.

IV. Secretary of State's consideration of the Inspector's Report

4.1 The Secretary of State has carefully considered the Report and all other material considerations. The Secretary of State's consideration of the Report is set out in the following paragraphs. All numbered references, unless otherwise stated, are to paragraphs of the Report.

- 4.2 Except as indicated otherwise in this letter, the Secretary of State accepts the full content of the Report, including its findings on matters of fact, conclusions and recommendation (including the reasons for that recommendation).

Need and Relevant Policy for the Proposed Development

- 4.3 After having considered the comments of the Inspector set out in paragraphs 40-59 of the Report, and in particular the conclusions on the application in paragraph 592, the Secretary of State is satisfied that in the absence of any adverse effects which are unacceptable in planning terms, granting consent would be consistent with energy National Policy Statements ("NPS") EN-1 (Overarching NPS for Energy) and EN-3 (NPS for Renewable Energy Infrastructure). The Secretary of State agrees with the Inspector that the proposed development would be consistent with Welsh Government policies set out in *Planning Policy Wales, Edition 4 (2011)* (PPW) (as supplemented by Government circulars, Ministerial letters and a series of Technical Advice Notes ("TANs"), including *Technical Advice Note 8: Planning for Renewable Energy (2005)* ("TAN8"). The Secretary of State is also satisfied that the proposed development would be acceptable in terms of *the Powys Unitary Development Plan (adopted 2010)* ("UDP").

Cumulative Impacts and Combined Effects of All Schemes

- 4.4 The Secretary of State notes the Inspector considered a range of issues relating to the cumulative and combined effects of all the proposed developments, taking into account other schemes in the Powys area which have already been granted planning permission or where planning permission has been applied for. The key impacts were: landscape and visual effects; the impacts of construction traffic; construction and operational noise; and impacts on biodiversity, including the ecological functioning of European sites and European Protected Species ("EPS"). He also considered social and economic effects (including on tourism), human health, cultural heritage, aviation, hydrogeology and impacts on peat, as well as the potential for the wind farms to be connected to the grid network. These impacts were considered for proposed developments both within the two Strategic Search Areas ("SSA"s) B [IR 378-395] and C [IR 244-262] and between them [IR 498-559]. The Secretary of State sees no reason to disagree with the Inspector's reasoning and conclusions on cumulative impacts and combined effects of all schemes.

Landscape and Visual Effects

- 4.5 The Secretary of State notes that the existing P&L turbines are 45m in height to blade tip. The majority of the proposed turbines will have a height to blade tip of 121.2m (with three turbines at a reduced height of 111.2m to blade tip), and that concerns were raised about the impact of

the increased height on the landscape. The Secretary of State notes the consideration of this issue in paragraphs 101 – 115 of the Report.

- 4.6 The Secretary of State notes that the Inspector agreed with Council's view that the existing turbines gave rise to a very busy and cluttered appearance which catches the eye but as the proposed turbines would be more widely and less regularly spaced and would rotate more slowly, for viewpoints within about 4km, the proposed development would visually enhance the appearance of the wind farm and that the landscape change would, in this respect, be an enhancement.
- 4.7. The Secretary of State also notes that the Inspector agreed with the Council's overall view that there would be a progressive change from beneficial visual effects at close range, shifting towards adverse visual effects at about 4-5km, before the adverse effects again began to diminish with further distance [IR108].
- 4.8 The Secretary of State notes that as the proposed wind farm would cover a slightly larger footprint than the existing wind farm, the turbines would be seen from some properties that do not currently have a view of the existing wind farm. The Secretary of State has had particular regard to those properties that would be affected but are not currently affected by the existing P&L site. The Secretary of State agrees with the Inspector's conclusion that few of the proposed turbines would be seen, that the additional adverse effects would be localised and that the distances between dwellings and turbines would be sufficient to avoid significant adverse effects on residential amenity [IR 113].
- 4.9 The Secretary of State notes that the Council considered that, subject to agreed conditions, the Llandinam repowering scheme is acceptable in landscape and visual impact terms. The Secretary of State also notes the Inspector's conclusion that there would be some significant adverse landscape and visual impacts resulting from the Development but agrees with the Inspector that these would be limited and localised and in the context of the existing P&L wind farm there would be visual enhancements for some areas [IR 590]. The Secretary of State is satisfied the landscape and visual impacts, for all of those affected, are not so significant that they outweigh the need for this Development.

Therapy Course

- 4.10 The Secretary of State notes that an objection was raised by an operator of a therapy course that uses an area of woodland near the proposed Development. The operator raised concerns that the visual and noise disturbance may make the area unsuitable for such courses [IR 88]. The Inspector noted that some of the existing turbines can be seen from a close distance within and around the area of woodland and a number of the proposed turbines will also be seen. However the Inspector noted that as the proposed turbines will rotate more slowly, they would not create a greater visual disturbance to the tranquillity of the area and

there was no indication that the proposed turbines would be noisier than the existing ones [IR 112]. The Secretary of State therefore agrees with the Inspector that the suitability of the area for its use in connection with therapy courses would not be materially harmed.

Site-Specific Transport Matters

- 4.11 The Secretary of State notes that at present due to the length and height of the vehicles needed to deliver the turbines for this Development, a temporary 'bailey' bridge crossing of the River Wye will need to be built to bypass Builth Wells and that the carriageway under the railway bridge at Cross Gate will need to be lowered.
- 4.12 The Inspector noted that the River Wye is a Special Area of Conservation ("SAC") but that National Resources Wales ("NRW") had advised that with suitable mitigation they did not consider that there would be an adverse effect upon the integrity of the SAC resulting from the construction and use of a bridge. The highway authority, the Welsh Government's Transport Division, have indicated that they think an engineering solution can be found with regard to lowering the carriageway under the railway bridge at Cross Gate. The Secretary of State notes that these schemes will require separate permissions but is satisfied that the need for these schemes to be put in place along with any other necessary mitigation in relation to transport matters is secured by Conditions (28)-(36) in the permission.
- 4.13 The Secretary of State agrees with the Inspector's conclusion that there are no site specific highway safety or practicability matters that should carry weight against the proposal and is satisfied that abnormal loads can be safely transported in a way that minimises inconvenience to other road users and local communities and that the environmental effects of this and other construction traffic, after mitigation, would be acceptable [IR 566]. The Secretary of State is satisfied that this complies with NPS EN3 [IR2.7.78].

Socio economic

- 4.14 The Secretary of State notes that the Council suggested a condition requiring Training and Employment Management Plan with a view to the promotion of training and employment opportunities for local people. The Inspector noted that the Development would result in significant opportunities for local people in terms of local business and jobs and that this would happen regardless of whether a condition was put in place or not and therefore concluded that such a condition was unnecessary and unreasonably restrictive [IR 84].
- 4.15 The Secretary of State has carefully considered this issue. The Secretary of State considers that is important to provide as many opportunities as

possible for the local workforce to benefit from the economic opportunities provided by the Development and concludes that such a requirement would assist in this aim (Condition (51)).

Grid Connection

- 4.16 The Secretary of State notes that the grid connection for the wind farm is proposed to be via the proposed Llandinam 132kV line. The Secretary of State has decided that this application should be refused as an alternative route for the line has been identified that could result in significantly less harm overall than the one put forward. Whilst the Secretary of State notes that this means that there will be a need for a further application to be made to ensure a grid connection will be possible, the Secretary of State sees no reason why an alternative route for the line cannot be found and a grid connection made possible. The Secretary of State sees no reason, therefore, why a decision on this Development should be refused or delayed.

V. Secretary of State's Consideration of the Planning Conditions

- 5.1 The Secretary of State has carefully considered the Planning Conditions for the Application in the Report. The Secretary of State agrees that, subject to some minor amendments, they are suitable for inclusion in any section 90 direction which the Secretary of State may give.

VI. Findings and Conclusions in Relation to Habitats Regulations

River Wye Special Area of Conservation ("SAC")

- 6.1 Regulation 61 of the Conservation of Habitats and Species Regulations 2010 ("the Habitats Regulations") requires the Secretary of State to consider whether the proposed Development would be likely to have a significant effect on a European Site as defined in such Regulations. If such an effect is likely, then the Secretary of State must undertake an Appropriate Assessment ("AA") addressing the implications for the European Site in view of its conservation objectives. The AA should take into account the impacts of the proposed project alone and also in combination with other plans and projects. In light of any such assessment, the Secretary of State may grant development consent only if it has been ascertained that the project will not, either on its own or in combination with other projects, adversely affect the integrity of such a site, unless there are no feasible alternatives and imperative reasons for overriding public interest apply.
- 6.2 The Secretary of State considers that a likely significant effect arising from the proposed Development, when considered both alone and in combination with other plans or projects, cannot be excluded in relation to the River Wye SAC. The Secretary of State therefore considers that an appropriate assessment ("AA") is required under the Habitat

Regulations to consider the effects of this Development, both alone and in combination alongside other operational, consented and reasonably foreseeable projects (subject to a current planning application), as regards to the potential for an adverse impact upon the integrity of European designated sites.

- 6.3 A copy of the Secretary of State's Habitats Regulation Assessment is available at <https://itportal.decc.gov.uk/EIP/pages/recent.htm> and has been prepared on the basis of the Inspector's Report and advice from NRW. As regards the assessment, the Secretary of State agrees with the Inspector, and with NRW, that, with the mitigation measures secured in the consent, the Development will not have an adverse effect, either alone or in combination with other plans or projects, upon the integrity of the River Wye SAC.

VII. Secretary of State's consideration of issues raised following the close of the Inquiry

- 7.1 Following the close of the Inquiry, a number of representations have been received by the Secretary of State. Some relate purely to timing of decisions and therefore require no further consideration. Some representations also make reference to the Government's manifesto commitments (i.e. the Government's Manifesto commitment and proposed Energy Bill to ensure that future decisions on consent for such onshore wind farms would not be taken by the Secretary of State, and also cuts in subsidies for onshore wind). Ministers have decided that in relation to this particular decision, and the other mid-Wales decisions considered in the conjoined inquiry, that they should continue to take these decisions given the stage to which they have progressed. Subsidy cuts are not a relevant planning matter and therefore have played no part in the decision-making process. However, in so far as representations raising other specific matters relating to the proposed developments are concerned, such as construction traffic, biodiversity, Heritage Sites, landscape and visual impacts, tourism and the local economy, the Secretary of State considers these largely rehearse arguments raised before or during the Inquiry and, to the extent that the Secretary of State considers they have already been addressed by the Inspector in his consideration of the Inquiry and subsequent report, they are not further addressed in this letter.

VIII. Secretary of State's Decision on Reopening the Public Inquiry

- 8.1 Rule 21 of the Inquiries Procedure Rules allows (and in certain circumstances requires) the Secretary of State to re-open the Inquiry. The Secretary of State does not consider that the Rules require the Inquiry to be re-opened or for there to be any reason to exercise a discretion under the Rules to re-open it.

IX. Equality Act 2010

- 9.1 The Equality Act 2010 requires public authorities to have due regard in the exercise of their functions to:
- (a) the elimination of unlawful discrimination, harassment and victimisation and any other conduct prohibited under the Act;
 - (b) the advancement of equality of opportunity between people who share a protected characteristic and those who do not; and
 - (c) the fostering of good relations between people who share a protected characteristic and those who do not.
- 9.2 The Secretary of State has considered the potential impacts of granting or refusing the Application in the context of the general equality duty and has concluded that it is not likely to result in any significant differential impacts on people sharing any of the protected characteristics.
- 9.3 The Secretary of State does not, therefore, consider that either the grant or refusal of the Application is likely to result in a substantial impact on equality of opportunity or relations between those who share a protected characteristic and others or unlawfully discriminate against any particular protected characteristics.

X. Human Rights Act 1998

- 10.1 The Secretary of State considers that there is no proposed interference with the human rights of individuals and that the grant of development consent would not be unlawful under section 6(1) of the Human Rights Act 1998.

XI. Secretary of State's Conclusion and Decision on the Application

- 11.1 The Secretary of State has considered the views of the Inspector, the relevant planning authority, consultees and others who have made representations on the matters set out above and all other material considerations. For the reasons given in this letter, the Secretary of State agrees with the Inspector that consent for the Development should be granted, given the contribution it will make to the production of renewable energy. The Secretary of State considers that the potential adverse local impacts of the Development are mitigated by the proposed terms of the consent and planning conditions and any residual impacts are not outweighed by the contribution the Development will make to the production of renewable energy.

11.2 In reaching this decision, the Secretary of State considers the following issues material to the merits of the section 36 consent application:

- i) adequate environmental information has been provided for the Secretary of State to judge its impact;
- ii) the Company has identified what can be done to mitigate any potentially adverse impacts of the proposed Development;
- iii) the fact that legal procedures for the application have been properly followed;
- iv) the views of the relevant planning authority, the views of statutory consultees under the Habitats Regulations, the 2000 Regulations, and the Electricity (Applications for Consent) Regulations 1990, the views of other interested parties, the environmental information and all other relevant matters have been considered;
- v) HM Government policies on the need for and development of new electricity generating infrastructure, and specifically wind turbine generating stations, as set out in the *Overarching National Policy Statement for Energy (EN-1)* and the *National Policy Statement for Renewable Energy Infrastructure (EN-3)*, designated on 19th July 2011 under the Planning Act 2008 following their approval by Parliament and the reasons given for those policies in those national policy;
- vi) the energy and climate change policies of Welsh Government, as set out in PPW and supplemented by Government circulars, Ministerial letters and TANs, including TAN8 and also the relevant local planning policy for the developments, as set out in the UDP; and
- vii) the Secretary of State, in accordance with the duty in section 40(1) of the Natural Environment and Rural Communities Act 2006, has to have regard to the purpose of conserving biodiversity, and in particular to the United Nations Environmental Programme Convention on Biological Diversity of 1992, when making this decision. The Secretary of State is of the view that the Inspector's Report considers biodiversity sufficiently to accord with this duty.

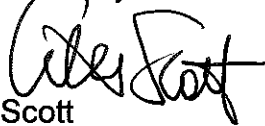
11.3 The Secretary of State believes the Planning Conditions will ensure that the Development proceeds in a form and manner that is acceptable in planning policy terms, and therefore she has decided to issue a section 90(2) direction that planning permission be deemed to be granted subject to the Planning Conditions.

- 11.4 I accordingly enclose the Secretary of State's consent under section 36 of the Electricity Act 1989 and a direction under section 90(2) of the Town and Country Planning Act 1990, which has also been published at <https://itportal.decc.gov.uk/EIP/pages/recent.htm>.
- 11.5 In deciding what material to publish in Welsh, the Secretary of State has taken into consideration her duties under the Welsh Language Act 1993 and the Department's Welsh language scheme – which is available at:
<https://www.gov.uk/government/organisations/department-of-energy-climate-change/about/welsh-language-scheme>

XII. General Guidance

- 12.1 The validity of the Secretary of State's decision may be challenged by making an application to the High Court for leave to seek a judicial review. Such application must be made as soon as possible. Parties seeking further information as to how to proceed, including time limits, should seek independent legal advice from a solicitor or legal adviser, or alternatively may contact the Administrative Court at the Royal Courts of Justice, Strand, London WC2 2LL (General Enquiries 020 7947 6025/6655).

Yours faithfully



Giles Scott

Head of National Infrastructure Consents and Coal Liabilities

DEPARTMENT OF ENERGY AND CLIMATE CHANGE
ELECTRICITY ACT 1989
CONSTRUCTION AND OPERATION OF A WIND TURBINE GENERATING
STATION AT WAUN DDUBARTHOG RIDGE NEAR LLANDINAM, POWYS

1. Pursuant to section 36 of the Electricity Act 1989, the Secretary of State for Energy and Climate Change ("the Secretary of State"), by this consent granted to Celtpower Limited ("the Company"), its assignees and successors, hereby consents to:
 - (a) the construction of a wind turbine generating station ("the Development"), as defined in Conditions 2 and 4, on land on the Waun Ddubarthog ridge near Llandinam delineated by a solid red line on Figure A4-1AD ("the Site"), annexed to and duly endorsed on behalf of the Secretary of State; and
 - (b) the operation of that generating station.
2. Subject to Condition 4, the Development shall be a wind powered electricity generating station with a maximum generating capacity of 102MW and comprise:
 - (i) erection of 31 wind turbines having a height to blade tip of up to 121.2 metres, and 3 wind turbines (T29, T3 and T43) with a height to blade tip of up to 111.2m;
 - (ii) crane hardstandings;
 - (iii) upgrading and construction of on-site access tracks and associated water-course crossings;
 - (iv) an on-site electricity substation;
 - (v) two permanent Power Performance Assessment (PPA) masts;
 - (vi) on-site underground cabling; and
 - (vii) temporary Power Performance Assessment masts;
3. The consent is granted subject to the following conditions:
 - (1) The proposed wind farm shall be constructed as shown in Figure A4-1AD, and Drawing LLA-P-009 Rev A4 Sheets 1 & 2, annexed to and duly endorsed on behalf of the Secretary of State, subject to micro-siting and variation in accordance with Planning Conditions (15) to (17) below.
 - (2) Subject to any variation in accordance with Condition 4, the decommissioning of the existing wind farm shall be completed before "first

export" from any wind turbine authorised under this consent, including in particular:

- (i) the dismantling and removal of such of the 103 wind turbines covered by the original planning permissions as in place at the date this consent was granted, and associated infrastructure; and
- (ii) the upgrading of a number of the existing hardstandings and existing tracks to allow for crane access during dismantling.

(3) Following the completion of the construction of the Development outlined in Condition 4, the Company shall surrender the planning permissions for the existing wind farm.

(4) In this condition:

"First export", in this condition, means the date on which electricity is first exported on a commercial basis; and

"Existing wind farm" means that authorised at the time of the granting of this consent under the planning permissions for the Penrhyddlan and Rhyddhywel Range, Llidiartywaun Wind Farms.

4. (a) Subject to paragraph (b), the Development shall be constructed and operated in accordance with:

- (i) the provisions of the conditions of the deemed planning permission ("the Planning Conditions");
- (ii) the terms of any scheme, programme, statement, plan, details, or report to be approved by the Local Planning Authority under the Planning Conditions; and
- (iii) the details contained in the Environmental Statement.

(b) the Local Planning Authority may approve changes to provisions referred to (a)(i) and (a)(ii), so far as permitted under the Planning Conditions, provided that amendments or variations are in accordance with the principles and assessments set out in the Environmental Statement.

(c) approval for any change under paragraph (b) may only be given in relation to immaterial changes, where it has been demonstrated to the satisfaction of the Local Planning Authority that the subject matter of the approval sought is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the Environmental Statement.

(d) In this condition "Environmental Statement" means the Environmental Statement of September 2008, the Supplementary Environmental Information of December 2011, and the Supplementary Environmental Information of April 2013.

5. The Development shall be commenced before the expiration of five years from the date of this consent.

6. The Secretary of State in exercise of the powers conferred by section 90(2) of the Town and Country Planning Act 1990 hereby directs that planning permission for the Development be deemed to be granted subject to the following Planning Conditions:

Definitions

(1). In these conditions, unless the context otherwise requires:

"Abnormal Indivisible Load" has the same meaning as in the Road Vehicles (Authorisation of Special Types) (General) Order 2003 (S.I. 2003 No 1998);

"commencement", in relation to the Development, means the date on which the Development begins by the carrying out of a material operation as defined in section 56 of the Town and Country Planning Act 1990 (c. 8), and "commence" and "commenced" shall be construed accordingly;

"construction period" means the period from work commencing on the Development until the date 6 months after the Site compounds have been reinstated in accordance with the conditions of this consent;

"dB" refers to the Decibel noise measurement unit;

"dB(A)" refers to a Decibel noise measurement unit, with the inclusion of the A-weighting filter in the measurements as referred to in ETSU-R-97;

"Development", unless the context indicates otherwise, is as defined by conditions 1 to 4 of this consent;

"emergency" means circumstances in which there is reasonable cause for apprehending imminent injury to persons, serious damage to property or danger of serious pollution to the environment;

"Environmental Statement" means the Environmental Statement of September 2008, the Supplementary Environmental Information of December 2011, and the Supplementary Environmental Information of April 2013;

"Existing wind farm" means that authorised at the time of the granting of this consent under the planning permissions for the Penrhyddlan and Rhyddhywel Range, Llidiartywaun Wind Farms;

"ETSU-R-97" means the ETSU Report number ETSU-R-97 'The Assessment and Rating of Noise from Wind Farms' published in September 1996;

"final commissioning" means the date on which the last wind turbine forming part of the Development is commissioned and exporting electricity;

“first export” means the date on which electricity is first exported on a commercial basis;

“LA90” means the decibel (dB) level exceeded for 90% of each sample period;

“Local Planning Authority” means Powys County Council, or any successor authority for the area within which the Development is located;

“public holiday” means a day that is, or is to be observed as, a public holiday;

“site”, unless the context indicates otherwise, means land within the Development boundary shown outlined in red on the map attached to this consent, and as referred to in Condition 1;

“wind speed” means wind speeds measured on the site at the wind turbine hub height, and corrected to a standard height of 10m above ground level, in a manner agreed with the Local Planning Authority;

“wind turbines” means the wind turbines forming part of the Development; and

“wind turbine” shall be construed accordingly.

Reason: For the avoidance of doubt.

- (2) Where, under any Planning Condition, details, a scheme, or a plan are to be submitted for the approval, or confirmation, of the Local Planning Authority, then unless the condition provides otherwise
 - (a) those details or scheme or plan and that approval must be in writing; and
 - (b) the approved details, scheme or plan shall be taken to include any amendments that may subsequently be approved in writing by the Local Planning Authority, provided that no amendments may be approved by the Local Planning Authority where such amendments may give rise to any materially different environmental effects to those assessed in the Environmental Statement.

Reason: For the avoidance of doubt.

The Development

- (3) The commencement of the Development shall not be later than the expiry of five years from the date of this permission.

Reason: To reflect the time it may reasonably take to put in place the necessary pre-construction measures required, for example – tendering, obtaining the necessary financing and design of the proposal.

- (4) (a) Subject to micro siting in accordance with Planning Conditions (15) to (18), the Development shall be carried out in accordance with the following approved plans and documents:
- (i) The application plan, labelled Figure A4-1AD, submitted to DECC in April 2013; and
 - (ii) The Environmental Statement.
- (b) The Development authorised under this deemed planning permission includes the following ancillary development:
- (i) Upgrading of the site access from the A483 road;
 - (ii) Three temporary construction compound and laydown areas; and
 - (iii) Eight borrow pits.
- (c) In case of conflict between the documents covered by sub-paragraphs (a)(i) and (a)(ii), it is the latest iteration of the design for the Development shown in the application plan that is authorised.

Reason: For the avoidance of doubt.

- (5) This permission is for a period of 25 years from the date of final commissioning, or 28 years from the date of commencement, whichever is the earlier, after which the Development shall be decommissioned and the Site restored.

Reason: For the avoidance of doubt and to establish the duration of this permission.

- (6) Confirmation of the date of commencement shall be provided to the Local Planning Authority within one month of its occurrence.

Reason: To establish the date from which Planning Condition (5) shall apply.

- (7) Confirmation of the date of final commissioning shall be provided to the Secretary of State and the Local Planning Authority no later than one calendar month after that event.

Reason: To establish the date from which Planning Condition (5) shall apply.

Decommissioning of existing Penrhyddlan and Rhyddhywel Range, Llidiartywaun Wind Farms

- (8) (a) No wind turbines shall be erected until a scheme for the decommissioning of the existing wind farm ("the scheme") has been submitted to and approved by the Local Planning Authority.
- (b) The scheme in paragraph (a) shall include provisions for:
- (i) the removal of existing wind turbines;
 - (ii) the removal of such tracks, cabling (including grid connection to Newtown) and other redundant infrastructure as are not to be retained.
- (c) The scheme shall require:
- (i) that existing wind turbines to be entirely taken down and removed from the site no later than 24 months after commencement; and
 - (ii) the removal of such tracks, cabling (including grid connection to Newtown) and other redundant infrastructure as are not to be retained no later than one year after final commissioning.
- (d) Subject to the requirements of paragraphs (b) and (c), all decommissioning will be completed in accordance with the scheme.

Reason: To ensure the previous scheme is removed in an agreed manner and the site returned to an appropriate state.

Site decommissioning and restoration

- (9) (a) Not less than 12 months before the expiry of this permission in accordance with Planning Condition (5), a scheme for the decommissioning and restoration of the Site ("the Site Decommissioning and Restoration Scheme") shall be submitted to and approved by the Local Planning Authority.
- (b) The Site Decommissioning and Restoration Scheme shall be informed by an environmental survey conducted for the preparation of that scheme.
- (c) The scheme shall include, but not be limited to:
- (i) location of material laydown areas;
 - (ii) an environmental management plan informed by an environmental survey to include details of measures to be taken during the decommissioning period to protect wildlife and habitats;
 - (iii) details of all tracks, structures, buildings, underground cables and utilities, and other associated infrastructure to be removed;
 - (iv) details of means of removal;
 - (v) earth moving and soil replacement;
 - (vi) restoration of the landscape; and
 - (vii) monitoring of the restored areas and remedial actions.

- (d) The scheme will be implemented and completed within 24 months after the expiry of this permission.
- (e) In this condition, "an environmental survey" must:
 - (i) consider the environmental effects of the Development and its decommissioning on species and habitats protected at the time that the survey is conducted; and
 - (ii) be relevant and up-to-date.

Reason: to ensure the Development is removed in a sympathetic manner upon expiry of this permission.

- (10) (a) Prior to the implementation of the Site Decommissioning and Restoration Scheme, a community liaison scheme must be submitted to the Local Planning Authority for approval.
 - (b) A community liaison scheme submitted for approval under paragraph (a) must include:
 - (i) details of liaison by the Company with the local community to ensure residents are informed of how the decommissioning of the Development is progressing;
 - (ii) a mechanism for dealing with complaints from the local community during the decommissioning of the Development; and
 - (iii) a nominated representative of the Company who will have the lead role in liaising with local residents and the relevant Local Planning Authority.
 - (c) The community liaison scheme approved under paragraph (a) must be implemented as approved.

Reason: To ensure the amenity of local residents is protected.

- (11) On completion of the restoration work carried out in accordance with the Site Decommissioning and Restoration Scheme, any remaining fixed equipment, machinery and buildings erected or brought onto the site for the purpose of that scheme shall be removed from the site.

Reason: to ensure the site is left in a satisfactory manner upon completion of the Site Decommissioning and Restoration Scheme.

- (12) (a) No Development shall take place on the site until the Company has submitted to the Local Planning Authority details of a financial instrument, and arrangements which will ensure that funds sufficient to cover the costs of completing decommissioning and site restoration are available to the Local Planning Authority prior to the commencement of decommissioning and site restoration.

(b) The financial instrument in paragraph (a) shall include arrangements for funds to increase with inflation and shall include a review provision upon the 5th, 10th, 15th and 20th anniversary of the first export to ensure that the funds remain sufficient to cover the completion of the decommissioning and site restoration costs.

Reason: to ensure the site is left in a satisfactory manner upon completion of the Site Decommissioning and Restoration Scheme.

(13) (a) No Development will take place on site until the Local Planning Authority has approved the financial instrument, it is in place and arrangements have been secured to ensure that funds will be in place prior to the commencement of decommissioning and site restoration.

(b) The financial instrument in paragraph (a) will be maintained by the Company, or any person assigned this consent, throughout the duration of the permission and reinstatement period and the arrangements for deposit of funds, inflation adjustment and review of the financial instrument will be implemented.

Reason: to ensure the site is left in a satisfactory manner upon completion of the Site Decommissioning and Restoration Scheme.

Wind turbine failure

(14) (a) If any wind turbine fails to export electricity for a continuous period of 12 months or more (other than for reasons relating to noise), the Local Planning Authority must be notified upon expiry of that 12 month period by the Company.

(b) Upon the expiry of the 12 month period in paragraph (a), the Local Planning Authority can instruct the Company to submit a detailed scheme setting out:

- (i) how the wind turbine will be removed from the site; and
- (ii) what associated tracks, structures, buildings and other associated infrastructure (including cabling) are to be removed from the site and how these will be removed and how the disturbed areas will be restored.

(c) Any scheme required under paragraph (b) must:

- (i) include details of any necessary protection for breeding birds required as a consequence of the works;
- (ii) be submitted to the Local Planning Authority within 2 months of the Local Planning Authority's instruction; and

- (iii) implemented within 6 months of approval unless a longer period is agreed in writing by the Local Planning Authority provided that
- (d) if, during the period following an instruction to the Company from the Local Planning Authority in accordance with (b) the wind turbine once again exports electricity, there will be no requirement to remove the wind turbine or associated infrastructure.

Reason: To ensure appropriate provision is made for a wind turbine or wind turbines requiring repair or for a wind turbine or wind turbines which require decommissioning.

Development Micro-Siting

- (15) (a) The wind turbines and anemometer masts shall be erected at the coordinates given on Figure 4-1AD.
- (b) Subject to Planning Condition (17), a variation of the indicated position of any of the wind turbines shall be permitted by up to 50 metres in any direction.
- (c) Subject to Planning Condition (17), a variation of the position of any tracks shall be permitted by up to 100 metres in any direction from that shown on the approved plan, Figure 4-1AD.
- (d) Micro-siting tolerances are shown on Drawing No. LLA-P-009 Rev A4 Sheets 1 & 2.
- (e) Any variation permitted under this condition cannot be outside the environmental impacts considered in the Environmental Statement.

Reason: To allow the Company flexibility during construction to make minor changes in the location of infrastructure to deal with difficulties such as poor ground conditions that become apparent during construction.

- (16) (a) Planning condition (15) does not permit variation of the position of the Development infrastructure such that any part of it falls within the restricted areas shaded grey on Drawing No. LLA-P-009 Rev A4 Sheets 1 & 2.
- (b) The position of any part of the Development infrastructure presently shown on the approved plan, Figure 4-1AD as being within the restricted areas shall be varied in accordance with Planning Condition (15) or Planning Condition (17) such that it is no longer within the restricted areas.

Reason: To ensure that impact upon peaty soils and their related habitats at the Site is reduced to a minimum having regard to other relevant constraints.

(17) Notwithstanding the constraints placed on variation of the location of tracks by Planning Condition (15), the following sections of track may be realigned as shown on Drawing No. LLA-P-009 Rev A4 Sheets 1 & 2 from the route shown in purple to the route shown in blue:

- (a) Section of access track between grid references 302697,281288 and 302809,281249;
- (b) Section of access track between grid references 303908,285307 and 303903,285309; and
- (c) Section of access track between grid references 303623,285259 and 303774,285190

Reason: To allow for minor variations such that tracks can be more efficiently aligned and can avoid peaty soils and their related habitats, or in the case of the track alignment north and south of T35, to reduce the number of water crossings.

(18) Within 6 months after final commissioning, a plan showing the exact location of all Development (including tracks, hardstandings, access areas, wind turbines, borrow pits etc.) shall be submitted to the Local Planning Authority.

Reason: to record the final as built scheme once micro-siting allowances have been taken into account.

Detailed Development - design and appearance

(19). (a) No wind turbines shall be delivered to site until details of the wind turbines, including make, model, design, size, and if there is an external transformer, the transformer location, the power rating, the anemometer mast and associated apparatus has been submitted to the Local Planning Authority for approval.

(b) Wind turbines, anemometer mast and associated apparatus forming part of the Development may only be permitted where in accordance with the details approved by the Local Planning Authority under paragraph (a).

Reason: to ensure satisfactory appearance and in the interests of visual amenity.

(20) (a) No wind turbines shall be erected until the proposed colour scheme for the wind turbines is submitted to the Local Planning Authority and approved by that Local Planning Authority.

(b) Wind turbines may only be erected if they comply with the colour scheme approved under paragraph (a).

Reason: to ensure satisfactory appearance and in the interests of visual amenity.

- (21) The wind turbine blades on all the wind turbines hereby granted consent may only rotate in the same direction.

Reason: To safeguard the visual amenities of the area.

- (22) All electricity cables connecting the wind turbine arrays and the substation must be installed underground.

Reason: In the interests of visual amenity.

- (23) No Development of the on-site substation building may commence until details relating to its location, external treatment, design, materials, landscaping (if any), and orientation have been submitted to and approved by the Local Planning Authority. The substation shall be constructed in accordance with the approved details.

Reason: In the interests of visual amenity.

- (24) (a) No outdoor lighting other than

- (i) temporary site illumination approved under Planning Condition (37) as part of the Construction Environmental Management Plan; and
- (ii) aviation lighting to be installed in accordance with Planning Condition (49) of this Consent,

may be used in the course of operation of the Development unless details of such lighting have been submitted to and approved by the Local Planning Authority.

(b) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

(c) Outdoor lighting may only be provided in accordance with the details approved by the Local Planning Authority.

Reason: in the interests of visual amenity.

- (25) Except during the construction period, no symbols, signs, logos or other lettering, other than those required by law for health and safety reasons, shall be displayed on any part of the wind turbines, any building or any other structure without approval from the Local Planning Authority.

Reason: In the interests of visual amenity.

Construction Hours

(26) (a) Subject to paragraphs (b) and (c), construction work may only take place between the hours of 07:30 to 19:30 hours on Monday to Friday inclusive, and 07:30 to 13:00 hours on Saturdays ("the permitted hours"), with no construction work on a Sunday or a public holiday in Wales.

(b) Outside the permitted hours, works at the site shall be limited to emergency works, erection of wind turbines (not including piling activities), dust suppression, and the testing/maintenance of plant and equipment, or construction work that is not audible from any noise sensitive property.

(c) The Local Planning Authority shall be informed in writing of emergency works within three working days of works permitted under paragraph (b).

(d) Work not within paragraphs (a) and (b) may be approved in writing by the Local Planning Authority.

Reason: To protect amenity.

(27) All activities associated with the construction of the Development shall be carried out in accordance with British Standard BS5228:2009: *Code of Practice for noise and vibration control on construction and open sites – Part 1: Noise and Part 2: Vibration.*

Reason: To protect amenity.

Highways

(28) (a) No Development shall take place other than site establishment and creation of the construction compound until details of the works at the junction of the C2025 with the A483 have been submitted to and approved by the Local Planning Authority.

(b) The details submitted under paragraph (a) must include:

(i) details of visibility splays that shall be kept free at all times of any obstruction including trees and shrubs exceeding 1.05 metres in height above the adjoining carriageway;

(ii) drainage details; and

(iii) road markings and signage proposals.

(c) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

- (d) No construction works or decommissioning requiring the use of HGVs (other than works required in connection with site establishment and creation of the construction compound) may take place prior to the implementation of the works in accordance with the approved details approved under paragraph (a).

Reason: To ensure a satisfactory means of access to and from the Trunk Road is provided in the interests of highway safety.

- (29) (a) No Development shall take place other than site establishment and creation of the construction compound until detailed plans of the works to be carried out to the C2025 Pentre Road and U2835 unclassified county highway have been submitted to and approved in writing by the Local Planning Authority.

- (b) The details submitted under paragraph (a) must include:
- (i) details of localised widening and indivisible load passing places;
 - (ii) details of changes to vertical alignments;
 - (iii) details of visibility splays that shall be kept free at all times of any obstruction including trees and shrubs exceeding 1.05 metres in height above the adjoining carriageway;
 - (iv) drainage details;
 - (v) road markings and signage proposals; and
 - (vi) a programme for the works.

(c) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

(d) The works to be carried out to the C2025 Pentre Road and U2835 unclassified county highway may only be implemented in accordance with the details approved in accordance with paragraph (a).

Reason: To ensure a satisfactory access to and from the Development is provided in the interests of highway safety, amenity and nature conservation.

- (30) (a) Prior to the submission of the Transport Management Plan required by Planning Condition (31), a plan for the assessment of the capacity of and impact on highways structures including layover areas, passing places, bridges, culverts, retaining walls, embankments and drainage systems, that may be affected by Abnormal Indivisible Load deliveries shall be submitted to and approved by the Local Planning Authority.

(b) No deliveries by Abnormal Indivisible Load shall take place until the approved assessment has been carried out.

(c) Where the approved assessment indicates strengthening or other works may be required, no Abnormal Indivisible Loads shall be delivered until full engineering details and drawings of any works required to such structures to accommodate the passage of Abnormal Indivisible Loads have been submitted to and approved by the Local Planning Authority

(d) Any works required by paragraph (c) must be completed prior to any Abnormal Indivisible Load deliveries to the site.

Reason: in the interests of highway safety and amenity.

(31) (a) No Abnormal Indivisible Loads shall be delivered to the Site until a Traffic Management Plan (TMP) for Abnormal Indivisible Load deliveries has been submitted to and approved by the Local Planning Authority.

(b) The TMP must include:

- (i) Abnormal Indivisible Load vehicle routing;
- (ii) the carrying out of any widening or junction improvements and works (including to street lighting, street signs and safety barriers) and the provision of passing places, layover areas and welfare facilities required to achieve the delivery of Abnormal Indivisible Loads along the proposed route;
- (iii) availability of access to any passing places, layover areas and welfare facilities that are not proposed to form a part of the highway network;
- (iii) the outcome of trial runs to demonstrate the suitability of the route;
- (iv) management of junctions and crossings of highways and other public rights of way while Abnormal Indivisible Load deliveries take place;
- (v) management and maintenance of layover areas, passing places and welfare facilities;
- (vi) details of temporary warning signs;
- (vii) restrictions on Abnormal Indivisible Load movements during special events including (without limitation) the Royal Welsh and Smallholders shows;
- (viii) for any highway works proposed to be carried out, a statement whether they are to be permanent or temporary and, if temporary, when they will be removed and the highway restored to its previous condition;
- (ix) details of a review mechanism to enable changes in circumstances after the agreement of the TMP to be addressed; and
- (x) details of the highway works associated with the construction of the layover areas, passing places and highway improvements shall be set out in the TMP (including methods of construction, drainage, street lighting, signage and road markings).

(c) After a TMP has been approved under paragraph (a), delivery of Abnormal Indivisible Loads shall be carried out in accordance with that approved TMP.

(d) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

(e) Any works required by this condition must be completed in accordance with the approved details before to the commencement of any Abnormal Indivisible Load deliveries to the site.

Reason: in the interests of highways safety and amenity.

(32) (a) No Abnormal Indivisible Load deliveries shall be made to the site until an AIL Management Strategy has been submitted to and approved in writing by the Local Planning Authority.

(b) All Abnormal Indivisible Load deliveries may only be carried out in accordance with the approved AIL Management Strategy, which must include details of the following:

- (i) persons responsible for the management and implementation of the AIL Management Strategy;
- (ii) means of control of timing of delivery Abnormal Indivisible Load movements;
- (iii) temporary traffic diversions and traffic hold points;
- (iv) details of banksmen and escorts for abnormal loads;
- (v) coordination with all other Abnormal Indivisible Load deliveries (including without limitation to other wind farms in Mid Wales)
- (vii) description of procedures for the allocation of delivery slots including delivery slot triggers and trading;
- (viii) the appointment and role of a Transport Coordinator;
- (ix) management and maintenance of layover areas and welfare facilities;
- (x) liaison with relevant highway and planning authorities and the Police;
- (xi) liaison with members of the public and local communities; and
- (xii) liaison with the hauliers and landowners.

Reason: In the interests of highway safety and amenity

(33) (a) No Development shall commence until a scheme providing for the remediation of any damage directly attributable to the Development to the highway infrastructure which will be utilised during the construction of the Development has been submitted to and approved by the Local Planning Authority following consultation with the relevant highway authorities.

(b) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

(c) The scheme shall be implemented as approved.

Reason: To ensure the safety of the highways affected and that the Company rectifies any directly attributable damage caused.

(34) (a) No construction works or decommissioning requiring the use of HGVs (other than works required in connection with site establishment and creation of the construction compound) shall take place on site until a traffic management plan for construction vehicles ("the plan") has been submitted to and approved in writing by the Local Planning Authority.

(b) The approved traffic management plan must be complied with and must include details of the following

- (i) construction vehicle routing;
- (ii) means of monitoring vehicle movements to and from the site including the use of liveried construction vehicles displaying the name of the Company, the vehicle number, a telephone number for complaints and procedures for dealing with complaints;
- (iii) timing of deliveries of construction materials to the site;
- (iv) the management of junctions and crossings of roads and other public rights of way;
- (v) measures to be put in place including contractual arrangements with contractors and subcontractors to ensure that complaints and breaches of requirements in the plan are able to be remedied;
- (vi) a travel plan aimed at maximising the use of sustainable travel by the construction workforce associated with the Development;
- (vii) vehicle movements during special events including (without limitation) the Royal Welsh and Smallholders shows;
- (viii) communications with members of the public and local communities; and
- (ix) details of a review mechanism to enable changes in circumstances after the agreement of the plan to be addressed.

(b) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

Reason: In the interests of highway safety and amenity.

(35) (a) No Abnormal Indivisible Load movements associated with any repairs, removal, or replacement components shall take place during the life of the Development until a traffic management plan dealing with such repair and/or

replacement has been submitted to and approved by the Local Planning Authority.

(b) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

(c) The approved traffic management plan under paragraph (a) must be implemented.

Reason: To ensure the safety of the highways affected and in the interests of amenity.

(36) (a) No movement of traffic associated with the decommissioning of the Development shall take place until a traffic management plan dealing with such decommissioning has been submitted to and approved in writing by the Local Planning Authority.

(b) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

(c) The approved traffic management plan must be implemented.

Reason: To ensure the safety of the highways affected and in the interests of amenity.

Construction Management

(37) (a) No development may commence until a Construction Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority.

(b) The CEMP must be complied with, subject to any variations approved in writing by the Local Planning Authority.

(c) The CEMP must include:

(i) details of the temporary site compounds and laydown areas including temporary structures/buildings, fencing, parking and storage provision to be used in connection with the construction of the Development;

(ii) location and method of working of borrow pits;

(iii) details of the proposed storage of materials and disposal of surplus materials to include soil, peat, rock and waste;

(iv) dust management details;

(v) an Environmental Management and Pollution Prevention Plan including a Drainage Management Plan and a Ground and Surface

Water Management Plan to address pollution control, protection of the water environment and private water supplies, bunding of fuel storage areas, ground & surface water drainage, sewage disposal and discharge of foul drainage, water quality monitoring, and measures to deal with heavy rain;

(vi) temporary site illumination during the decommissioning and construction period;

(vii) details of the phasing of construction works;

(viii) details of and method statements for surface treatments and the construction of all hard surfaces, tracks and cable trenches;

(ix) details of emergency procedures and pollution response plans including those for heavy rain;

(x) siting and details of wheel washing facilities;

(xi) details of cleaning of site entrances, site tracks and the adjacent public highway and the sheeting of all HGVs taking spoil or construction materials to/from the site to prevent spillage or deposit of any materials on the highway;

(xii) a site environmental management plan to include details of measures to be taken during the decommissioning and construction period to protect wildlife and habitats;

(xiii) areas on the Site designated for the storage, loading, off-loading, parking and manoeuvring of heavy duty plant, equipment and vehicles;

(xiv) details of the measures to be taken to ensure that the visibility splays remain free of obstacles exceeding 1.05m in height throughout the construction and post construction restoration period;

(xv) details and a timetable for post construction restoration/reinstatement of the temporary working areas, laydown areas and the construction compounds, track verges and cable trenches;

(xvi) details of coordination with any approved scheme of archaeological works;

(xvii) details of the design and construction of any water crossings and culverts;

(xviii) details for the decommissioning and removal of the existing wind turbines and associated infrastructure on the Site;

(xix) details of tree felling, timber removal and any replanting proposed;

(xx) monitoring procedures to ensure compliance;

(xxi) working practices for protecting nearby residential dwellings, including measures to control noise and vibration arising from on-site activities, to be adopted as set out in British Standard 5228:2009: Code of Practice for noise and vibration control on construction and open sites – Part 1: Noise and Part 2: Vibration;

(xxii) details of soil and peat management;

(xxiii) details of concrete mixing and washout areas; and

(xxiv) a waste management plan.

(d) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

Reason: To ensure a satisfactory level of environmental protection and to minimise disturbance to local residents during the construction process.

Rights of Way Management Plan

- (38) (a) No Development shall commence until a Rights of Way Management Plan (RWMP) has been submitted to and approved by the Local Planning Authority.
- (b) The RWMP must be implemented as approved and must include:
- (i) details of the temporary re-routing of public rights of way during construction of the Development;
 - (ii) details of the provision of signage and other information alerting the public to construction works;
 - (iii) details of any fencing or barriers to be provided during the construction period;
 - (iv) details as to how public rights of way, paths and roads will be inspected prior to and monitored during the construction period; and
 - (v) details of protection of breeding birds where any public right of way is re-routed.
- (c) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

Reason: to protect public rights of way.

Ecology

- (39) (a) No vegetation clearance and tree felling or other Development may commence until a breeding bird protection plan has been submitted to and approved by the Local Planning Authority.
- (b) The plan in paragraph (a) must incorporate the proposals scoped in the 2013 SEI and, for curlews, the draft Breeding Bird Protection Plan for this species, dated 20 September 2013.
- (c) The plan in paragraph (a) must set out measures to protect breeding birds and discourage birds from breeding on those areas of the Development Site to be worked on during the relevant breeding season.
- (d) A breeding bird protection plan approved under paragraph (a) must be implemented as approved throughout the decommissioning of the existing

wind farm and construction phases of the scheme, unless amended with the prior approval of the Local Planning Authority.

(e) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

Reason: To protect breeding birds during wind farm construction and decommissioning.

(40) (a) Prior to the commencement of site vegetation clearance, tree felling or other Development a scheme for protected species update surveys shall be submitted to and approved in writing by the Local Planning Authority.

(b) The survey results from paragraph (a) and a programme of any modification to mitigation required as a consequence shall be submitted to and approved in writing by the Local Planning Authority prior to any works associated with the Development taking place.

(c) The surveys required by paragraph (a) shall be undertaken by a suitably qualified ecologist in the last suitable season prior to site preparation and construction work commencing.

(d) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

(e) The programme of mitigation work shall be implemented as approved for the duration of decommissioning of the existing wind farm and construction activities.

Reason: In the interests of nature conservation.

(41) (a) First export may not take place unless a post-construction monitoring programme has been submitted to and approved by the Local Planning Authority.

(b) The post-construction monitoring programme must:

(i) provide for monitoring habitat areas, selected bird species and bats detailed in the Habitat Management Plan (HMP) agreed pursuant to Planning Condition (42);

(ii) detail the scope and frequency of the proposals set out in the agreed HMP; and

(iii) provide for reporting as agreed to the Local Planning Authority and other parties as deemed appropriate by the Local Planning Authority.

(c) The post-construction monitoring programme must be implemented as approved unless amended with the prior approval of the Local Planning Authority.

Reason: To protect breeding birds and bats.

(42) (a) No vegetation clearance, tree felling or Development shall commence until a Habitat Management Plan (HMP) has been submitted to and approved by the Local Planning Authority.

(b) The HMP must incorporate the proposals set out in the Environmental Statement and the draft proposals dated 23 September 2013.

(c) The HMP must include measures to:

- (i) enhance the soligenous fen and bogmire habitat,
- (ii) enhance the habitat for brown hares,
- (iii) enhance the habitat for viviparous lizard,
- (iv) enhance the habitat for breeding curlews.

(d) The HMP must be implemented as approved unless amended with the prior approval of the Local Planning Authority.

(e) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

Reason: In the interests of safeguarding or enhancing the relevant habitats and conditions for associated species.

(43) (a) Prior to the commencement of site clearance, tree felling or other Development an Ecological Clerk of Works (ECoW) shall be appointed.

(b) The ECoW shall be appointed after approval by the Local Planning Authority for the period from commencement of Development to final commissioning.

(c) The scope of work of the ECoW is to include:

- (i) monitoring compliance with the ecological mitigation works that have been approved in this consent and providing quarterly reports reporting compliance to the Local Planning Authority;
- (ii) advising the Company on adequate protection of nature conservation interests on the Site and downstream on the River Wye SAC;
- (iii) directing the micro-siting and placement of wind turbines, tracks and other infrastructure;

- (iv) monitoring the compliance with environmental management measures in the CEMP and all methods statements and keeping an audit trail of compliance; and
- (v) providing advice to contractors about legally protected species and the River Wye SAC.

Reason: In the interests of protecting the ecological and ornithological environment.

Shadow Flicker

- (44) (a) Prior to the erection of the first wind turbine, a written scheme must be submitted to and approved in writing by the Local Planning Authority setting out a protocol for the assessment of shadow flicker in the event of any complaint to the Local Planning Authority from the owner or occupier of a residential dwelling which lawfully existed or had planning permission at the date of this consent.
- (b) The written scheme in paragraph (a) must include details of remedial measures to alleviate any shadow flicker attributable to the Development.
- (c) The wind turbines must be operated in accordance with the approved protocol unless the Local Planning Authority gives its prior written consent to any variations.
- (d) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

Reason: In the interests of residential amenity.

Television Interference

- (45) (a) No wind turbine may be erected until a scheme has been submitted to and approved by the Local Planning Authority providing for the investigation of and remediation of any interference with television reception at any dwelling which lawfully existed or had planning permission at the date of this consent.
- (b) The scheme in paragraph (a) must provide for the investigation by a qualified independent television engineer of any complaint of interference with television reception at a lawfully occupied dwelling, where such complaint is notified to the Company by the Local Planning Authority within 24 months of the date of final commissioning.
- (c) A scheme approved under paragraph (a) must be implemented as approved.

Reason: In the interests of residential amenity.

Archaeology

- (46) (a) No Development may commence until a scheme of archaeological investigation has been submitted to and approved by the Local Planning Authority.
- (b) A scheme of archaeological investigation approved under paragraph (a) must be implemented as approved.
- (c) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

Reason: To ensure that any archaeological remains present are investigated and preserved.

- (47). All records collated, as a result of the scheme of archaeological investigation, under Planning Condition (46), must be submitted to the Local Planning Authority and sent to the Historic Environment Record (currently held by Clwyd-Powys Archaeological Trust) within 6 months of the record being collated.

Reason: To ensure that any archaeological findings are suitably recorded.

Aviation

- (48) No wind turbine may be erected before the following information has been provided to the Defence Geographic Centre of the Ministry of Defence:
- (a) the date that construction starts and ends;
- (b) the maximum height of construction equipment; and
- (c) the latitude and longitude of every wind turbine.

Reason: In the interests of aviation safety.

- (49) (a) 25 candela omni-directional aviation lighting or infra-red aviation lighting, accredited by the Ministry of Defence and with an optimised flash pattern of 60 flashes per minute of 200ms to 500ms duration, shall be installed on the nacelles of wind turbines 1, 5, 8, 13, 15, 17, 27, 28, 32, 34, 38 and 42 as shown on Figure A4-1 of the 2013 SEI or such other wind turbines as the Local Planning Authority, having consulted the Ministry of Defence, agrees will provide equally effective illumination for air navigation purposes.
- (b) The lighting shall remain operational until such time as the wind turbines are decommissioned and removed from the site.

Reason: In the interests of aviation safety.

Community Liaison

- (50) (a) No Development shall commence until a community liaison scheme for the construction period including decommissioning of the existing wind farm has been submitted to and approved by the Local Planning Authority.
- (b) The community liaison scheme must include:
- (i) details of developer liaison with the local community to ensure residents are informed of how the construction, including decommissioning of the existing wind farm, of the Development is progressing;
 - (ii) a mechanism for dealing with complaints from the local community during the construction of the Development and decommissioning of the existing wind farm; and
 - (iii) a nominated representative of the Company who will have the lead role in liaising with local residents and the relevant Local Planning Authority.
- (c) The community liaison scheme must be implemented as approved under paragraph (a).

Reason: To ensure the amenity of local residents is protected.

Local Employment and Training

- (51) The Development may not be commenced until details of a Training and Employment Management Plan, has been submitted to and approved in writing by the Local Planning Authority. The plan must aim to promote training and employment opportunities at all stages of the development for local people and maximise the use of local contractors and supply chains. It must include requirements to submit monitoring information on the plan to the Local Planning Authority. The Development is to be carried out in accordance with the agreed plan, including any amendments to the plan that have been agreed in writing with the Local Planning Authority.

Reason: To promote training and employment opportunities for local people and to maximise the use of local contractors and supply chains.

Noise

- (52) (a) No wind turbine may be brought into operation prior to the submission to and approval in writing by the Local Planning Authority of a scheme for the assessment and regulation of Excess Amplitude Modulation (EAM).
- (b) That scheme in paragraph (a) must be in general accordance with, if existing at the time of submission:

- (i) relevant guidance endorsed in National Planning Policy; or in the absence of endorsed guidance; and
- (ii) relevant guidance published by the Institute of Acoustics, or its successor.

(c) Any approval granted under this condition cannot be outside the environmental impacts considered in the Environmental Statement for the Development.

(d) The approved scheme under paragraph (a) must be implemented while any wind turbine consented under this consent operating at the Development.

Reason: In the interests of public amenity to ensure that EAM is suitably addressed.

(53) The rating level of noise immissions from the combined effects of the wind turbines (including the application of any tonal penalty) when determined in accordance with the attached Guidance Notes to this condition, shall not exceed the values for the relevant integer wind speed set out in, or derived from, the table attached to this condition at any dwelling which lawfully exists or has planning permission at the date of this consent and:

(a) The Company shall continuously log power production, wind speed and wind direction, all in accordance with Guidance Note 1(d). These data shall be retained for a period of not less than 24 months. The Company shall provide this information in the format set out in Guidance Note 1 (e) to the Local Planning Authority on its request, within 14 days of receipt in writing of such a request.

(b) No electricity shall be exported until the Company has submitted to the Local Planning Authority for written approval a list of proposed independent consultants who may undertake compliance measurements in accordance with this condition. Amendments to the list of approved consultants shall be made only with the prior written approval of the Local Planning Authority.

(c) Within 21 days from receipt of a written request from the Local Planning Authority following a complaint to it from an occupant of a dwelling alleging noise disturbance at that dwelling, the Company shall, at its expense, employ a consultant approved by the Local Planning Authority to assess the level of noise immissions from the wind farm at the complainant's property in accordance with the procedures described in the attached Guidance Notes. The written request from the Local Planning Authority shall set out at least the date, time and location that the complaint relates to and any identified atmospheric conditions, including wind direction, and include a statement as to whether, in the opinion of the Local Planning Authority, the noise giving rise to the complaint contains or is likely to contain a tonal component.

- (d) The assessment of the rating level of noise immissions shall be undertaken in accordance with an assessment protocol that shall previously have been submitted to and approved in writing by the Local Planning Authority. The protocol shall include the proposed measurement location identified in accordance with the Guidance Notes where measurements for compliance checking purposes shall be undertaken, whether noise giving rise to the complaint contains or is likely to contain a tonal component, and also the range of meteorological and operational conditions (which shall include the range of wind speeds, wind directions, power generation and times of day) to determine the assessment of rating level of noise immissions. The proposed range of conditions shall be those which prevailed during times when the complainant alleges there was disturbance due to noise, having regard to the written request of the Local Planning Authority under paragraph (c), and such others as the independent consultant considers likely to result in a breach of the noise limits.
- (e) Where a dwelling to which a complaint is related is not listed in the tables attached to these conditions, the Company shall submit to the Local Planning Authority for written approval proposed noise limits selected from those listed in the Tables to be adopted at the complainant's dwelling for compliance checking purposes. The proposed noise limits are to be those limits selected from Table 1, having regard to Table 2, and specified for a listed location which the independent consultant considers as being likely to experience the most similar background noise environment to that experienced at the complainant's dwelling. The rating level of noise immissions resulting from the combined effects of the wind turbines when determined in accordance with the attached Guidance Notes shall not exceed the noise limits approved in writing by the Local Planning Authority for the complainant's dwelling.
- (f) The Company shall provide to the Local Planning Authority the independent consultant's assessment of the rating level of noise immissions undertaken in accordance with the Guidance Notes within 2 months of the date of the written request of the Local Planning Authority for compliance measurements to be made under paragraph (c), unless the time limit is extended in writing by the Local Planning Authority. The assessment shall include all data collected for the purposes of undertaking the compliance measurements, such data to be provided in the format set out in Guidance Note 1(e) of the Guidance Notes. The instrumentation used to undertake the measurements shall be calibrated in accordance with Guidance Note 1 (a) and certificates of calibration shall be submitted to the Local Planning Authority with the independent consultant's assessment of the rating level of noise immissions.
- (g) Where a further assessment of the rating level of noise immissions from the wind farm is required pursuant to Guidance Note 4(c), the Company shall submit a copy of the further assessment within 21 days

of submission of the independent consultant's assessment pursuant to paragraph (d) above unless the time limit has been extended in writing by the Local Planning Authority.

Reason: in the interests of the protection of residential amenity.

Table 1: Noise limits expressed in dB LA90,10 minute as a function of the standardised wind speed (m/s) at 10 metre height as determined within the site averaged over 10 minute periods.

Location	Standardised wind speed at 10 meter height (m/s) within the site averaged over 10-minute periods											
	1	2	3	4	5	6	7	8	9	10	11	12
Cwm Diffwys	35. 0	35. 0	35. 0	35. 0	36. 5	38. 0	38. 0	38. 0	38. 0	38. 0	38. 0	38. 0
Pantydwr	35. 0	35. 0	35. 0	35. 0	36. 0	37. 0	37. 0	37. 0	37. 0	37. 0	37. 0	37. 0
Cwm Feinon	35. 0	35. 0	35. 0	35. 0	37. 0	39. 0	39. 0	39. 0	39. 0	39. 0	39. 0	39. 0
Waen Cwm Yr Ynys	35. 0	35. 0	35. 0	35. 0	38. 0	39. 5	39. 5	39. 5	39. 5	39. 5	39. 5	39. 5
Waenllwydion	35. 0	35. 0	35. 0	35. 0	35. 0	35. 0	35. 0	35. 0	35. 0	35. 0	35. 0	35. 0
Wainhir	35. 0	35. 0	35. 0	35. 0	36. 0	37. 0	37. 0	37. 0	37. 0	37. 0	37. 0	37. 0
Bryn Llyndwr	35. 0	35. 0	35. 0	35. 0	36. 0	36. 5	37. 0	37. 5	37. 5	37. 5	37. 5	37. 5
Paby Llwyd 1	35. 0	35. 0	35. 0	35. 0	37. 0	39. 0	39. 0	39. 0	39. 0	39. 0	39. 0	39. 0
Paby Llwyd 2	35. 0	35. 0	35. 0	35. 0	37. 0	38. 0	39. 0	39. 0	39. 0	39. 0	39. 0	39. 0
Paby Llwyd 3	35. 0	35. 0	35. 0	35. 0	36. 0	36. 0	37. 0	39. 0	39. 0	39. 0	39. 0	39. 0
Paby Llwyd 4	35. 0	35. 0	35. 0	35. 0	35. 0	35. 0	36. 0	37. 0	37. 0	37. 0	37. 0	37. 0

Table 2: Coordinate locations of the properties listed in Table 1

Property	Easting	Northing	Applicable limit (table 1)
Cwm Diffwys	301115	281407	Cwm Diffwys
Community centre	300083	281670	Pantydwr
Pen-y-lan	300194	282226	Pantydwr
Pantydwr	300388	282065	Pantydwr
Pen-y-banc	300720	282740	Pantydwr
Graig	300771	282459	Pantydwr
Cwm farm	300958	282570	Pantydwr
Ty'n-y-pwll	300787	283285	Pantydwr
Rhiwysgyfarnog	301162	283099	Pantydwr
Cwm Feinon	301467	283746	Pantydwr
Gwern-y-gigfran	301259	284336	Pantydwr
Bryn Coch	301063	283695	Pantydwr
Foel Fawr	301830	284360	Cwm Feinon
Foel Fach	301541	284471	Pantydwr
Cwm Feinon	301986	184682	Cwm Feinon
Glyn Fach	301501	284752	Pantydwr
Waen Cwm Yr Ynys	302505	285224	Waen Cwm Yr Ynys
Coed-y-Gaer	300965	285007	Waenllwydion
Cwmffrwd	304159	287611	Waenllwydion
Waenllwydion	303775	287263	Waenllwydion
Wainhir	305296	286650	Wainhir
Ty'n-y-velvn	305271	286985	Wainhir
Pentre	306484	286038	Wainhir
Duqwm Farm	305619	285068	Waan Cwm Yr Ynys
Gwrhyd	306481	285167	Bryn Llyndwr
Bryn Picca	306766	284176	Wainhir
Bryn Llyndwr	305950	283300	Bryn Llyndwr
Paby Llwyd 1	305324	282553	Paby Llwyd 1
Paby Llwyd 2	305039	282383	Paby Llwyd 2
Paby Llwyd 3	304807	281859	Paby Llwyd 3
Paby Llwyd 4	304774	281328	Paby Llwyd 4

Note to Table 2: The geographical coordinate references are provided for the purpose of identifying the general location of dwellings to which a given set of noise limits applies.

General Note: For the purposes of this condition, a dwelling is a building within use class C3 and C4 of the Town and Country Planning (Use Classes) Order 1987 (as amended) which lawfully exists or had planning permission as at the date of this consent.

Guidance Notes for Noise Conditions

These notes are to be read with and form part of the noise condition. They further explain the condition and specify the methods to be employed in the assessment of complaints about noise immissions from the wind farm. The rating level at each integer wind speed is the arithmetic sum of the wind farm noise level as determined from the best-fit curve described in guidance Note 2 of these Guidance Notes and any tonal penalty applied in accordance with Guidance Note 3. Reference to ETSU-R-97 refers to the publication entitled "The Assessment and Rating of Noise from Wind Farms" (1997) published by the Energy Technology Support Unit (ETSU) for the Department of Trade and Industry (DTI).

Guidance Note 1

(a) Values of the LA90(10 minute) noise statistic should be measured at the complainant's property, using a sound level meter of EN 60651/BSB EN 60804 Type 1, or BSB EN 61672 Class 1 quality (or the equivalent UK adopted standard in force at the time of the measurements) set to measure using the fast time weighted response as specified in SS EN 60651/BSB EN 60804 or BS EN 61672-1 (or the equivalent UK adopted standard in force at the time of the measurements). This should be calibrated in accordance with the procedure specified in BS 4142: 1997 (or the equivalent UK adopted standard in force at the time of the measurements). Measurements shall be undertaken in such a manner to enable a tonal penalty to be applied in accordance with Guidance Note 3.

(b) The microphone should be mounted at 1.2 -1.5 metres above ground level, fitted with a two-layer windshield or suitable equivalent approved in writing by the Local Planning Authority, and placed outside the complainant's dwelling. Measurements should be made in "free field" conditions. To achieve this, the microphone should be placed at least 3.5 metres away from the building facade or any reflecting surface except the ground at the approved measurement location. In the event that the consent of the complainant for access to his or her property to undertake compliance measurements is withheld, the wind farm operator shall submit for the written approval of the Local Planning Authority details of the proposed alternative representative measurement location prior to the commencement of measurements and the measurements shall be undertaken at the approved alternative representative measurement location.

(c) The LA90(10 minute) measurements should be synchronised with measurements of the 10- minute arithmetic mean wind and operational data logged in accordance with Guidance Note 1 (d), including the power generation data from the wind turbine control systems of the wind farm.

(d) To enable compliance with the conditions to be evaluated, the wind farm operator shall continuously log arithmetic mean wind speed in metres per second and wind direction in degrees from north at hub height for each wind turbine and arithmetic mean power generated by each wind turbine, all in successive 10-minute periods. Unless an alternative procedure is previously agreed in writing with the Planning Authority, this hub height wind speed, averaged across all operating wind turbines, shall be used as the basis for the analysis. All 10 minute arithmetic average mean wind speed data measured at hub height shall be 'standardised' to a reference height of 10 metres as described in ETSU-R-97 at page 120 using a reference roughness length of 0.05 metres. It is this standardised 10 metre height wind speed data, which is correlated with the noise measurements determined as valid in accordance with Guidance Note 2, such correlation to be undertaken in the manner described in Guidance Note 2. All 10 minute periods shall commence on the hour and in 10- minute increments thereafter.

(e) Data provided to the Local Planning Authority in accordance with the noise condition shall be provided in comma separated values in electronic format.

(f) A data logging rain gauge shall be installed in the course of the assessment of the levels of noise immissions. The gauge shall record over successive 10minute periods synchronised with the periods of data recorded in accordance with Note 1 (d).

Guidance Note 2

(a) The noise measurements shall be made so as to provide not less than 20 valid data points as defined in Guidance Note 2 (b).

(b) Valid data points are those measured in the conditions specified in the agreed written protocol under paragraph (d) of the noise condition, but excluding any periods of rainfall measured in the vicinity of the sound level meter. Rainfall shall be assessed by use of a rain gauge that shall log the occurrence of rainfall in each 10 minute period concurrent with the measurement periods set out in Guidance Note 1.

(c) For those data points considered valid in accordance with Guidance Note 2(b), values of the LA90, 10 minute noise measurements and corresponding values of the 10- minute wind speed, as derived from the standardised ten metre height wind speed averaged across all operating wind turbines using the procedure specified in Guidance Note 1 (d), shall be plotted on an XY chart with noise level on the Y-axis and the standardised mean wind speed on the X-axis. A least squares, "best fit" curve of an order deemed appropriate by the independent consultant (but which may not be higher than a fourth order) should be fitted to the data points and define the wind farm noise level at each integer speed.

Guidance Note 3

(a) Where, in accordance with the approved assessment protocol under paragraph (d) of the noise condition, noise immissions at the location or locations where compliance measurements are being undertaken contain or are likely to contain a

tonal component, a tonal penalty is to be calculated and applied using the following rating procedure.

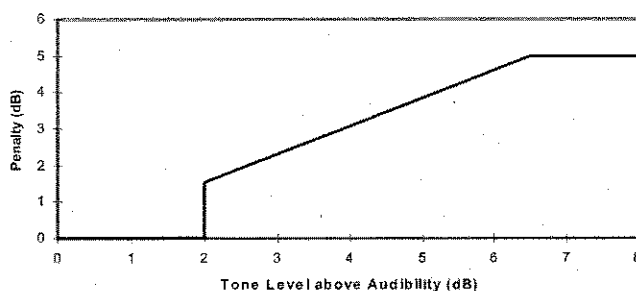
(b) For each 10 minute interval for which LA90 10 minute data have been determined as valid in accordance with Guidance Note 2 a tonal assessment shall be performed on noise immissions during 2 minutes of each 10 minute period. The 2 minute periods should be spaced at 10 minute intervals provided that uninterrupted uncorrupted data are available ("the standard procedure"). Where uncorrupted data are not available, the first available uninterrupted clean 2 minute period out of the affected overall 10 minute period shall be selected. Any such deviations from the standard procedure, as described in Section 2.1 on pages 104-109 of ETSU-R-97, shall be reported.

(c) For each of the 2 minute samples the tone level above or below audibility shall be calculated by comparison with the audibility criterion given in Section 2.1 on pages 104-109 of ETSU-R-97.

(d) The tone level above audibility shall be plotted against wind speed for each of the 2 minute samples. Samples for which the tones were below the audibility criterion or no tone was identified, a value of zero audibility shall be used.

(e) A least squares "best fit" linear regression line shall then be performed to establish the average tone level above audibility for each integer wind speed derived from the value of the "best fit" line at each integer wind speed. If there is no apparent trend with wind speed then a simple arithmetic mean shall be used. This process shall be repeated for each integer wind speed for which there is an assessment of overall levels in Guidance Note 2.

(f) The tonal penalty is derived from the margin above audibility of the tone according to the figure below.



Guidance Note 4

(a) If a tonal penalty is to be applied in accordance with Guidance Note 3 the rating level of the wind turbine noise at each wind speed is the arithmetic sum of the measured noise level as determined from the best fit curve described in Guidance Note 2 and the penalty for tonal noise as derived in accordance with Guidance Note 3 at each integer wind speed within the range specified by the Local Planning Authority in its written protocol under paragraph (d) of the noise condition.

(b) If no tonal penalty is to be applied then the rating level of the wind turbine noise at each wind speed is equal to the measured noise level as determined from the best fit curve described in Guidance Note 2.

(c) In the event that the rating level is above the limit(s) set out in the Tables attached to the noise conditions or the noise limits for a complainant's dwelling approved in accordance with paragraph (e) of the noise condition, the independent consultant shall undertake a further assessment of the rating level to correct for background noise so that the rating level relates to wind turbine noise immission only.

(d) The Company shall ensure that all the wind turbines in the Development are turned off for such period as the independent consultant requires to undertake the further assessment. The further assessment shall be undertaken in accordance with the following steps:

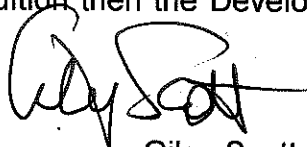
(e). Repeating the steps in Guidance Note 2, with the wind farm switched off, and determining the background noise (L3) at each integer wind speed within the range requested by the Local Planning Authority in its written request under paragraph (c) and the approved protocol under paragraph (d) of the noise condition.

(f) The wind farm noise (L1) at this speed shall then be calculated as follows where L2 is the measured level with wind turbines running but without the addition of any tonal penalty:

(g) The rating level shall be re-calculated by adding arithmetically the tonal penalty (if any is applied in accordance with Note 3) to the derived wind farm noise L1 at that integer wind speed.

(h) If the rating level after adjustment for background noise contribution and adjustment for tonal penalty (if required in accordance with note 3 above) at any integer wind speed lies at or below the values set out in the Tables attached to the conditions or at or below the noise limits approved by the Local Planning Authority for a complainant's dwelling in accordance with paragraph (e) of the noise condition then no further action is necessary. If the rating level at any integer wind speed exceeds the values set out in the Tables attached to the conditions or the noise limits approved by the Local Planning Authority for a complainant's dwelling in accordance with paragraph (e) of the noise condition then the Development fails to comply with the conditions.

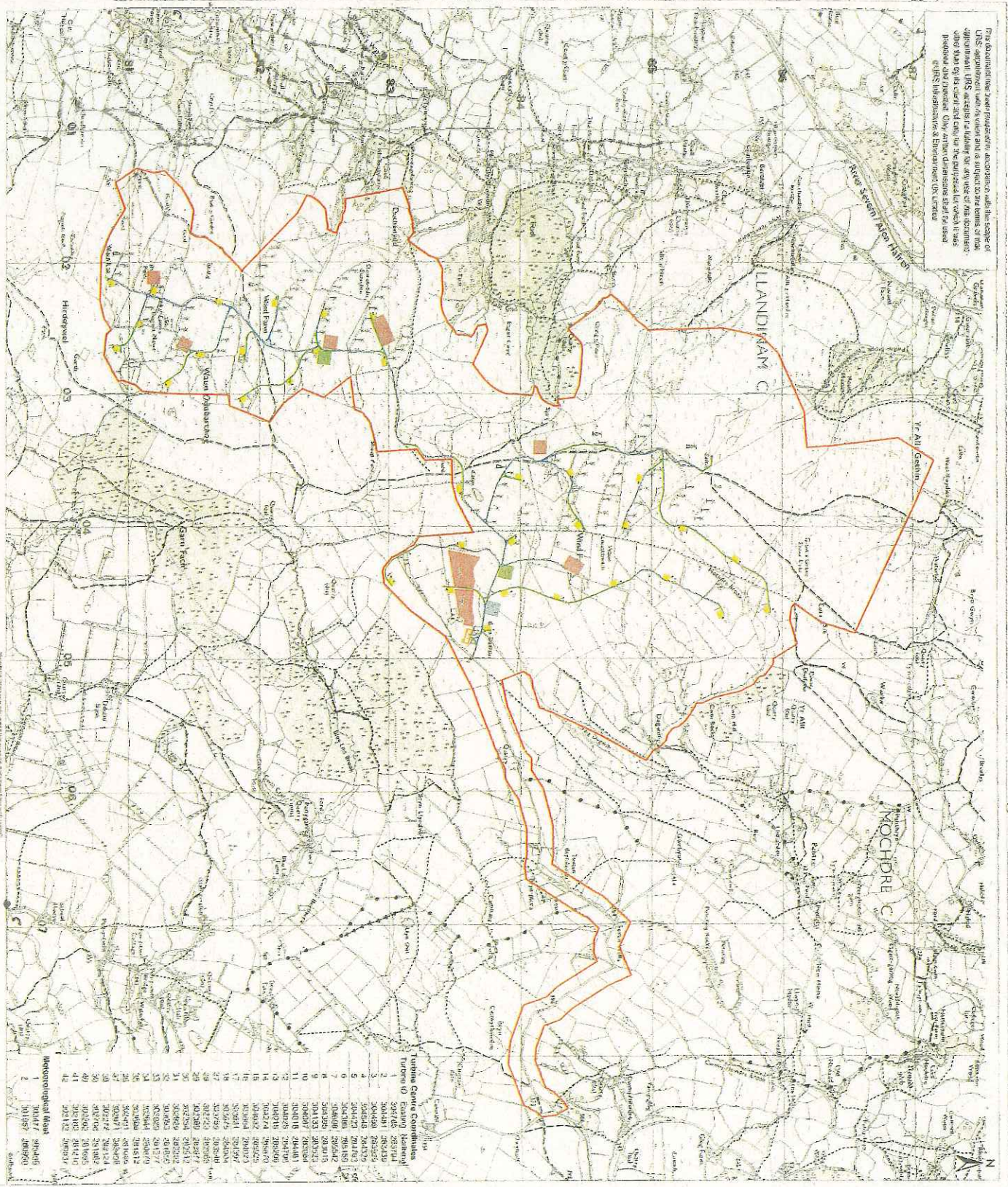
Date: 7 September 2015



Giles Scott

Head of National Infrastructure
Planning Consents and Coal
Liabilities, Department of Energy and
Climate Change

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Turbine ID	Feeding Headland	Feeding Headland
1	364745	283784
2	364745	283784
3	364745	283784
4	364745	283784
5	364745	283784
6	364745	283784
7	364745	283784
8	364745	283784
9	364745	283784
10	364745	283784
11	364745	283784
12	364745	283784
13	364745	283784
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34	364745	283784
35	364745	283784
36	364745	283784
37	364745	283784
38	364745	283784
39	364745	283784
40	364745	283784
41	364745	283784
42	364745	283784



- Key**
- Proposed Turbine Location
 - Proposed Meteorological Mast
 - New Track Required
 - Existing Track to be Utilised
 - Turning Area
 - Borrow Pits
 - Contractor Compound
 - Laydown Area
 - Substation
 - Crane Handstanding Areas
 - Application Site Boundary

Electricity Act 1989
Town & Country Planning Act 1990

Certified to be Figure A4-1AD referred to in the consent dated 7 September 2015 given by the Secretary of State for Energy and Climate Change to CeltPower Limited for the construction and operation of wind turbine generating station in Powys, Mid-Wales.













Signed: *[Signature]*
 Department of Energy and Climate Change



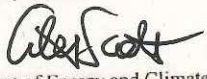
Prepared by: URS
 65, NEWTON AVENUE, STAKE, WENDON, OXFORDSHIRE, OX9 3EJ, UK
 FIGURE A4-1AD

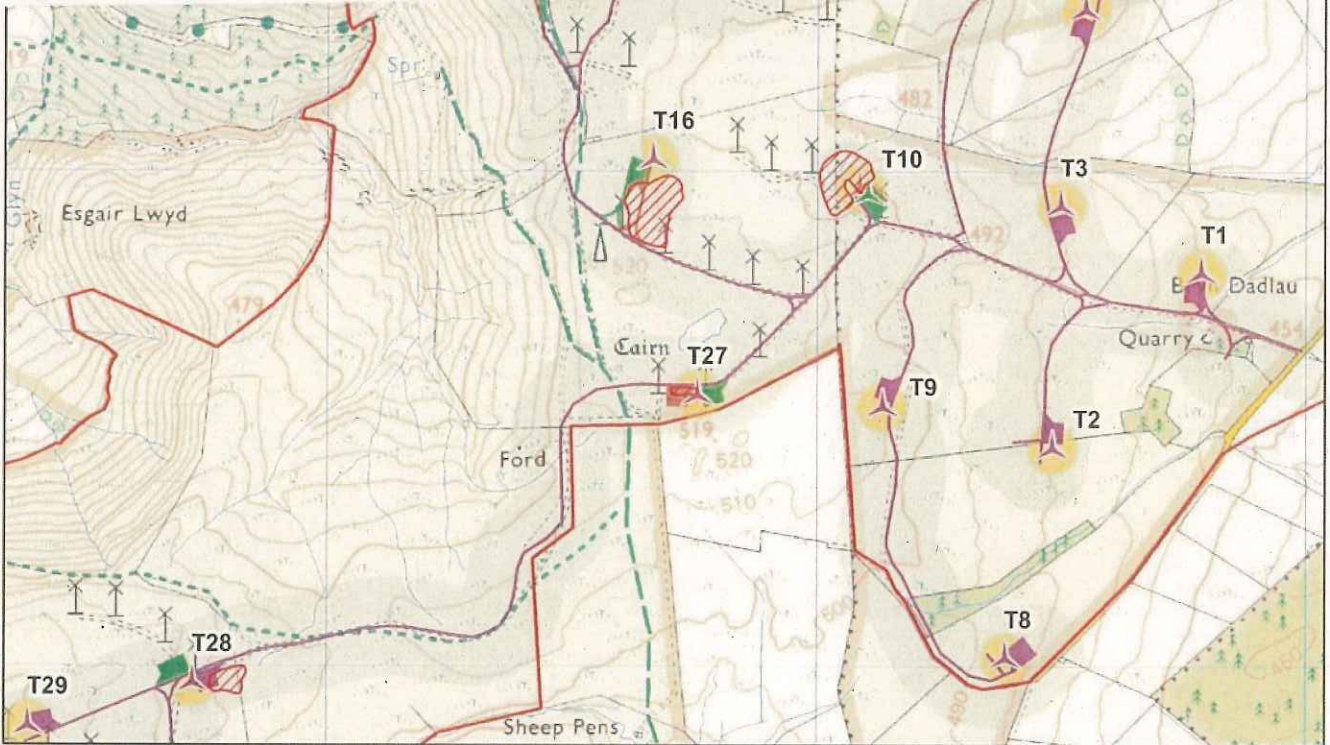
LLANIANDRAM WINDFARM (REPOWERING & EXTENSION) SEI 2013

Legend

-  SEI 2013 turbine locations
-  SEI 2013 turbine locations - superceded
-  SEI 2013 access track layout
-  SEI 2013 superceded access track layout
-  Proposed micro-siting of access track layout
-  Proposed micro-siting of access track layout (outwith 100m buffer)
-  SEI 2013 turbine pads
-  SEI 2013 turbine pads - superceded
-  Proposed micro-siting turbine pads
-  Restricted areas
-  50m turbine buffer (adjusted where necessary to exclude distance equivalent to turbine height to public rights of way)
-  100m access track

Electricity Act 1989
 Town & Country Planning Act 1990
 Certified to be Drawing Number LLA-P-009
 Rev A4 Sheet 1 referred to in the consent dated
 7 September 2015 given by the Secretary of
 State for Energy and Climate Change to
 Celtpower Limited for the construction and
 operation of wind turbine generating station in
 Powys, Mid-Wales.

Signed: 
 Department of Energy and Climate Change



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Llandinam
 Restricted Areas
 Sheet 1 of 2




A4	20/05/14	DM	Third Issue Review.
A3	16/07/13	DM	Second Issue Review.
A2	12/07/13	DM	First Issue Review.
Rev	Date	By	Comment

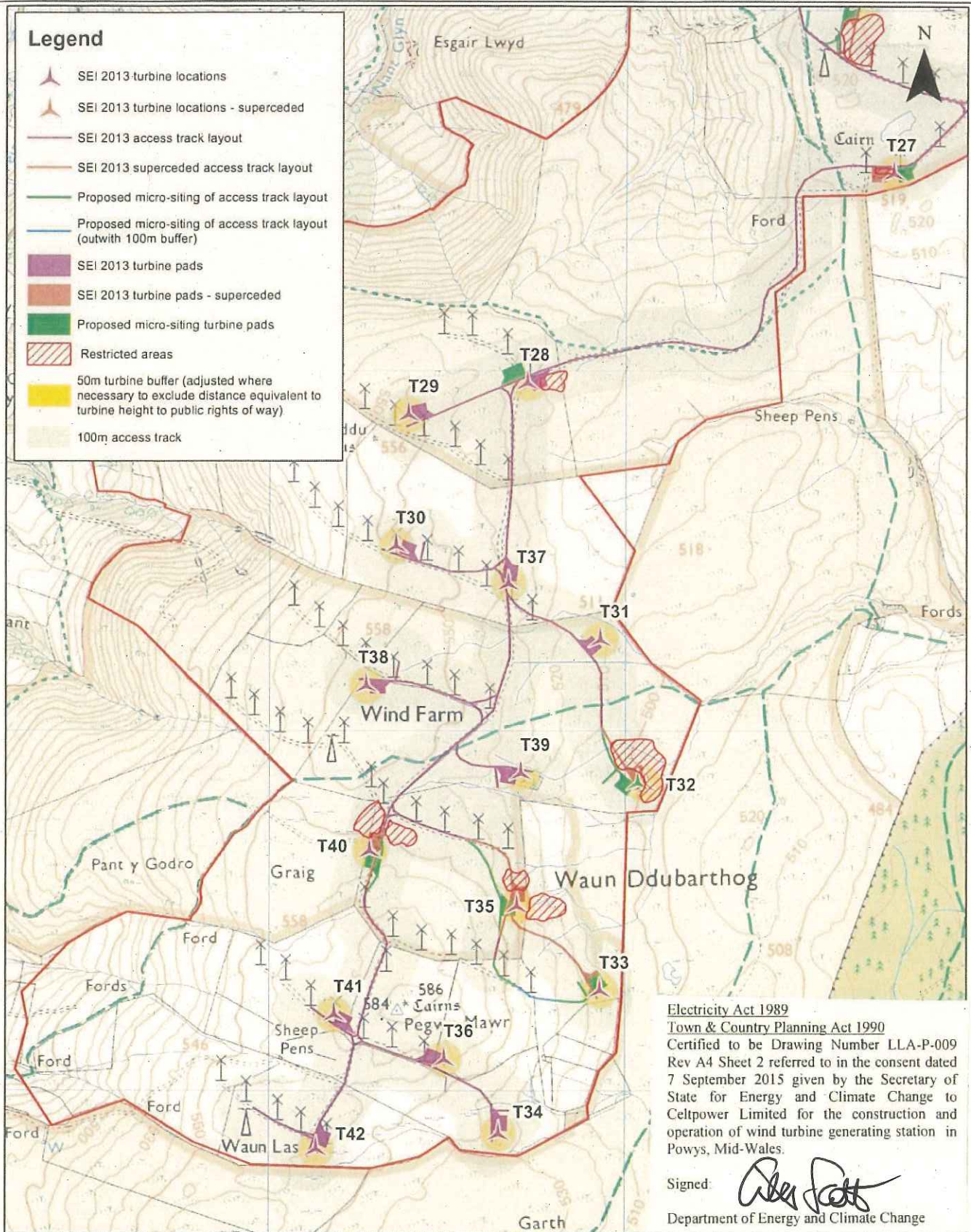
1:10,000 Scale @ A3



Figure	Date	Rev	Dwg No.	Datum: OSGB36
09	20/05/14	A4	LLA-P-009	Projection: TM

Legend

-  SEI 2013 turbine locations
-  SEI 2013 turbine locations - superceded
-  SEI 2013 access track layout
-  SEI 2013 superceded access track layout
-  Proposed micro-siting of access track layout
-  Proposed micro-siting of access track layout (outwith 100m buffer)
-  SEI 2013 turbine pads
-  SEI 2013 turbine pads - superceded
-  Proposed micro-siting turbine pads
-  Restricted areas
-  50m turbine buffer (adjusted where necessary to exclude distance equivalent to turbine height to public rights of way)
-  100m access track



Electricity Act 1989
 Town & Country Planning Act 1990
 Certified to be Drawing Number LLA-P-009
 Rev A4 Sheet 2 referred to in the consent dated
 7 September 2015 given by the Secretary of
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 Celpower Limited for the construction and
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Llandinam
 Restricted Areas
 Sheet 2 of 2

Rev	Date	By	Comment
A4	20/05/14	DM	Third Issue Review.
A3	16/07/13	DM	Second Issue Review.
A2	12/07/13	DM	First Issue Review.

1:10,000 Scale @ A3				
Figure	Date	Rev	Dwg No.	Datum: OSGB36
09	20/05/14	A4	LLA-P-009	Projection: TM



ARCUS

**LLANDINAM WINDFARM REPOWERING
TIMESCALE EXTENSION
INFORMATION TO INFORM AN EIA SCREENING OPINION**

JUNE 2019



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1 INTRODUCTION

CeltPower are the holders of a Section 36 Consent for Llandinam Windfarm Repowering, comprising the decommissioning of the existing 102 wind turbines and their replacement with 34 new wind turbines (the "Development"). The consent was granted in September 2015, and it specifies that construction must begin within 5 years of the grant of consent. CeltPower is applying to extend this period for a further 5 years in order to allow sufficient time for prerequisites.

In terms of Environmental Impact Assessment (EIA), this application falls under the EIA Regulations¹. Schedule 2 of the EIA Regulations identifies "*development requiring screening if no EIA Report is provided*". Paragraph 3 of Schedule 2 specifies "*development to provide a change or extension of (a) a generating station ... where the generating station ... is already authorised ... and the change or extension may have significant adverse effects on the environment.*"

The Section 36 Consent was granted following an application that included an Environmental Statement (ES)², comprising:

- The 2008 ES;
- The Supplementary Environmental Information (SEI) dated 2011; and
- The SEI dated 2013.

The only change proposed is to extend the period allowed between consent and the start of construction from 5 years to 10 years.

This document provides information to inform that screening process.

It is the opinion of the principal author of this document³ that, based on the information set out in this document, the change will not have significant adverse effects on the environment, and hence the conclusion of the screening process should be that the application does not require EIA.

The change of period prior to construction will, itself, have no effects on the environment, because during this period the Development will continue not to have started. The potential for the change to have significant adverse effects in terms of the EIA Regulations is therefore limited to changes to the EIA Regulations since the EIA was last updated (2013). For the purposes of completeness, changes to the baseline environment since the EIA was last updated (2013) have also been set out, to provide commentary on whether there would be any change to the assessment of likely significant effects.

The following sections are included in this document:

- **Baseline review:** a review of the baseline environment referred to in the Environmental Statement (ES)⁴ that accompanied the application for the Section 36 Consent that was granted, to understand if the baseline environment may have changed sufficiently to change the assessment of likely significant effects;
- **Cumulatives development update:** a summary of changes to windfarm developments in the vicinity of the Development, to understand if the cumulative situation may have changed sufficiently to change the assessment of likely significant effects;

¹ The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017. SI 2017/580. Available at: <http://www.legislation.gov.uk/uksi/2017/580/contents/made> [accessed on 04/06/2019].

² The ES comprised the original ES document submitted in 2008, and Supplementary Environmental Information (SEI) submitted in 2011 and 2013.

³ Dr Paul Phillips, a Registered EIA Practitioner, as set out in Section 6 of this document.

⁴ The ES comprised the original ES document submitted in 2008, and Supplementary Environmental Information (SEI) submitted in 2011 and 2013.

- **Assessment of effects on climate change:** updating the assessment to meet the requirements of the latest EIA Regulations, to demonstrate no significant adverse effects;
- **Assessment of effects on human health:** providing a summary of potential effects on human health, to meet the requirements of the latest EIA Regulations, to demonstrate no significant adverse effects;
- **Authorship of this document:** providing commentary on the experience and professional status of the authors of this document, in response to requirements for EIA Reports in the latest EIA Regulations; and
- **Conclusions.**

2 BASELINE REVIEW

This section provides commentary on the extent to which the baseline as described in the ES remains applicable in 2019, and provides commentary on whether the baseline environment may have changed sufficiently to change the assessment of likely significant effects. This section includes a sub-section for each chapter in the ES, for ease of cross-referencing.

2.1 Site Walkover

The principal aspects of the baseline with the potential to have changed since the ES was last updated relate to site characteristics.

A walkover of the site was carried out to determine whether there had been any substantive changes to habitats or other site characteristics since the previous survey in 2008.

The walkover was carried out by an ecologist and an EIA project manager, on 21st and 22nd May 2019. Conditions were good: 14°C, clear skies, light winds and minimal haze. The preceding few days and weeks had been drier than the average for the area, such that conditions underfoot were relatively dry. Areas previously identified as blanket bog were visited, and broad coverage of the area proposed for new turbines and the minor road access route from the A483 was achieved.

Any deviations from the Phase 1 Habitats Map presented in the 2008 ES (Figure 8-2 in Volume 1) were noted. Other observations were also recorded, including features such as off-site wind turbines, evidence of birds (sightings and calls), hydrological features (flush areas and springs) and new developments.

Figure 1 replicates Figure 8-2 of the ES, showing target notes of observations made during the walkover survey. It also shows the route taken on site, either by car or on foot.

Chapter 6: Landscape and Visual

The only potential for substantive changes to the landscape and visual baseline relate to major new developments within proximity to the Development site. One such development was observed, this being the new A483 bypass of Newtown.

The Newtown bypass was completed in February 2019, substantially easing traffic pressure through the town. It passes to the east and south of the town centre, on a rising then falling route of 6 km from a new roundabout with the A483 to the north-east of Newtown at grid reference 313216 292218 to a new roundabout with the A489 south-west of Newtown at 308360, 290191. There is another roundabout near the centre of the new route, linking again with the A483 as it exits Newtown towards the south, towards the Development site. The new route involves new embankments and cuttings, and a substantial bridge approximately 1 km due south of the centre of Newtown, at 310753 290224.

Where the new road and associated earthworks and infrastructure is visible from viewpoints that may also have views of the Development, the new road will be a new, man-made feature in the landscape, in addition to features previously present. The change will make the assessment reported in the ES more conservative, therefore.

Chapter 7: Ornithology

The walkover survey identified no substantive changes to habitats reported and assessed in the ES. The small changes noted under "Chapter 8: Ecology", below, will not substantially affect the ornithological baseline. Overall, site observations provided no cause to consider that the ornithological baseline reported in the ES had changed.

Chapter 8: Ecology

The walkover survey sought to identify any substantive changes to the ecology baseline by reviewing habitats within the Development site.

Figure 2 replicates Figure 8-2 (Habitats) of the ES, showing target notes of observations made during the walkover survey. These are summarised in Table 1.

Table 1: Target Notes from Walkover Survey

Target Note	Grid Reference	Notes
1	SO 02101 81661	Blanket Bog within the south-western boundary of the site, no change noted.
2	SO 02216 81511	Acid/neutral flush, no change noted.
3	SO 02113 80868	Borrow Pit location. C. 15 m across. Appears old, but was not noted in the original ES.
4	SO 02865 81110	Blanket bog to the east, outside of the site boundary. No change identified.
5	SO 03765 83684	Waterbody, no change in size. Open with no aquatic vegetation or shading present. No change identified.
6	SO 03487 84100	New borrow pit location. C. 10 m across. Appears new and is currently being worked, apparently for a track leading out of the site boundary to the west.
7	SO 04428 84754	Turbine 5 proposed location, within area of semi-improved grassland. No change identified.
8	SO 04568 85539	Turbine 7 proposed location, within area of poor semi-improved grassland. No change identified.
9	SO 04558 85743	Area of semi-improved grassland and scattered shrub heath. No change identified.
10	SO 08415 84247	Site access entrance. No change identified.
11	SO 08293 84109	Access road, with strips of semi-improved grassland and scattered scrub to the west and arable fields to the east. No change identified.
12	SO 07816 84023	Access road slopes and narrows. No change identified.
13	SO 07673 84092	Tight corner on the access road. No change identified.

Target Note	Grid Reference	Notes
14	SO 07334 84689	Tight corner on the access road. No change identified.
15	SO 07148 84649	Access road, tight corner with small embankment to the east. Some trees overhanging onto the access road. No change identified.
16	SO 06992 84722	Access road, telegraph lines adjacent to the east. No change identified.
17	SO 06754 84369	Several overhanging trees over the access road. Data provided by Powys and BBNP Environmental Records Centre show this strip of woodland is a restored Ancient Woodland. No change identified.
18	SO 06595 84139	Tight corner on the access road. No change identified.
19	SO 06241 84138	Scattered trees to the west of the access road and overhead telegraph lines. No change identified.
20	SO 05800 83988	Several overhanging trees onto the access road. No change identified.
21	SO 05149 83759	Access road, telegraph lines adjacent to the east. No change identified.
22	SO 04995 83640	Tight corner on the access road with some scattered trees present to the west. No change identified.
23	SO 07564 83797	Wind turbine south of access road, outside of the site boundary. No change identified.
24	SO 08862 84240	Location of met mast, to the east of the site access entrance, outside of the site boundary. No change identified.

In conclusion, site observations provided no cause to consider that the ecological baseline reported in the ES had substantially changed.

Chapter 9: Traffic, Access and Transport

The only potential for substantive changes to the traffic, access and transport baseline relate to road upgrades and new developments of relevance to the Abnormal Indivisible Loads (AIL) route and other HGV route proposed for access to the Development site. One such development was observed, this being the new A483 bypass of Newtown, as described in "Chapter 6: Landscape and Visual", above.

This route could be used in preference to the option for AIL routing presented in the ES that passed through Newtown. This new route would avoid the need for street furniture management in Newtown, and for congestion management in Newtown. The change will make the assessment reported in the ES more conservative, therefore.

Chapter 10: Cultural Heritage

No potential was identified for the archaeological baseline to have changed since the ES.

The only potential for substantive changes to the cultural heritage baseline relates to major new developments within proximity to the Development site and to heritage features. One

such development was observed, this being the new A483 bypass of Newtown, as described in "Chapter 6: Landscape and Visual", above.

Where the new road and associated earthworks and infrastructure is visible from within the setting of heritage features, and from locations that may also have views of the Development, the new road will be a new, man-made feature, in addition to features previously present. The change will make the assessment reported in the ES more conservative, therefore.

Chapter 11: Noise and Vibration

The only potential for substantive changes to the noise and vibration baseline relates to new noise- and/or vibration-sensitive developments, specifically residential properties, within proximity to the Development site. No such new developments were observed during the walkover survey.

The Section 36 Consent for the Development should have prevented planning permission being granted for new residential properties that could experience unacceptable levels of noise from the Development, and hence there is good reason for the baseline not to have substantially changed in respect of noise and vibration.

The new A483 bypass of Newtown, as described in "Chapter 6: Landscape and Visual", above, could provide a new and improved route for decommissioning/construction traffic to the Development site. This would avoid Newtown, hence reducing potential noise and vibration effects from construction traffic on receptors in Newtown. The change will make the assessment reported in the ES more conservative, therefore.

Chapter 12: Geology, Hydrology and Hydrogeology

The walkover survey sought to identify any substantive changes to the baseline by reviewing habitats within the Development site. All bog, wetlands and flushes previously identified in the ES were confirmed to be present in the walkover survey. Overall, site observations provided no cause to consider that the geological, hydrological and hydrogeological baseline reported in the ES had changed.

Chapter 13: Land use, Recreation and Socio-Economics

Observations during the walkover survey were consistent with land use at the Development site, including accessibility of public rights of way, remaining as reported in the ES. Overall, site observations provided no cause to consider that the land use, recreation and socio-economic baseline reported in the ES had changed.

Chapter 14: Other Issues

This chapter covered carbon emissions saved by the Development, air quality, electromagnetic interference, ice throw and shadow flicker.

Carbon Emissions Savings

This assessment considered the "embodied" carbon emissions associated with the Development, principally from the manufacture and construction of the Development and from the use of imported electricity during periods of low wind speed. These emissions are not likely to have changed substantially.

The assessment then considered the baseline carbon emissions associated with generating electricity from sources other than the Development, on the basis that these emissions would be replaced with emissions associated with the Development. Baseline carbon emissions depend on the technologies used to generate electricity connected to the same grid network as the Development, principally the UK electricity network. These technologies, and the mix of them comprising the UK generation as a whole, have changed

substantially since the assessment was last updated in 2013. This is principally as a result of the decrease in coal-fired power station usage, and the increase in onshore wind, offshore wind and ground-mounted solar electrical generation capacity. The change in baseline conditions could lead to altered significant effects associated with the Development.

Because of this change in baseline conditions, the carbon savings assessment presented in the ES has been updated, and is reported in a document provided alongside this, titled "Climate Change Impact Assessment".

Air Quality

No cause has been identified to consider that the air quality baseline has substantially changed since the ES.

Electromagnetic Interference

No cause has been identified to consider that the air quality baseline has substantially changed since the ES. Television has switched from analogue to digital signal transmission, which substantially reduces the potential for interference by structures such as wind turbines. The change will make the assessment reported in the ES more conservative, therefore.

Ice Throw

No cause has been identified to consider that the air quality baseline has substantially changed since the ES.

Shadow Flicker

The only potential for changes to shadow flicker relates to new residential properties developed within ten rotor diameters of the Development site. No such new developments were observed during the walkover survey.

The Section 36 Consent for the Development should have prevented planning permission being granted for new residential properties that could experience unacceptable levels of shadow flicker from the Development, and hence there is good reason for the baseline not to have substantially changed in respect of shadow flicker.

2.2 Conclusions of the Baseline Review

A review of the baseline conditions set out in the ES (2008, 2011 and 2013) has been undertaken, and, aside from carbon emissions savings, no cause has been identified to consider that the baseline has substantially changed since that time.

The carbon emissions savings baseline, which comprises the carbon emissions associated with electricity generation across the UK, has changed substantially since 2013, and an updated assessment of this aspect is presented in an assessment of effects on climate change, provided in Section 4 of this document.

Overall, there is no evidence to suggest that, in the time since the previous baseline update (2013), the change in baseline is such as to lead to a change in assessment of significant adverse effects.

3 CUMULATIVES DEVELOPMENT UPDATE

This section provides commentary on the changes, since 2013 when the ES was last updated, to other windfarm developments that may have the potential to lead to cumulative effects when considered in combination with the Development.

3.1 Cumulative Developments – Review of Changes

A desk-based search for cumulative windfarm developments was carried out within 35 km of the Development site, in early June 2019. The results of this search are shown in Figure 2. This figure is a direct update of Figure A2-1 in Volume 1 of the 2013 Supplementary Environmental Information (SEI) update to the ES.

This section summarises the main changes to cumulative developments based on their development stage. Single turbines at a distance of more than c. 5 km from the Development site are not detailed here, as they have minimal potential to lead to significant cumulative effects.

A visit to the Development site was carried out in good weather and clear atmospheric conditions on 21st and 22nd May 2019, as noted in Section 2.1 of this document. Notes were made on the number of turbines visible at cumulative windfarm sites.

3.1.1 Operational

All windfarms that were operational in 2013 remain operational in 2019.

Tirgwynt Windfarm was an “application granted” development in 2013, which became operational in 2017 and has 12 wind turbines with a height to tip of 116 m. Tirgwynt Windfarm is located c. 15 km north of the nearest Development turbine.

Garreg Lwyd Hill Windfarm was an “application submitted” development in 2013, which became operational in 2017 and was consented with 23 turbines with a height to tip of 137 m. Garreg Lwyd Hill Windfarm is located c. 9 km east of the nearest Development turbine. Only 17 turbines have been erected, however, as evidenced at the site visit and the project website⁵.

Bryn Cwmyrhiwdre single turbine was not referenced in 2013, and is now operational. It lies c. 400 m south of the Development access route from the A483, and c. 3 km east of the nearest Development turbine. The application was for a turbine with height to tip of 34.2 m.

3.1.2 Under Construction / Application Granted

There have been five changes in windfarms under construction or with an application granted since 2013 and 2019.

Bryn Blaen Windfarm was not shown on the cumulatives figure in 2013, however an application was submitted in 2014, and it was consented at appeal. Informal evidence⁶ suggests that it has been constructed but is not yet commissioned. Bryn Blaen Windfarm is located c. 10 km west of the Development site, with 6 wind turbines and a height to tip of 100 m.

Hendy Windfarm was not shown on the cumulatives figure in 2013, however an application was submitted in 2014. Informal evidence⁷ suggests that it was under construction in January 2019. Hendy Windfarm is located c. 23 km south of the Development site, with 7 wind turbines and a height to tip of 110 m.

Carno 3 Windfarm was at “application submitted” stage in 2013, and was consented in 2016. The site will have 13 wind turbines with a height to tip of 126.5 m. Carno 3 Windfarm is c. 14 km northwest of the Development site.

⁵ RES (2019). Garreg Lwyd Hill Windfarm. <http://www.garreqlwydhill.com/>

⁶ BBC (2019). Bryn Blaen wind farm 'not generating electricity'. <https://www.bbc.co.uk/news/uk-wales-46826710> [accessed on 06/06/2019].

⁷ Powys County Times (2019). Hendy Wind Farm: Powys County Council is investigating claims of planning breaches at the site near Llandrindod Wells. <https://www.countytimes.co.uk/news/17346603.hendy-wind-farm-powys-county-council-is-investigating-claims-of-planning-breaches-at-the-site-near-llandrindod-wells/> [accessed on 06/06/2019].

Gwern Y Bwlch single turbine was not referenced in 2013, and now has a consent granted. It lies c. 4 km north-west of the nearest Development turbine. The application was for a turbine with height to tip of 34.2 m.

Tirgwynt Windfarm was at Application Granted stage in 2013, and is now operational, as set out above.

3.1.3 Application Submitted / Appeal

No new windfarm developments are at "Application Submitted" stage that were not in 2013.

Of the sites (excluding single turbines at more than 5 km from the Development) that were at "Application Submitted" stage in 2013:

- Garreg Lwyd Hill is now operational, as set out above;
- Carno 3 has been consented, as set out above;
- Hirddywel, Esgair Cwmowen and Bryngydfa appear to remain as "application submitted", although there must be doubt as to whether they are realistically likely to progress given the applications were submitted in 2010, 2010 and 2009, respectively;
- Llanbrynmair, Carnedd Wen, Llaithddu and Llanbadarn Fynydd were all refused at the same Public Inquiry at which the Development was consented. The applicants for Llanbrynmair and Carnedd Wen submitted a legal challenge to the decisions, however, and this challenge was upheld and the decisions were rescinded. The Secretary of State will therefore reconsider the decisions, so the status of these is shown on Figure 2 as "Appeal";
- Cenmaes 3, Neuadd Goch Bank and Llanbadarn Fynydd have been refused; and
- Mynydd Waun Fawr has been withdrawn.

3.1.4 Scoping

Scoping is a pre-application stage of developments that may require EIA.

Only one development is in this category currently, Llandegley A and B, a two-turbine development c. 25 km south-east of the Development site. Scoping was submitted for this in 2013, although there must be doubt as to whether it is realistically likely to progress given the time that has elapsed since.

Of the sites (excluding single turbines at more than 5 km from the Development) that were at "Scoping" stage in 2013:

- Dyfnant and Rhyd Ddu have been withdrawn; and
- One windfarm, Mynydd y Gwynt, has been refused by the Secretary of State.

3.2 Discussion

There has been a small increase in the number of operational windfarms since 2013, with both of the non-single-turbine schemes being assessed in the ES as being at an earlier development stage.

There are four consented/under construction windfarms in 2019 that were not in 2013, with two of those being new schemes, and two being schemes that were assessed in the ES as being at a different development stage. The two new schemes are c. 10 km west and 25 km south of the Development site. There is one windfarm that was at Application Granted stage in 2013, and is now operational.

Of the thirteen schemes that were at Application Submitted / Appeal stage in 2013, only five remain, and there are no new schemes at this stage. Of the three that remain at "Application Submitted" stage, it is likely that none will progress, given it is 9 or 10 years since the applications were submitted. Of the two that are now at "Appeal" stage, these

have been previously refused at appeal, and are being reconsidered by the Secretary of State as a result of previous errors in application of the correct legal process.

Of the three schemes that were at Scoping stage in 2013, all have been withdrawn or refused. There is only one new scheme at this stage, although it was scoped in 2013 and there must be doubt as to whether it is realistically likely to progress given the time that has elapsed since.

Overall, excluding single turbines at more than 5 km from the Development site, there is a large reduction in the number of cumulative windfarms and in the number of turbines within those cumulative windfarms since 2013.

It is expected, therefore, that cumulative effects from other windfarm developments overall will have decreased since 2013.

3.3 Conclusions of the Cumulatives Development Update

Data describing the existing and proposed windfarm developments within 35 km of the Development site has been updated.

Overall, there is no evidence to suggest that, in the time since the previous cumulatives development update (2013), the change in cumulative developments would lead to a change in assessment of significant adverse effects. Indeed, given the reduction in proposed cumulative developments, the conclusions drawn in the ES are now likely to be overly conservative.

4 ASSESSMENT OF EFFECTS ON CLIMATE CHANGE

Since 2013, the revised Environmental Impact Assessment (EIA) Regulations⁸ state that an EIA must identify, describe and assess the significant effects of the Development on climate, including greenhouse gas emissions, impacts relevant to adaptation, and the vulnerability of the development to climate change.

This section evaluates how the Development is likely to interact with a changing climate and whether any significant effects could arise.

4.1 Assessment Methodology and Significance Criteria

4.1.1 Scope of Assessment

The following assessment areas are considered in terms of the Development:

- The vulnerability of the Development to climate change;
- The influence of the Development on climate change; and
- A summary of effects on environmental receptors sensitive to climate change.

The assessment of the vulnerability of the Development to climate change considers effects on the Development as a receptor. In contrast the other two assessments consider effects on environmental receptors as a result of the Development.

4.1.2 Study Area

The study area considered for the assessment of vulnerability of the Development to climate change consists of the infrastructure within the site boundary (the Site), looking at changes over the planned lifetime of the project. Information on climate trends and projections at the Welsh and local scale (where available) are utilised.

⁸ The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017. SI 2017/580. Available at: <http://www.legislation.gov.uk/uksi/2017/580/contents/made> [accessed on 04/06/2019].

The study area for the assessment of the influence of the Development on climate change considers greenhouse gas (GHG) emissions (current levels and targets), along with renewable energy generation and grid mix within the Welsh and UK spatial scale.

The study area for the assessment on future baseline for environmental receptors is outlined in individual technical chapters from the ES. Climate projections on a Welsh and local scale (where available) are utilised for this chapter.

4.1.3 Baseline Study Methodology

Following its publication on 26 November 2018, UKCP18⁹ now provides the most up to date assessment of how the climate of the UK may change over this century.

UKCP18 uses scenarios for future greenhouse gas emissions called Representative Concentration Pathway (RCP) scenarios. Scenario RCP 2.6 estimates a global average temperature increase of 1.6°C by 2100 and represents a scenario where greenhouse gas emissions are significantly reduced. RCP 4.5 estimates a global average temperature increase of 2.4°C and assumes that no further emission reductions are achieved by 2030, but emissions do not increase further. RCP 6.0 estimates a global average temperature increase of 2.8°C, and assumes varying levels of mitigation are implemented with some further increase in concentrations. RCP 8.5 estimates a global average temperature rise of 4.3°C by 2100 and is a scenario whereby greenhouse gas emissions continue to increase.

The four RCP scenarios attempt to capture a range of potential alternative futures and outcomes linked to global temperature increases and include a wide variety of assumptions on socioeconomics development and commitment to emissions reductions. The sensitivity of the scenario responses is much more pronounced in the second half of the 21st century, where the responses diverge more rapidly than in the first half of the century. Over the anticipated operational lifetime of the Development, the choice of scenario is therefore not as influential on the outcome of the assessment. Where a scenario must be chosen to determine the future baseline, the medium scenario RCP 6.0 is used where it is available.

Projections are reported for 20-year time periods through to 2100. The 2020-2039 and 2040-2059 periods provide the most relevant projections covering the majority of the expected operational phase of the Development.

Projected climatic changes at the 50% probability level (central estimate) are utilised, unless otherwise indicated. This is the level where there is as much evidence pointing to a lower outcome as a higher one.

The UK Climate Projections User Interface tool has been used unless otherwise stated. The Land projections: probabilistic projections (25 km) have been used to determine temperature and cloud cover whilst wind speed has been calculated using the Land projections: probabilistic projections (12 km). A bounding box to cover the site area has been used, with the following coordinates:

- North – 196012.50
- South – 279612.50
- East – 294200.00
- West – 312500.00

4.1.3.1 Vulnerability of the Development to Climate Change

This section identifies aspects of the Development which are potentially vulnerable to the effects of climate change. Where identified, these vulnerabilities can then be mitigated through embedded mitigation or the application of other measures.

⁹ The Met Office (2019). UK Climate Projections 2018 (UKCP18). Available at: <https://www.metoffice.gov.uk/research/collaboration/ukcp> [accessed on 06/06/2019].

Taking into account the nature and location of the Development, the following climate related parameters are considered to have the potential to impact upon the operation of the Development:

- Wind (speed, direction and gustiness);
- Temperature; and
- Precipitation.

The decommissioning/construction and future decommissioning stages of the Development are not considered to be vulnerable to climate change and are excluded from further consideration.

4.1.3.2 Influence of the Development on Climate Change

The methodology used in the 2013 update of the ES was repeated using updated information from the 2018 Digest of UK Energy Statistics (DUKES)¹⁰.

4.1.3.3 Effects on Environmental Receptors Sensitive to Climate Change

This section identifies where climate change has the potential to significantly affect the findings of assessments undertaken and reported in the ES. Reference is made to the specific assessment chapters, where the baseline state and sensitivity of receptors is discussed, and assessments are not repeated here.

4.1.4 Methodology for the Assessment of Effects

To determine whether effects are significant under the EIA Regulations, it is appropriate to consider the sensitivity (value and resilience) of the receptor and the magnitude of the effect, taking into account uncertainty. This is based on the professional judgement of the assessor.

Table 2 details the criteria for determining the sensitivity of receptors.

Table 2 Criteria for Determining Sensitivity of Receptors

Sensitivity of Receptor	Definition
Very High	The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance.
High	The receptor has low ability to absorb change without fundamentally altering its present character, is of high environmental value, or of national importance.
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value, or is of regional importance.
Low	The receptor is tolerant of change without detriment or benefit to its character, is low environmental value, or is of local importance.
Negligible	The receptor is resistant to change and is of little environmental value.

The criteria for assessing the magnitude of an effect are presented in Table 3.

Table 3 Criteria for Determining Magnitude of Change

Magnitude of Change	Definition
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¹⁰ Office of National Statistics (2018). Digest of UK Energy Statistics. Available at: <https://www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes> [accessed on 06/06/2019].

High	A fundamental change (positive or negative) to the baseline condition of the receptor, leading to total loss or major alteration of character.
Medium	A material change (positive or negative) leading to partial loss or alteration of character.
Low	A slight, detectable, alteration of the baseline condition which may be positive or negative.
Negligible	A barely distinguishable change from baseline conditions.

The IEMA guidelines for Climate Change Impact Assessment CCIA¹¹ state the following with regards to the assessment of significance:

"This guidance is not proposing changes to the significance criteria used in the EIA process. However, the susceptibility or resilience of the receptor to climate change must be considered as well as the value of the receptor.

Therefore, a high-value receptor that has very little resilience to changes in climatic conditions should be considered more likely to be significantly affected than a high-value receptor that is very resilient to changes in climatic conditions.

The uncertainty of the combined effect needs to be taken into account. If uncertainty about how a receptor will adapt to a changing climate is high, then it is recommended that a conservative threshold of significance is adopted within the evaluation".

Table 4 outlines the framework for the assessment of significance of effects.

Table 4 Framework for Assessment of the Significance of Effects

Magnitude of Effect	Sensitivity of Resource or Receptor				
		Very High	High	Medium	Low
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

The categories of significance are described in Table 5.

Table 5 Categories of Significance of Effect

Significance	Definition
Major	A fundamental change to location, environment, species or sensitive receptor.

¹¹ IEMA (2015). Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation. Available at: [https://www.iema.net/assets/templates/documents/iema_guidance_documents_eia_climate_change_resilience_and_adaptation%20\(1\).pdf](https://www.iema.net/assets/templates/documents/iema_guidance_documents_eia_climate_change_resilience_and_adaptation%20(1).pdf) [accessed on 06/06/2019].

Moderate	A material, but non-fundamental change to a location, environmental, species or sensitive receptor.
Minor	A detectable but non-material change to a location, environment, species or sensitive receptor
Negligible	No detectable or material change to a location, environment, species or sensitive receptor.

Effects assessed can be both beneficial (positive) and adverse (negative). Those predicted to be of major or moderate significance are considered to be 'significant' in the context of the EIA Regulations, and are shaded in light grey in the above table. Whilst receptors may be considered "high-value", a non-material magnitude of the impact would result in any effect being considered not significant.

4.1.5 Assessment Limitations

The climate change projections are based on global models for a range of Green House Gases (GHG) emissions scenarios and generally consider regional responses to climate change rather than local responses. This is based on best scientific knowledge at this time and judgements on datasets and future socioeconomic drivers.

Downscaling adds another level of uncertainty. There may be more detail, but the uncertainty of the science may be higher. As understanding of the climate system and ability to model it improves it is likely that future projections will be refined.

The probabilities presented and the estimated ranges are based on a set of modelling, statistical and dataset choices with expert judgement playing an important role. However, as some potential influences on future climate are not yet known some choices may change as the science develops¹².

Specifically, in relation to wind, the UKCP18 Wind Fact sheet¹³ states that local variations due to the land surface are hard to model, particularly in very exposed or sheltered locations. This can be particularly relevant in high wind speed situations where local gusts can result from small scale weather events such as thunderstorms.

4.2 Embedded Mitigation

As detailed in Chapter 3: Site Selection of the original ES, the design of the Development has been driven by the key objective of capturing the maximum energy possible, while balancing environmental and technical constraints. The design choices made as a consequence of the key constraints are considered to be mitigation which is 'embedded' in the design; the following are most relevant for the assessment of effects on climate change:

- Development infrastructure is built to withstand strong windspeeds and to harness energy;
- Turbine spacing is sufficient to reduce turbulence effects on turbines downwind;
- The turbines are located to maximise energy generation while minimising environmental effects;
- The Development design aims to reduce effects on peat – e.g., through use of existing track layout where possible and avoiding areas of deep peat;
- Implementation of a Construction Environmental Management Plan (CEMP), Peat Management Plan (PMP), etc., during construction to minimise environmental effects and peat disturbance; and
- Buffers from watercourses incorporated in layout design, protecting water quality and also protecting Development infrastructure from flooding.

¹² Lowe *et al* (2018) UKCP18 Science Overview Report

¹³ UKCP18 (2018) Factsheet: Wind. Available at:
<https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-fact-sheet-wind.pdf>

4.3 Baseline Conditions

4.3.1 Current Climate Baseline

Climate Projections show that the trends over the 21st century in the UK are towards warmer and wetter winters and hotter, drier summers, with an increase in frequency and intensity of extremes.

The State of the UK Climate 2017¹⁴ provides the latest report on observed climate data for UK. Key findings are as follows:

- The decade 2008-2017 has been on average 0.3°C warmer than the 1981-2010 average and 0.8°C warmer than 1961-1990. Nine of the ten warmest years have occurred since 2002 and all since 1990;
- In the last few decades there has been an increase in annual average rainfall of 8%. Also, seven of the wettest years for the UK have occurred since 1998;
- In context of seasonal changes, of note is that two recent winters (2013/14 and 2015/16) have the highest rainfall in the existing dataset. There has also been a run of recent wet summers with only 2013 in the last ten being below the 1981-2010 average. UK summers for the last decade have been on average 20% wetter than 1961-1990 (17% than 1981-2010);
- There is no compelling evidence for trends in storminess as determined by maximum gust speeds over the last four decades; and
- In terms of extremes the amount of rain from extremely wet days has increased by 17% for the decade 2008 to 2017 compared with the 1961-1990 period. The hottest day of the year for the last decade has been on average 0.8°C above the 1961-1990 reference. The lowest temperature of the year has increased by 1.7°C, a much larger increase than the equivalent change in the mean UK temperature.

The climate parameters considered most relevant to the assessments referenced within this chapter are wind speed, temperature and precipitation.

The UK Climate Projection Report: The Climate of the UK and Recent Trends¹⁵ provides observed climate data for UK Regions. Table 6 indicates the observed changes in climatic variables between 1961 and 2006 (reported at the 95% confidence level) for Wales where the Development is located.

Table 6 Observed Changes in Climate Variables for Wales (1961-2006)

Climate Variables	Annual Observed Change (1961 – 2006)
Daily mean temperature	+ 1.33 degrees Celsius (°C)
Daily maximum temperature	+ 1.52 °C

¹⁴ International Journal of Climatology, volume 38, Number S2 (July 2018) ed. Radan Huth. Wiley

¹⁵ Jenkins et al., (2008). The Climate of the UK and Recent Trends. Met Office, Hadley Centre, Exeter, UK.

Daily minimum temperature	+ 1.19 °C
Change in days of air frost	- 22.4 days
Change in cooling degree days	+ 11.1 days
Change in heating degree days	- 16.0 days
Change (days) in days of rain > 1mm	+ 5.7 days
Percentage change in total precipitation	+ 13.6 %
Change in mean sea-level pressure (hectopascal (hPa))	- 0.3 hPa
Change in relative humidity	- 2.4 %

4.3.2 Future Baseline – Climate Projections Relevant to the Assessment

The climate parameters considered relevant to the assessments referenced within this section are temperature, wind speed, and precipitation. In addition to these, changes in temperature could potentially affect environmental receptors considered elsewhere in this ES, although not directly considered to inform the assessment of effects on climate change. It should be noted that climate change does not necessarily mean warming of the climate at a specific location. Changes in local climate depend in a complex way on global temperature rise, and in the UK are expected to include a rise in the frequency of more extreme weather events, average or long-term statistics would not capture this.

4.3.2.1 Temperature

Observations show an annual warming in the UK in recent decades with more warming predicted in the summer than in the winter. In summer there is a pronounced north/south contrast, with greater increases in maximum summer temperatures over the southern UK.

For the period 2020-2039, changes to annual mean temperature (relative to 1981-2000) are projected at +1°C (50% probability level) for scenario RCP 6.0¹⁶.

For the period 2040-2059, changes to the mean annual temperature in Wales (compared to 1981-2000 baseline) are projected at 2°C (50% probability) for scenario RCP 6.0.

Key observations are that:

- Both winters and summers will be warmer, with more warming in the summer; and
- In summer there is a pronounced north/south divide with greater increases in maximum summer temperatures over the southern UK compared to Northern Scotland.

4.3.2.2 Wind Speed

The global projections over the UK show an increase in near surface (10 metre [m] height) wind speeds over the UK in the second half of the 21st century, in the winter season when higher wind speeds are generally experienced. The increase is modest when compared to inter-annual variability. This would be accompanied by an increase in frequency of winter storms over the UK¹⁷. There are no significant changes forecast in the wind speeds over the first part of the century.

¹⁶ Climate Change statistics were evaluated using a bounding box with the following geographic boundaries: northern extent - 296012.5, southern extent - 279612.5, eastern extent - 312500.0, and western extent - 294200.0.

¹⁷ UKCP18 (2018) Factsheet: Wind.

These projections are in line with earlier findings by Pryor and Barthelmie (2010)¹⁸ who concluded that in the near-term (i.e., until the 2050s) there will be no detectable significant change in the wind resource of northern Europe.

This section is based on the UK Climate Projections Science Report: Probabilistic Projections of Wind Speed¹⁹ which has predicted summer and winter wind speeds for 2040 – 2069 and 2070 – 2099. For Wales, predicted summer wind speeds for 2040 – 2069, at the 50% probability level (under the medium emissions scenario), are slightly skewed towards a small reduction in wind speed, with changes predicted between 0 – 0.2 m/s which equates to around 0.4 knots. This is a minimal change compared with the typical magnitude of summer mean wind speeds for Wales which is between 7 – 14 knots. Predicted summer wind speeds for 2070 – 2099, at the 50% probability level (under the medium emissions scenario), are -0.2 m/s which equates to roughly 0.4 knots. Similarly, to the 2040 – 2069 projection period, this is a minimal change compared to the typical magnitude for winter mean speeds for Wales.

Predicted winter wind speeds for 2040 – 2069 in Wales at the 50% probability level (under the medium emissions scenario) are between -0.1 m/s to 0.1 m/s which equates to roughly 0.4 knots and is a relatively small change compared to the mean observed winter wind speed value of between 10-14 knots over Wales. Predicted winter wind speeds for 2070 – 2099, at the 50% probability level (under the medium emissions scenario), are -0.1 m/s which equates to roughly 0.4 knots which is also a relatively small change compared to the mean observed winter wind speeds over Wales.

4.3.2.3 Precipitation

Rainfall patterns over the UK are not uniform and vary on regional and seasonal scales, which will continue in the future. Future changes are uncertain but point to wetter winters and drier summers in general. Drying in summer will be strongest in the South of England, whilst Northern Scotland is associated with greatest wetting in winters²⁰.

Over the UK, the changes to precipitation projected for 2041-2060 (compared to 1981-2000) for RCP 8.5 (unmitigated scenario) are:

- Winter precipitation – increase of 12%. Results for the 10th to 90th percentile range are between -2% and +29%; and
- Summer precipitation – decrease of 15%. Results for the 10th to 90th percentile range are between -33% and +2%.

UKCP18 shows that for the period 2020-2059 changes to annual average precipitation (relative to 1981-2000) are projected at -10 to +10% (50% probability level) for scenario RCP 6.0²¹.

4.3.3 Greenhouse Gas Emissions

The central aim of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.

A substantial reduction in greenhouse gas emissions is imperative to avoid irreversible damage caused by the impacts of climate change. "*When it comes to rises in global average*

¹⁸ Pryor, S.C. and Barthelmie, R. J. (2010) Climate Change Impact on Wind Energy: A Review. *Renewable and Sustainable Energy Review*, 14(1): 430-437

¹⁹ Sexton and Murphy (2010) UKCP09: Probabilistic Projections of Wind Speed [Online] Available at: <http://ukclimateprojections.metoffice.gov.uk/media.jsp?mediaid=87876&filetype=pdf>

²⁰ Lowe *et al* (2018) UKCP18 Science Overview Report

²¹ Climate Change statistics were evaluated between grid reference space: N- 296012.5 S- 279612.5 E- 312500.0 W- 294200.0

temperature, every fraction of a degree matters" was stated in a recent publication providing analysis for the Global Carbon Budget 2017²².

The recent Intergovernmental Panel on Climate Change (IPCC) Special Report²³ highlighted that to limit global warming to below 1.5°C by the end of the century, emissions would need to decline by about 45% by 2030 and reach net zero around 2050. This is the temperature rise when a variety of increasingly severe effects are felt and the IPCC identifies that rapid and far-reaching transitions are required in all sectors including energy. Action is required now, with barely a decade left to take unprecedented action to reduce emissions in half by 2030. Recent figures from the Global Carbon Project, however, report that after three years of nearly no growth (2014-2016), emissions rose by 1.6% in 2017 and predicted to rise again by 2.7% in 2018.

With the continued development of onshore windfarms in the planning and pre-construction phases, it is anticipated that onshore windfarms will continue to make a sizeable contribution to the energy generated from renewable energy technologies within the UK.

A substantial reduction in greenhouse gas emissions is imperative to avoid irreversible damage caused by the effects of climate change. The UK Government has introduced a number of policies aimed at reducing greenhouse gas emissions and meeting renewable energy targets set at a UK, European and international level.

The Climate Change Act 2008²⁴ is legally binding legislation that creates a statutory framework for reductions in greenhouse gas emissions. A target reduction of 80% had been set for 2050 with two interim targets: a 34% reduction in emissions by 2030 and a 57% reduction in emissions by 2032. This Act includes a requirement for the UK secretary of state to ensure that the "*net UK carbon account for the year 2050 is at least 80% lower than the 1990 baseline.*" This Act also requires local authorities to act in a way that contributes and helps deliver these emission targets. Additionally, the IEMA 'EIA Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance' assists greenhouse gas emissions assessment and mitigation in statutory and non-statutory EIA.

Table 5.3 of the Digest of United Kingdom Energy Statistics (DUKES) 2018²⁵ provides details of the sources used in generation of electricity throughout 2017 by major power producers. Of a total of 52.79 million tonnes of oil equivalent generated in 2017 within the UK, 27.9 million tonnes of oil equivalent were generated by natural gas, oil and coal, and 7.7 million tonnes of oil equivalent were generated from renewable resources. These numbers demonstrate that fuels which emit high levels of carbon emissions are generating the majority of electricity within the UK.

²² Earth System Science Data (2017) Global Carbon Budget [Online] Available at: <https://www.earth-syst-sci-data.net/10/405/2018/essd-10-405-2018.pdf> (Accessed 06/06/2019)

²³ IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, Maycock, M. Tignor, and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland, 32 pp [Online] Available at: <https://www.ipcc.ch/sr15/> (Accessed at 06/06/2019)

²⁴ UK Government (2008) Climate Change Act 2008 [Online] Available at: <https://www.legislation.gov.uk/ukpga/2008/27/contents> (Accessed 06/06/2019)

²⁵ Department for Business, Energy & Industrial Strategy (2018) Digest of United Kingdom Energy Statistics 2018 [Online] Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/736148/DUKES_2018.pdf (Accessed 25/10/18)

4.4 Assessment of Potential Effects

4.4.1 Vulnerability of the Development to Climate Change

As a large energy generation asset with capacity in excess of 50 Megawatts (MW), the Development can be classed as an asset of regional importance and classed as Medium sensitivity for the following assessments.

4.4.1.1 Wind

As the energy content of the wind varies with the cube of the average wind speed²⁶, small increases in wind speed can result in large increases in wind power. This has implications for energy generation, e.g., if wind speed is twice as high it contains eight times as much energy available for conversion to electricity. But there is also a higher risk of damage from strong winds; winds associated with major storm events can be some of the most damaging and disruptive events for the UK with implications for infrastructure.

Wind turbines are designed to capture wind energy, and built to withstand extreme conditions associated with exposed locations. However, wind energy developments could potentially be sensitive to significant changes in variables, including atmospheric circulation and land cover changes as well as changes in the frequency of extreme events (e.g., storms), which could damage wind turbines or alter their efficiency.

Over the lifetime of the Development, UKCP18 shows the change in wind speeds and storms is limited to well within the limits of current inter-annual variability. These changes will have a negligible magnitude of effect on energy projections and on the efficient operation of the Development.

Given the negligible magnitude of the effect and the medium sensitivity of the Development as a receptor, the significance of effect is assessed as Negligible and there is no significant effect in terms of the EIA Regulations predicted as a result of increased wind speeds during the operational phase of the Development.

4.4.1.2 Temperature

Wind energy developments are sensitive to cold weather events and ice forming on blades, although in the UK this has rarely been an issue. With the projected trend to warmer conditions the predicted magnitude of effect is negligible. The significance of effect is negligible and not significant in terms of the EIA Regulations.

4.4.1.3 Precipitation

The risk from increased precipitation is the potential for flooding, particularly if it is associated with extreme events. For the Development this increases the risk for potential destruction/disruption of infrastructure, e.g., loss of watercourse crossing, flooding to the control building. Buffers from watercourses are embedded in the design of the Development, as are best practice drainage design and a CEMP. As such the Development has medium sensitivity to increase in precipitation.

UKCP18's report shows that the annual precipitation in this area of Wales is projected to change from -10 to +10% at the medium estimate (see Section 4.3.2.3: Precipitation). Given the embedded mitigation, the magnitude of effect on the operation of the Development is assessed as low and the overall significance of effect is minor and not significant.

²⁶ UKCP18 (2018) Factsheet: Wind.

4.4.2 Influences of the Development on Climate Change

4.4.2.1 Carbon Savings, Carbon Loss, and Expected Payback Time

This section updates Section 14.4 of the SEI 2013, where parameters have changed since that time. This is restricted to the counterfactual emissions set out in Table 7.

Table 7 Revised Parameters used in CO₂ emission calculations since the 2013 SEI

Parameter	Comment	Value	Units
Coal- fired plant emission factor	Value provided in Energy and Climate Change (DECC) Digest of United Kingdom energy statistics (DUKES) 2018. Chapter 5 Electricity. Table 5D for 2017.	0.918	te CO ₂ MWh ⁻¹
Grid- mix emission factor	Value provided in Energy and Climate Change (DECC) Digest of United Kingdom energy statistics (DUKES) 2018. Chapter 5 Electricity. Table 5D for 2017.	0.225	te CO ₂ MWh ⁻¹
Fossil fuel- mix emission factor	Value provided in Energy and Climate Change (DECC) Digest of United Kingdom energy statistics (DUKES) 2018. Chapter 5 Electricity. Table 5D for 2017.	0.460	te CO ₂ MWh ⁻¹

Table 8 shows the carbon payback time of the development for each baseline generation scenario.

Table 8 Carbon Payback Time (using CO₂)

Parameter	Min Value	Max Value
CO ₂ loss during construction	135,375	198,310
CO ₂ savings during operation		
- Coal-fired electricity generation (te CO ₂ /yr)	157,215	220,101
- Grid-mix of electricity generation (te CO ₂ /yr)	38,533	53,946
- Fossil fuel- mix (te CO ₂ /yr)	78,779	110,290
Expected payback time		
- Coal-fired electricity generation (years)	0.62	1.26
- Grid-mix of electricity generation (years)	2.51	5.15
- Fossil fuel-mix (years)	1.23	2.52

The carbon payback time for the Development is thus between 0.62 years and 5.15 years, depending on the counterfactual grid scenario used. This is higher than in 2013, principally because the carbon emissions associated with the grid mix are now more heavily influenced by renewable energy generation, which has lower embodied carbon emissions.

Overall, as calculated payback periods are short and as the development provides a renewable source of electricity generation, this is considered to be a moderate, and significant benefit. As set out in the ES, when considered cumulatively with UK-wide renewable energy deployment, the effect of these carbon savings is a major (and significant) positive effect.

4.4.3 Effects of Future Climate Change Scenario on Environmental Receptors Sensitive to Climate Change

The potential for environmental receptors to be impacted by the Development is assessed in Chapters 6-14 of the ES. Of these, ecological, ornithological and hydrological receptors are the most sensitive to climate change and are discussed further in Table 9. Effects

assessed in other chapters of the ES are not expected to be affected by future climate change.

Table 9: Climate Change Effects on Environmental Receptors

ES Chapter	Receptor	Climate Change Effect	Effect on Receptor
7	Ornithology	Temperature – up to + 2°C Shift to wetter winters and dryer summers Negligible change in wind speeds	A rise in temperature has the potential to impact on habitats which in turn may affect the behaviour of bird interests. As noted above in Section 4.1.5: Assessment Limitations, uncertainties are high and the type and the significance of effects identified from the Development are not anticipated to alter as a result.
8	Ecology – Habitats, Protected Species	Temperature – up to + 2°C Shift to wetter winters and dryer summers Negligible change in wind speeds	While changes in temperature could affect the composition and growth rates of plant communities and invertebrates, and hence protected species and habitats, the uncertainties are high and it is not clear that the effect of the Development on those receptors would alter substantially as a result.
12	Geology, Hydrology and Hydrogeology	Shift to wetter winters and dryer summers	Limited change to future baseline and to the identified effects of the Development.

In conclusion, no additional significant effects will occur as a result of climate change during the operational phase of the Development.

4.5 Mitigation Measures and Residual Effects

This section identified that negative effects are of such limited and negligible nature that they are not significant and therefore no mitigation is required under the EIA Regulations other than that already incorporated into the Development and recommended as best practice. An iterative design approach was taken for the windfarm layout to avoid siting infrastructure in deep peat where possible to minimise disturbance of peat soils and associated carbon losses. Further micro-siting will be informed by detailed pre-construction ground investigations.

4.6 Conclusions of the Assessment of Effects on Climate Change

As a result of design measures, the predicted future climatic baseline conditions are highly unlikely to affect the operation of the Development.

The Development will have a moderate (and significant) beneficial effect on carbon emission savings, and a major (and significant) beneficial effect when considered cumulatively with UK-wide renewable energy deployment.

No significant effects on receptors considered in other chapters of this ES, additional to those already identified, will occur as a result of climate change during the operational phase of the Development.

Table 10 provides a summary of the effects detailed within this section.

Table 10 Summary of Effects

Receptor	Potential Effect	Significance of Effect	Mitigation Proposed	Residual Effect
Vulnerability of Development to Climate Change				
Development infrastructure and generation capacity.	Changes to generation capacity through changes in wind speed.	Negligible	None Mitigation is embedded in design	None
Development infrastructure and operational efficiency.	Damage to infrastructure or operation due to changes in temperature.	Negligible	None	None
Development infrastructure and operational efficiency.	Potential for flooding of Site and impact on operation through changes to precipitation.	Minor	None Mitigation is embedded in design (e.g. watercourse buffers) and good practice measures as outlined in the CEMP.	None
Influence of the Development on Climate Change				
Climate - average temperature predictions as linked to GHG emissions.	Reduction in GHG emissions through offsetting of existing conventional generation.	Moderate, and Major cumulatively.	None Embedded mitigation has reduced payback period and maximise positive impact.	Significant contribution cumulatively to regional emissions and renewable energy generation targets.
Effects on Environmental Receptors				
Environmental receptors assessed in individual chapters of EIAR.	Change to future baseline of receptors and assessment results.	Negligible. Little change over time period to baseline condition of receptors.	None Mitigation as identified in individual assessment chapters	None

5 ASSESSMENT OF EFFECTS ON HUMAN HEALTH

Since 2013, the revised Environmental Impact Assessment (EIA) Regulations²⁷ state that an EIA must identify, describe and assess in an appropriate manner, the expected effects deriving from the vulnerability of the Development to risks, so far as relevant to the Development, upon health and safety, including natural disasters and major accidents.

The sections below summarise the human health effects on potential receptors identified in the relevant technical assessments referenced within Section 5.1: Scope.

5.1 Scope

Limited interactions of the Development with human health are possible, and this document considers the findings of the following assessments:

- Vulnerability of the Development to Natural Disasters;
- Potential for the Development to Cause Major Accidents;
- Traffic and Transportation (Chapter 9 of the ES);
- Noise and Vibration (Chapter 11 of the ES);
- Residential Amenity (Chapter 6 of the ES);
- Shadow Flicker (Chapter 14 of the ES); and
- Health and Safety at Work.

5.2 Vulnerability of the Development to Natural Disasters

The Site is not located within an area known for natural disasters such as hurricanes, tornadoes, volcanic eruptions, earthquakes or tsunamis.

One natural disaster that does occur in the UK is flooding. Effects associated with flood risk are assessed within the hydrological assessment, Chapter 13 of the ES. The probability of flooding is low, as the Development site lies within a Flood Zone 1, meaning the site has a low flood risk with the probability of flooding each year less than 0.1%. The Development is also located at the top of a hill, at an elevation of c. 500 m above sea level. The Development is therefore not at risk from flooding.

Due to the exposed nature of windfarm sites, wind turbines are designed to withstand extreme weather conditions. Brake mechanisms installed on turbines allow them to be operated only under specific wind speeds and, should severe wind speeds be experienced, then the turbines would be shut down.

No other natural disasters are considered to have the realistic potential to occur and therefore, natural disasters are not considered further within this document.

5.3 Potential for the Development to Cause Major Accidents

In this section the potential for the windfarm to cause major accidents is reviewed.

A possible but rare source of danger to human or animal life from a wind turbine would be the loss of a piece of the blade or, in the most exceptional circumstances, of the whole blade from an operational turbine. Many blades are composite structures with no bolts or other separate components. Even for blades with separate control surfaces on or comprising the tips of the blade, separation is highly unlikely. Wind turbines have an exemplary safety record with no recorded instances of fatalities to any member of the

²⁷ The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017. SI 2017/580. Available at: <http://www.legislation.gov.uk/uksi/2017/580/contents/made> [accessed on 04/06/2019].

public anywhere in the world. The turbines are also designed to shut down automatically during high wind speed conditions, typically in excess of 60 mph.

There is a risk of ice accumulation on turbine blades, nacelles and towers under certain conditions such as periods of very cold weather with high humidity. In those instances where icing of blades occurs, fragments of ice might be released from blades, particularly when the machine is started. The wind turbines would be fitted with vibration sensors to detect any imbalance which might be caused by icing of the blades. This enables the operation of machines with iced blades to be inhibited to minimise the risk of ice throw.

The possibility of attracting lightning strikes applies to all tall structures, and wind turbines are no different. Appropriate lightning protection measures are incorporated in wind turbines to ensure that lightning is conducted harmlessly past the sensitive parts of the nacelle and down into the ground.

Normal good practice, such as The Scottish Government Online Advice (2014) is to achieve a set-back from roads and railways of at least the height of the turbine proposed, to assure safety. The distance between the nearest proposed turbines and public roads is well in excess of tip height. In respect of footpaths, many wind farms in the UK are open access and allow members of the public to walk close to the turbine towers.

No other major accidents are considered to have the realistic potential to occur and therefore, major accidents are not considered further within this document.

5.4 Traffic and Transportation

The potential effect that traffic and transportation associated with the Development has on human health has been considered in Chapter 9: Traffic, Access and Transport of the ES.

Mitigation measures for traffic effects during the decommissioning/construction phases are embedded in the design of the Development as discussed in Chapter 3: Site Selection and Design Evolution, and further mitigation measures are set out in Chapter 9: Traffic, Access and Transport, in order to reduce the traffic effects arising from the Development. The Traffic Management Plan in ES 2008 Volume 1, Section 9.5.6, provides additional measures that would be agreed with consultees and implemented to further reduce traffic effects.

Traffic during the operational phase will consist of movement by staff that will supervise the operation of the Development and visit the Development to conduct routine maintenance. This is unlikely to involve HGVs and would be of negligible magnitude, and hence any related effects will not be significant.

The effects associated with levels of traffic anticipated during the decommissioning/construction phases of the Development were also found to be not significant, as were the cumulative effects, despite the worst-case assumptions made within the assessment.

The original ES identified that no significant residual effects were identified on traffic, transport or access due to the Development.

It is assessed that, if the mitigation measures referenced in the original ES are implemented for the duration of the initial decommissioning/construction phases, then the effect of increased traffic on human health and safety will be low and not significant in terms of the EIA Regulations.

5.5 Noise and vibration

A full assessment of the potential effects of noise and vibration is provided in Chapter 11: Noise and Vibration of the ES.

Noise and vibration effects during the initial decommissioning/construction phases are proposed to be managed by a set of best practice measures to minimise effects. The

decommissioning and construction works include both moving and static sources of noise. The analysis of construction noise impact has been undertaken in accordance with BS 5228.

It is anticipated that some rock extraction from borrow pits by means of blasting operations could be required in some instances. The transmission and magnitude of ground vibrations associated with blasting operations at borrow pits are subject to many complex influences. Any estimation of such conditions is subject to considerable uncertainty, thus limiting the utility of predictive exercises. The mitigation of this impact is best achieved through onsite testing processes carried out in consultation with the local authorities.

The ES 2008, Volume 1, Table 11-5: Distances at Which Vibration May Just be Perceptible, sets out that vibration may be perceptible up to c. 20 m from decommissioning/construction activities. Given that the closest works will be more than 700 m from the nearest residential buildings, it is highly unlikely that vibration will be an issue.

The decommissioning and construction noise assessment has determined that associated levels are expected to be audible at various times throughout the decommissioning and construction programme, but remain within acceptable limits.

It has been demonstrated that both the quiet day-time and night-time criterion limits can be satisfied at all properties across all wind speeds during operation of the Development. At some locations under specific wind conditions the windfarm noise may be audible however it will still be at an acceptable level according to the ETSU-R-97 guidance.

The cumulative effect of other existing or proposed windfarms in the area was also considered, and it was shown that satisfaction of the noise criterion limits could be maintained. Worst case cumulative construction traffic on existing roads would correspond to a minor effect when assessed in line with standard methodologies and criteria.

Overall, the effect of noise and vibration on human health and safety, during all phases of the Development, will be low and not significant in terms of the EIA Regulations.

5.6 Residential Amenity

An assessment of residential visual amenity has been undertaken in Chapter 6: Landscape and Visual Assessment of the ES. An examination of the likely sources of potential impacts on landscape and visual amenity in the study area identified that the operational turbines would be the most likely source of effect.

Although the Development would consist of less than half off the number of existing turbines (34 compared to 103), they would be considerably taller and more widely spaced (up to 121.2 m compared to 45.45 m to blade tip). Consequently, from most viewpoints the horizontal extent of the visible Development turbines would be similar to or greater than that occupied by the existing turbines. The ZTV analysis conducted identified that the Development would be visible from around 942 km², approximately 29% of the overall study area; the extent of the predicted visibility largely matching that of the existing turbines at Llandinam. As such, the change in setting of local properties would be slight, consisting of views that already contain other wind turbines, a negligible magnitude of change. The effect on residential amenity is therefore considered to be negligible which is not significant in terms of EIA Regulations.

The Development would, by nature, be visible from a widespread area, largely synonymous with the area from where the existing Llandinam windfarm is visible. The selected turbines are of simple form and layout and would be rendered in a pale grey colour to reduce their prominence when viewed against the sky. The borrow pits, whenever possible, will be constructed at locations with minimal visibility in order to further minimise potential effects on landscape and visual amenity.

Significant visual change does not mean a significant effect on amenity. Application of the standard test, of whether the visual change would be such to render a property an

unattractive place to live, found that no properties would be described as this, during any phase of the Development.

Overall, the visual effects on residential amenity, and their consequent effects on human health and safety, during all phases of the Development, will be low and not significant in terms of the EIA Regulations.

5.7 Shadow Flicker

An assessment of the potential effects of shadow flicker is provided in Section 14.6 of Chapter 14: Other Issues of the ES.

No shadow flicker effects will occur during the initial decommissioning/construction phases.

The effect of shadow flicker has been assessed using appropriate guidance, on the one residential property within 10 rotor diameters of the proposed turbine locations. With regards to the property Waen Cwm Yr Ynys, which is 9.3 rotor diameters from proposed Turbine 25, it was not deemed necessary to conduct a shadow flicker assessment following analysis of the terrain profile between the turbine and the property using ReSoft's WindFarm software, which shows that this turbine is not visible to the property. It is therefore not possible for the turbine to cast a shadow over any part of the property, for any location of the sun. The property will not suffer any shadow flicker effects from this turbine, and all other turbines are more than 10 rotor diameters distance from this receptor.

The Development is therefore not anticipated to cause any shadow flicker at nearby properties, and consequently there would be no shadow flicker effects on human health and safety, during all phases of the Development.

5.8 Health and Safety at Work

There are various health and safety considerations particularly for workers during the initial decommissioning/construction phases of the Development. Workers are in the closest proximity to the Development and as a result are considered to be the most at-risk group.

Comprehensive health and safety assessments and safe working practices are an essential part of the construction process and would be carried out prior to the initial decommissioning/construction phases in accordance with legislation.

A Construction, Design and Management (CDM) co-ordinator will be appointed and be responsible for the provision of a pre-decommissioning/construction phase information pack, as required under the Construction (Design and Management) Regulations 2015. The appointed main contractor will be required to provide a construction phase plan.

The construction of the Development would be managed in accordance with the Health and Safety at Work 1974 and would comply with all other relevant Regulations, including:

- Construction (Health, Safety and Welfare) Regulations 1996;
- The Construction (Design and Management) Regulations 2015; and
- The Electricity Safety, Quality and Continuity Regulations 2002 (as amended).

Following the adoption of these measures, the risk to human health of decommissioning/construction workers is low and not significant in terms of the EIA regulations.

5.9 Conclusions of the Assessment of Effects on Human Health

Key determinants to the protection of human health, including mental health aspects associated with changes to amenity as a result of the Development, have been considered as part of this assessment of effects on Human Health. The outcome of the assessment indicates that the Development is unlikely to negatively affect people's health and wellbeing in its widest sense. There are no effects that:

- Cause potentially severe or irreversible negative effects;
- Affect a large number of people to an unacceptable level; or
- Specifically, may affect groups of people who already suffer poor health or are socially excluded to an unacceptable level.

As a result, no significant effects are predicted for any phase of the Development.

It has also been assessed that the Development is not vulnerable to natural disasters, and is not likely to cause major accidents.

6 AUTHORSHIP OF THIS DOCUMENT

The EIA Regulations²⁸, in para 17, clause (5), set out that *"In order to ensure the completeness and quality of the EIA report ... the developer must ensure that the EIA report is prepared by competent experts"*. Whilst this requirement does not strictly apply to information to inform an EIA screening decision, it is nonetheless relevant.

This document has been prepared, on behalf of CeltPower, by Arcus Consultancy Services Ltd (Arcus). Arcus has over 13 years of delivering windfarm EIA projects for a wide range of developers, and has co-ordinated and submitted over 60 windfarm EIAs in this time, as well as EIAs in other sectors. Arcus has a reputation for high quality work. David Hardy, a solicitor at Eversheds at the time, stated in relation to Arcus ESs that he had reviewed:

"I consider the Arcus EIA chapters to be of a very high standard overall. The Arcus documents are coming across at the top end of the range of what I see so well done. I have very few comments to make. Certainly, in terms of passing the test for whether these chapters satisfy the EIA Regulations, I have no hesitation in saying they do."

This document, providing information to inform an EIA Screening Opinion, has been co-ordinated and overseen by Dr Paul Phillips. Paul is an experienced EIA Project Manager, a member of the Institute for Environmental Management and Assessment (IEMA) and is an IEMA Registered EIA Practitioner.

Both Arcus as a whole, and Paul as the individual responsible for this document, are therefore competent to prepare this document.

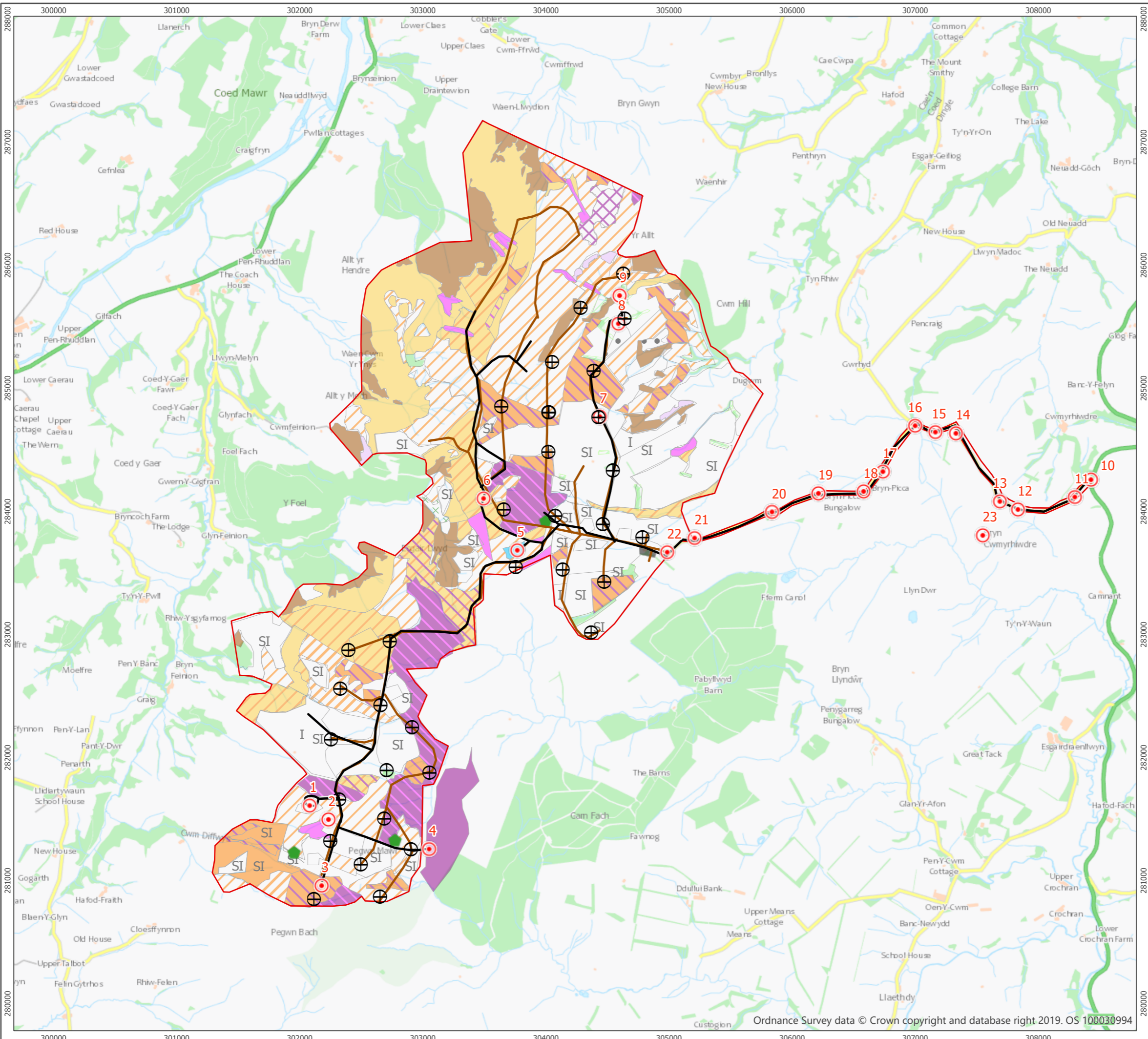
7 CONCLUSIONS

CeltPower are the holders of a Section 36 Consent for the Development. The consent was granted in September 2015, and it specifies that construction must begin within 5 years of the grant of consent. CeltPower is applying to extend this period for a further 5 years in order to allow sufficient time for prerequisites.

The EIA Regulations state that, if no EIA Report accompanies the application for the change to the consent, then the application should be screened to see if EIA is required, by consideration of whether the change would bring about significant adverse effects.

It is the opinion of the principal author of this document, based on the evidence set out in this document, that the change will not have significant adverse effects on the environment, and hence the conclusion of the screening process should be that the application does not require EIA.

²⁸ The relevant EIA Regulations are The Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017, as amended. SI 2017/580. Available at: <http://www.legislation.gov.uk/uksi/2017/580/contents/made> [accessed on 6/6/19].



- Site Boundary
- ⊕ Proposed Turbine Locations
- Proposed access track
- Survey Route
- Acid grassland - semi-improved
- Acid grassland - unimproved
- Bare ground
- Blanket sphagnum bog
- Bracken - continuous
- Buildings
- Coniferous woodland - plantation
- Dry dwarf shrub heath - acid
- Dry heath/acid grassland
- Fen - valley mire
- Flush and spring - acid/neutral flush
- I Improved grassland
- Marsh/marshy grassland
- SI Neutral grassland - semi-improved
- Dominated by Western Gorse
- SI Poor semi-improved grassland
- Scrub - scattered
- Standing water - oligotrophic
- Wet dwarf shrub heath
- Wet heath/acid grassland
- Wet modified bog
- Target Note
- Bird Sightings

1:30,000 Scale @ A3
 0 0.5 1 km ▲ NORTH

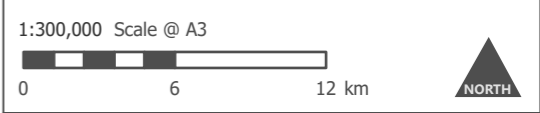
Produced By: CW	Ref: 3296-REP-002
Checked By: SC	Date: 04/06/2019

Phase 1 Habitat Map
Figure 01

Llandinum Windfarm Repowering
Screening Report

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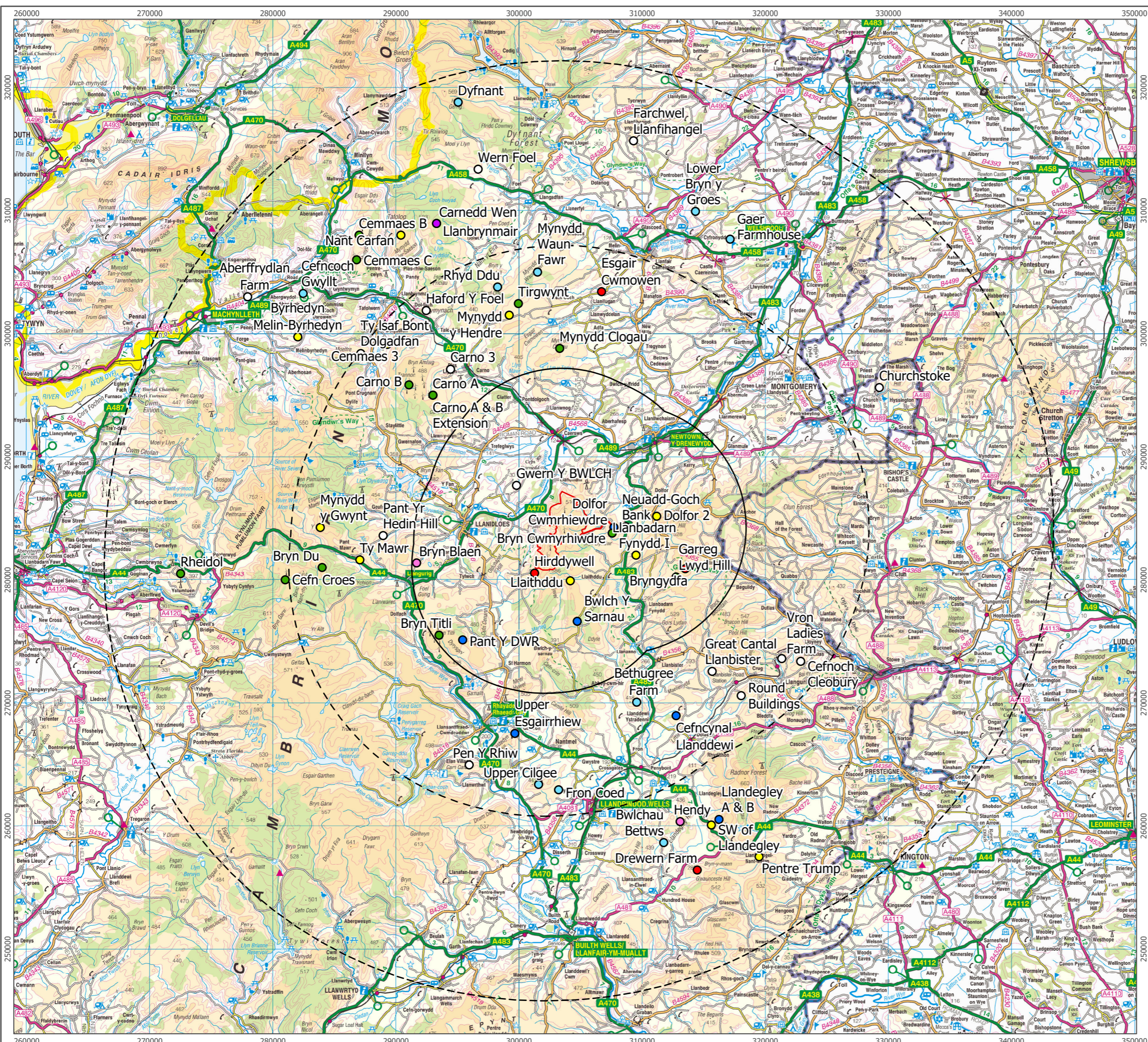
- Site Boundary
 - 10 km buffer
 - 20 km buffer
 - 35 km buffer
- Cumulative Developments Status
- Operational
 - Under Construction
 - Application Granted
 - Application Submitted
 - Appeal
 - Scoping
 - Application Refused
 - Application Withdrawn



Produced By: KE	Ref: 3296-REP-002
Checked By: SC	Date: 13/06/2019

Cumulative Windfarm Developments
Figure 2

Llandinam Windfarm Repowering Screening Report



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