Banc Du Energy Park, Powys.
PEDW DNS Application Ref: DNS/ CAS-01927-F0T2T1
Application for Planning Permission under the
Town & Country Planning Act 1990 and Planning (Wales) Act 2015

REPRESENTATION by the Cambrian Mountains Society and the Campaign for Protection of Rural Wales (CPRW)

in relation to an application for a Development of National Significance, under the Developments of National Significance (Wales) 2016 (as amended) and subsequent Regulations, for the construction and operation of an energy park consisting of up to 6 wind turbines each up to 200 m in height to blade tip and associated infrastructure on approximately 360 hectares of land approximately 0.4 km north-west of Llangurig, Powys.

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TABLE OF CONTENTS

DEFINITIONS AND ABBREVIATIONS 4

DECISION REQUESTED 5

OVERVIEW 6

The Cambrian Mountains Society 6

The Cambrian Mountains' importance to Wales 87

THE PROPOSAL 7

Rhiwlas, Banc Du and the Rhiwlas Green Energy Network are a single project for EIA purposes 7

Rhiwlas components, power contribution and projected lifespan 10

SUMMARY OVERVIEW OF THE REPRESENTATION 12

The Cambrian Mountains area is not a suitable location 12

Shortcomings of the Applicant's proposal 14
Key grounds why this proposal is unsuitable in principle 15
Inadequate Pre-Application Consultation 16

LEGISLATIVE AND POLICY FRAMEWORK 18

Principles 88

Future Wales 89
Policies 89
Outcomes 90

Planning Policy Wales (PPW) 91

The demise of Welsh Energy Targets 93

Conflict with the Powys Local Development Plan (LDP) 94

LANDSCAPE AND VISUAL IMPACT 18

CULTURE AND HISTORY 20

LIGHTING UP DARK SKIES 21

TOURISM 22

COMMUNITY IMPACT 27

GRID CONNECTION & INFRASTRUCTURE 31

THE WRONG TURBINES IN THE WRONG PLACE 32

No genuine assessment of alternative sites 32

Inappropriate site for efficient and reliable generation of wind power 33
Principles 96
Application to proposed Rhiwlas site 33

Conclusions on potential energy contribution and carbon payback 37

WATER/HYDROLOGY 38

ECOLOGY AND ORNITHOLOGY 44

Principles 44

Importance of this site 46

Inadequacies of the ecological data provided 47

Inadequate approach to construction risks to wildlife 49

Inadequate approach to cumulative impacts 50

Peatlands and carbon 51
The Application's Impact on Peat 52

Invertebrates 55

Birds 57

Mammals 57

Bats 65

Outline Habitat Management Plan (OHMP) 67

TRANSPORT 70

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CUMULATIVE IMPACTS 70

Landscape **75**

Other Cumulative Impacts **76**

THE PLANNING BALANCE 80

LVIA **80**

History and culture **81**

Ecology and ornithology **81**

Access, transport and traffic **82**

Hydrology, hydrogeology and geology **82**

Grid connection **82**

Climate change and carbon balance **83**

Cumulative effects **84**

Need **84**

CONCLUSION 86

Definitions and abbreviations

In this Representation,

"The Site" means the land affected by the proposed development and associated infrastructure;

"the Application" means the Applicant's submitted DNS application and supporting documents; and

"the Applicant" means the company promoting the Banc Du Energy Park.

The following abbreviations are used in this Representation:

Abbreviation	Meaning
CEMP	Construction Environmental Management Plan
DAS	Design and Access Statement
DNS	Development of National Significance
EIA	Environmental Impact Assessment
ES	Environmental Statement
FW2040	Future Wales: The National Plan 2040
HMP	Habitat Management Plan
LDP	Local Development Plan
LIR	Local Impact Report
LVIA	Landscape and Visual Impact Assessment
NRW	Natural Resources Wales
PAC	Pre-Application Consultation
PEDW	Planning and Environment Decisions Wales
PPW	Planning Policy Wales
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
TMP	Traffic Management Plan

Decision requested

The Cambrian Mountains Society ("the Society") and CPRW ask that the Application be refused.

The Application should be recommended for refusal because the site is wholly unsuitable for the generation of wind power. First, it has no grid connection and there are significant barriers to it ever having one. Secondly, the cumulative impacts of the proposal in an area which already holds two operating wind farms would be unacceptable. The Applicant has not demonstrated that the development can avoid unacceptable harm to hydrology, peat, biodiversity, landscape and transport safety. Nor has it shown that those harms can lawfully

be deferred to post-consent mitigation. This is inappropriate for a Development of National Significance which would adversely affect: an upland Site of Special Scientific Interest (the Upper Wye) as well as the headwaters of both the Gŵy/Wye and Hafren/Severn catchments; quantities of peat; protected species; and one of the least fragmented ecological corridors in Wales.

Alternatively, no recommendation for consent should be made unless and until the Applicant has provided adequate, up-to-date and independently reviewable evidence as to the environmental impacts of a specific grid connection route; the actual likely power generation in view of the meteorological unfitness of the site; the realistic lifetime of the project; and a full report on the hydrology, peat, biodiversity, ornithology, transport and cumulative impacts.

CPRW add: The Campaign for the Protection of Rural Wales fully endorses this Objection prepared by the Cambrian Mountains Society with the help of local expertise and accompanied by a professional LVIA assessment. We join CMS in the request for recommendation of REFUSAL.

CPRW would like to highlight the following issues which are addressed in detail within the CMS objection.

1) Rhiwlas, Banc Du and the Rhiwlas Green Energy Network are a single project for EIA purposes.

2) Site selection and design process
   - has not reconciled the scale of the proposed turbines with the character and sensitivities of this landscape or the well-being of its communities
   - has not followed the step-wise approach

3) Across the range of ES topics, mandatory assessment of Likely Significant Effects is avoided by reliance on post-consent investigation and mitigation incorporated into conditioned plans

4) Net Benefit for Biodiversity has not been secured.

If the Inspector concludes that a hearing is necessary in relation to this Application, whether jointly with the Application for Rhiwlas or otherwise, we request to participate in the hearing along with our consultant Munro Landscapes.

Overview

Treatment of overlap with the Cambrian Mountains Society's response to Rhiwlas

1) We understand that this Application is being examined by the same Inspector who is reviewing the Applicant's co-pending application for permission to build Rhiwlas Energy

Park. Consequently, we do not repeat in this Representation the introduction to our charity, and the Cambrian Mountains region, which we set out in our Representation in that case. This and other submissions which would be wholly repetitive of that Representation have instead been placed in Annex 1 at the end of this document.

2) There are, inevitably, issues which are very similar in respect of the two sites but not identical. These we have necessarily re-framed below to address the specifics of the current Application. As a result there may be some appearance of repetition, but we have sought to make the distinction between the two cases clear throughout.

The Proposal

Rhiwlas, Banc Du and the Rhiwlas Green Energy Network are a single project for EIA purposes

3) The Inspector is aware from our Representation in response to the Rhiwlas application that Banc Du, a proposal for the installation of 6 turbines on a site lying within the local authority of Powys County Council (PCC), is one of three proposals originating with the Bute Energy Group and affecting the environs of Llangurig which are currently progressing through the DNS process. The second component is the Rhiwlas Energy Park proposal ("Rhiwlas"), for a further 12 turbines and a substation to be constructed on a ridge 3km south west. The Applicant implicitly acknowledged that these two proposals are part of a single project by running a concurrent Pre-Application Consultation covering both components. Both Banc Du and Rhiwlas would be linked to the third component, the Rhiwlas Green Energy Network (RGEN). This was described by the project team in their Inception Meeting with PEDW on 17 August 2023.

> "The proposed development consists of a 33 kV underground cable between the Banc Du Energy Park and Rhiwlas Energy Park (approximately 3 km). Furthermore, a 132 kV single circuit Overhead Line, supported on wooden poles, is proposed from the Rhiwlas Energy Park to the Llyn Lort substation near the Llyn Lort Energy Park (approximately 35 km)."

For completeness, the same group are applying for permissions to construct:

- a wind farm at Llyn Lort; and
- a pylon chain ("Vwrnwy-Frankton") from Cors y Garreg to Lower Frankton.

4) As we pointed out in greater detail in responding to Rhiwlas, the three Llangurig projects clearly make up a single project comprising a new grid connection plus ***either*** one or two wind farms (depending upon consents).

5) Accordingly, as all three are under ultimate common ownership and functionally interdependent, each of them forms an integral part of the whole and they must be considered for EIA purposes as a single project.[1]

6) No EIA is yet possible in respect of RGEN. Consultation on a revised route (still incorporating two options over one stage) is currently proposed for "later in 2026".

7) The additional Vwrnwy-Frankton infrastructure is also essential for the connection of any part of the Llangurig projects to the grid and, likewise, is still at pre-application stage. The likelihood of this further grid link being built at all and its environmental impacts are equally unknown. It is as a minimum necessary to preclude any risk that the Banc Du and Rhiwlas components are constructed but one or both of the proposed grid connections are refused. As the example of Hendy wind farm has deplorably demonstrated, and the maintenance of the Applicant's meteorological mast on this Site for several months after temporary planning permission had expired, simply relying upon planning conditions in the expectation that such conditions would be respected, is not a sufficient precaution.

8) Given the recent change of Welsh Government policy, requiring all 132 kV lines such as this one to be constructed using underground cables, yet further review of possible routes may be required leading to further postponement of EIA.

9) The credibility of this risk is amplified by the fact that both RGEN and the Vwrnwy-Frankton line are incompatible with the National Electricity Systems Operator (NESO) June 2026 proposal for the future grid structure in Wales, shown in the diagram below.[2] NESO have been working since October 2024 on a mandate from the UK, Scottish and Welsh governments to develop a Strategic Spatial Energy Plan which, once adopted, may preclude non-integrated and inefficient local developer-led distribution lines such as this proposal being constructed at all.

[1] *Burridge v Breckland DC* [2013] EWCA Civ 228
[2] Available online at https://www.neso.energy/document/383376/download

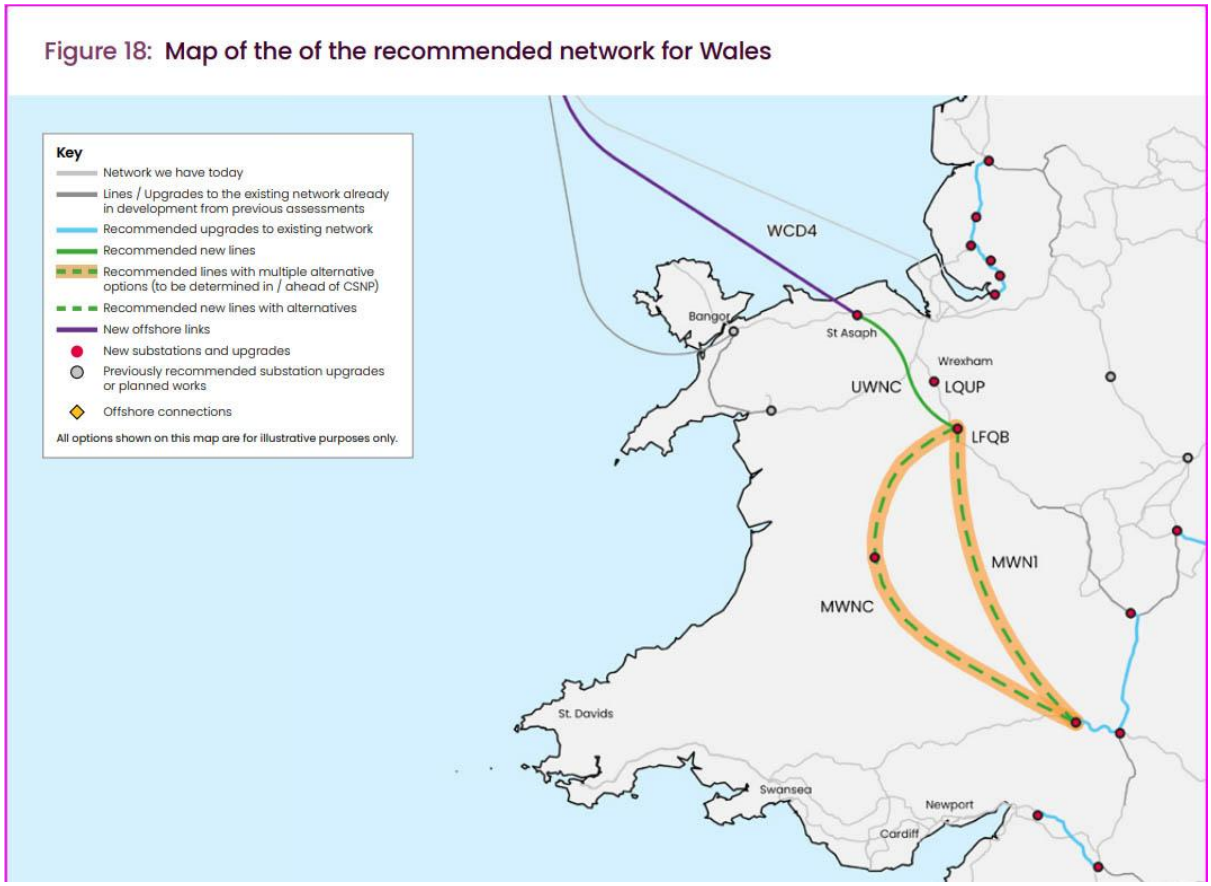


Figure 1 Figure 18 from NESO publication Beyond 2030 - Electricity Transmission Update

10) This situation is a serious bar to the determination of the Banc Du component proposal at present. At the closing date for representations in respect of Banc Du, the environmental surveying of GreenGen's current proposals is incomplete. Neither the Inspector, statutory consultees nor Interested Parties are able to assess the overall impact of the combined project – even if it were to proceed in the form currently envisaged by the Applicant's affiliate.

11) Since PEDW has already adopted the reasoning of the *Raeshaw* decision[3] in responding to the Applicant's parallel application for Nant Mithil Energy Park, the Inspector will be familiar with the principle there stated: that it is "irrational for the reporter to have placed considerable weight on the wider benefits that would result from the operation of the wind farm once connected to the grid whilst, at the same time, saying that the grid connection, and its disbenefits, would be considered at a later date."[4] Accordingly, if the assessment of the Banc Du power station is to proceed in the absence of the information

[3] *Raeshaw Farms Ltd v Scottish Ministers* [2026] CSIH 10
[4] *Raeshaw* judgment at para 56.

necessary to assess the environmental impacts of the RGEN and Vwrnwy-Frankton networks, then it must do so without taking into account the potential benefits which *might* result from the operation of the wind farm *if it is ever connected to the grid*.

12) In this situation, it is impossible for the Inspector to assess the Planning Balance. The better course would be to consider the three project elements in a single combined assessment, and proceed only once all of the necessary information is to hand.

13) We adopt the same approach in this Representation as we did in respect of Rhiwlas, commenting below only on the impacts for which information is available without speculating as to the additional impact which the grid connection may have in any category. This in our view leads to the conclusion that the application should be rejected. Nevertheless, should the Inspector disagree with that assessment, the only alternative conclusion is that no recommendation can be made until the full environmental impacts of all components of the project have been presented for assessment.

Banc Du components, power contribution and projected lifespan

14) The Site extends northwards from the A44 to Pen Bwlch-y-groes and the upland hilltop of Banc Du at the Nant Bronfelen valley head. It is 5.2km from the edge of the Elenydd-Mallaen SPA. It consists of improved pasture grazing, with moorland on hilltops and slopes, small coniferous forestry blocks on lower slopes, and broadleaf woodland near the Nant Bronfelen valley. The Applicant describes the lower slopes as "intensively farmed" (Design and Access Statement ("DAS") at 3.3.4) but this is wholly misleading: the term "intensive farming" suggests large scale poultry units or factory-style dairy farming. In fact, the lower slopes are typical ecologically-rich Mid-Wales pastureland as shown in the montage of photographs below, all taken at or slightly within the boundaries of the site.

Figure 2 The "intensively farmed" lower slopes of Banc Du site © Sandy Craig

15) The land forms a spur from the nearby Pumlumon massif to the west, with the footprint defined by the Gŵy/Wye Valley to the south, Hafren/Severn Valley to the north, and Afon Brochan to the east, with cwm-dissected uplands and river-cut plateaux between valleys. The Upper Wye SSSI and Gŵy/Wye SAC are closely linked to the Site both by physical proximity and through drainage and run-off.

16) There is an existing wind farm, Bryn Blaen comprising six turbines (100 m to tip), near the top of the spur and adjacent to the Site on its eastern side.

17) The bases of the two river valleys are at an altitude of around 260m above sea level. The area of the site in which turbines are proposed is at an altitude between 380-450m, that is only 120-190m above the valley floors. It is for this reason that PCC had identified the area as suitable for solar power generation, which could contribute to Wales' Net Zero objectives whilst remaining in keeping with the landscape character. In contrast, the proposed 180-200m turbines would be massively over-dominant, in some instances

appearing larger than the hills on which they are proposed to be built.

18) The proposal is for 6 180-200m turbines with foundations, hardstandings, borrow pits, a substation, access tracks and associated infrastructure. Access to the site would require construction of a new junction on the A44 immediately to the west of Llangurig village, at a point where the river Gŵy/Wye is immediately adjacent to the road. The site's own new infrastructure would include 4.8km of new and enlarged access tracks with cable trenches alongside, and watercourse crossings including a section of floating track.

19) Wind farm and grid infrastructure is required north of the A44 - the only A road which crosses the Cambrian Mountains at any point, enabling direct access to Ceredigion from Powys and the Marches.[5]

20) The Applicant claims that the development could operate for 40 years. This is unsubstantiated by any existing data: studies compiled from UK onshore fleets show median retirement age of around 23 years.[6]

21) The Applicant also suggests an anticipated generating capacity of 40 MW subject to final turbine selection (DAS1.1.3). We will show below that this, too, is unlikely to be achieved with turbines of the blade tip height proposed in the location of the Site.

Summary overview of the Representation

Retaining sequestered carbon is as important as reducing future emissions

22) The Society accepts the need to address climate change by reducing carbon and other greenhouse gas emissions. This simple statement is sometimes taken to imply that there can be no principled objection to building any proposed renewable power station, at any scale, anywhere. Logically, this does not follow.

23) First, there are many ways to go about reducing carbon emissions. Nearly 60% of the UK's carbon emissions are in the form of "embodied" carbon produced abroad in manufacturing goods transported to and consumed in the UK.[7] Considering solely emissions from within the UK, only 10% result from electricity production, the remainder arising from transport, industry, domestic heating and so forth. This range of options is

[5] It is also one of only six A class roads which give access into any part of Ceredigion from other parts of the United Kingdom. We discuss the transport impacts of the proposal in greater detail below.

[6] *How long do onshore wind turbines usually last?* 2025 Article by Ainscough Industrial Wind and Energy at https://aiswindenergy.co.uk/how-long-do-onshore-wind-turbines-usually-last/

[7] See https://www.gov.uk/government/statistics/provisional-uk-greenhouse-gas-emissions-statistics-2025/2025-uk-greenhouse-gas-emissions-provisional-figures-statistical-release

reflected by the new Welsh Government's stated intention to move from renewable power targets to emission reduction. Even in the context of generation, not every proposed power station fits into an efficient, low-carbon energy system.

24) Secondly, direct carbon emissions of human manufacture are not the sole issue. A planet plentifully supplied with renewable energy but emitting increasing volumes of currently-stored carbon through degradation of peaty soils, devastation of forests and grasslands would continue to warm. Consequently, while cutting emissions there is an equal need to conserve and restore the carbon sequestration sinks represented by Wales' peaty soils. Peat is a globally scarce resource of which Wales holds a significant proportion.

25) Thirdly, generation of sufficient energy to satisfy ever-escalating energy demand is not the only or sole priority for sustaining the earth and humankind. *Local* human resilience in the face of climate change driven by the *collective* carbon emissions of the planet depends not merely on having ever more energy for air conditioning or the potentially infinite demands of running data centres,[8] but also on *local* nature resilience. In the face of centuries of human-driven nature loss, reported most recently in NRW's *State of Nature Report 2025*, the imperative of conserving such biodiversity as remains in Wales must also be taken properly into account.

26) Accordingly, in choosing where to construct new power sources, it makes plain sense to select locations which will minimise further carbon emissions and damage to soils, habitats and species. Simply placing wind farms arbitrarily wherever developers can identify land, and relying on unenforceable conditions and purported (but in general unproven) mitigations, is not an adequate answer. First, do no harm.

27) Wales has the option of locations suitable for wind and other renewable energy developments which would entail far less damage to the environment than developing in or around the Cambrian Mountains. Building power stations in the peat-rich uplands of remote Mid-Wales, almost as far as one can get in Wales from most energy consumers, maximises transmission distances even when (unlike this combined project) developers opt for the most efficient grid connection route. The RGEN grid connection would entail losses greater than 1% of total energy, only to reach Llyn Lort substation. By the time the power reached Lower Frankton substation some 80km away, still well short of any actual

[8] By way of illustration, Denmark has imposed a pause on new grid connections in May 2026 as it is facing an increase in its energy demand from 7 GW – the requirements of its population and current industry – to 67 GW, 25% of which represent data centres currently being proposed there. The Netherlands and Ireland already have moratoria. This example demonstrates that simply expecting to continue to build renewable power stations until all future energy demand is met renewably, is physically impossible. Consuming Wales' biodiversity and releasing its stored carbon, on the other hand, is unfortunately all too possible.

consumer, losses would be over 2.5%. This factor leads to more significant land and energy losses (and therefore the need for greater total generation capacity). Locations closer to the cities and industry which will consume the energy would avoid this need for additional capacity. Similarly, additional infrastructure (roads, substations and access tracks) is needed to construct these structures in a region with very few major roads, adding to the total cost (both financial and in carbon balance) compared to regions with better infrastructure.

Shortcomings of the Applicant's proposal

28) The site chosen by the Applicant is unsuitable for a number of serious scientific reasons, without considering the economic, cultural and landscape grounds for objection. It:

a) Sites one turbine extremely poorly in an area of lower wind power and high air turbulence, beneath the ridgelines of all surrounding hills. With only 6 turbines in total, the severely reduced output this turbine would produce brings the overall effectiveness of the suite into question;

b) forms an intimate part of the catchment of two major rivers, entailing unmitigable risk of pollution into one or both from the construction activities; and

c) includes areas of peat which, despite design changes, the Applicant has failed to entirely avoid;

d) includes a truly outstanding biodiversity, with an assemblage of species including our most threatened birds including Curlew (*Numenius arquata*), Golden Plover (*Pluvialis apricaria*), Lapwing (*Vanellus* Vanellus) and Hen Harrier (*Circus cyaneus*).

29) The information supplied by the Applicant is deficient in several areas as regards potential adverse effects of the proposed development, as set out below. The Applicant itself identifies a number of issues which could have a serious impact. Rather than carry out further and complete investigations at this stage and stipulate how such harms could be avoided in accordance with planning policy, the Applicant instead seeks to defer any such reckoning to a post-consent phase, when (i) investigation *may* be carried out "if required", (ii) expert advice *may* be sought and (iii) planning conditions (which are unlikely ever to be monitored let alone enforced) *may* be relied upon to ensure that harms are mitigated.

30) In an application for a very significant development with an acknowledged permanent residue in the form of extensive turbine foundations and newly constructed access tracks and borrow pits, having a permanent, significant and unavoidable hydrological impact on

the catchments of two of Wales' largest rivers, this approach falls far short of the requirement for adequate information on which a recommendation for approval could be made.

31) There are unanswered questions about many aspects of the infrastructure, layout and hydrological and environmental impacts. The Applicant gestures toward some future mitigation measures to be "secured" within a Construction Environmental Management Plan (CEMP). Without seeing what these mitigation measures will comprise, and the full detail of the CEMP, it is impossible to assess what residual polluting effects may be upon already over-stressed river catchments. Similarly, environmental mitigation measures are limited to an Outline Habitat Management Plan (OHMP) which largely consists of statements of the general principles of biodiversity enhancement combined with broad promises but very limited specific measures and – crucially – no costings. The words "indicative", "to be agreed", "will be presented" appear liberally.

32) Combined with over-generalisation and postponement of other information and plans until post-consent, such deficiencies demonstrate a cavalier attitude on the part of the Applicant which in itself precludes reliance upon broad assurances of sufficient care being taken at a later stage. On the contrary, the approach made to the application and the salami-slicing of a single massive project into several apparently separate ones may indicate an equally reckless approach being taken to the construction and, if applicable, operation phases. These gaps accordingly preclude a truly informed and secure planning decision based upon the characteristics of this site and its location.

33) The extent of information and mitigation choices which the Applicant proposes to defer to planning conditions is excessive. Planning conditions are intended to fix the detail of a mitigation solution which has already been shown to work in respect of a fully scoped out impact. They cannot address a situation where further investigation is still needed to establish what those impacts would be and whether an environmentally acceptable or physically deliverable solution is possible at all.

Key grounds why this proposal is unsuitable in principle

34) The nature of planning documents and issues mean that it is difficult to make out a critique that is both clear and comprehensive. We set out here the headline points of our discussion for ease of reference.

a) **The Site is unsuitable in principle**

i) Meteorologically unsuitable

ii) Failure to consider alternative lower-impact sites
iii) Major landscape impact outside Pre-Assessed Areas;
iv) hydrologically important links to Rivers Wye and Severn;
v) SSSI overlap and SAC impact;

b) **The Application is evidentially unsafe**

i) incomplete alternatives assessment;
ii) outdated and flawed ecological surveys;
iii) hydrology deferred;
iv) inadequate peat assessment;
v) CEMP, TMP and HMP uncertain.

c) **The harms are not minor or temporary**

i) permanent tracks and foundations;
ii) significant irreversible peat destruction and disturbance;
iii) permanent hydrological alteration, habitat fragmentation;
iv) economic depression of vital local tourism economy.

d) **Mitigation cannot cure the defects**

i) post-consent assessment inappropriate;
ii) planning conditions unlikely to be effectively enforced;
iii) Habitat Management Plan not sufficiently certain;
iv) Substantial cumulative impacts dependent upon the activities of other wind farm and infrastructure developers.

e) **The putative renewable energy benefit does not outweigh the harm**

i) Meteorologically constrained output;
ii) lack of any grid connection;
iii) technically improbable 40-year life-span assumptions;
iv) no demonstration that this is the least harmful route to renewable generation, let alone emissions reduction.

Inadequate Pre-Application Consultation

35) There is a question to be asked whether, by running simultaneous public 'consultations' for both Banc Du and Rhiwlas the Applicant has properly consulted in respect of either of them. As a minimum, the process will have left many local people with the mistaken belief

that they are being processed as a single application and that therefore a Representation made in respect of one will be treated as applicable to both. We are further concerned that doubling the volume of materials presented will have significantly compromised the ability of local people lacking familiarity with the structure and complexity of the developments proposed to take the schemes fully on board.

36) In this context, the Applicant's choice to play down the development's significant visual impact in its Pre-Application Consultation events for the public served to actively deflect attention from those aspects which are material to the planning decision, focussing almost entirely on the potential pay-off of 'community benefits' which the future operator of the project *might* offer. This omission and deflection matters. It deprived consultees of the opportunity for a realistic assessment of the more pertinent visual, ecological, traffic[9] and hydrological impacts, leaving a material gap in the public's understanding of the development. The materials presented were highly superficial as to all impacts of the proposal; nor were the staff who attended at all able to answer our detailed questions about turbine siting and the hydrological and power generation aspects. They had not been briefed to be able to respond to the questions truly material to the planning issues.

37) As we and others have repeatedly pointed out, the DNS process relies for its legitimacy on early stage public consultation. Developers are expected to undertake genuinely meaningful public engagement, to then be taken into account to adjust proposals, before progressing to the application stage. If this process is followed, then by the time the proposal reaches the application stage it is mature and appropriate changes have taken account of legitimate public and consultee responses. By using non-technical staff who are essentially marketers the Applicant has instead sought to *disengage* the public from the real issues with the proposal and focus to a wholly inappropriate extent on the possibility of community benefits. This is in essence an attempt at bribery of a very small and tightly knit community, and it may silence some local objections. It is not, however, an effective way to reach an acceptable planning outcome in the wider public interest. As a result, we consider that the Applicant's purported application of the DNS pre-application public consultation process was not fit for purpose.

[9] Which anyway was *not* included in the materials presented at the physical events

Legislative and policy framework

38) The legislative and policy framework relevant to Banc Du is largely identical to that relevant to Rhiwlas. This material has therefore been placed in Annex 1 at the end of this document, for ease of reference without bogging down the text.

39) One additional factor applies in respect of Banc Du: Powys LDP Policy T1 (Travel, Traffic and Transport Infrastructure)**.** This policy requires transport infrastructure, traffic management improvements and development proposals to incorporate the safe and efficient flow of traffic for all transport users, including more vulnerable users, and especially those making 'Active Travel' journeys by walking, riding or cycling. It also requires proposals to manage any impacts to the network and the local environment to acceptable levels. We will discuss this in connection with the tourism impact, below.

Landscape and visual impact

Figure 3 Llangurig and Banc Du, seen from the banks of the Gwy/Wye south of the village

40) The Society has commissioned a report from Munro Landscapes, which is attached as Annex 2 to this Representation. This addresses the technical landscape analysis given by the Applicant, and concludes that:

a) "the extent and severity of adverse landscape and visual effects arising from the Proposed Banc Du Energy Park have been underestimated;

b) the site selection and design process has not adequately reconciled the scale of the proposed turbines with the character and sensitivities of this landscape;
c) the landscape effects cannot reasonably be characterised as confined principally to the immediate site and adjoining uplands;
d) producing a widespread pattern of significant adverse effects affecting residential communities, recreational routes and elevated viewpoints… substantially alter[ing] the rural outlook experienced by residents and visitors across a wider area than that identified by the Applicant;
e) Recreational receptors would be particularly affected. Significant adverse effects are identified along approximately 19 km of National Cycle Route 8, together with the substantial effects acknowledged along the Wye Valley Walk. …The review also identifies a significant omission in the assessment of the Prince Llewelyn Ride, a promoted long-distance equestrian route which passes directly through the Proposed Site, within approximately 80 m of the nearest turbine;
f) [at] one property, Beili, … the effects are considered capable of reaching the Residential Visual Amenity Threshold… the concentration of residential receptors experiencing high levels of adverse visual effect within the Nant Bronfelan and upper Severn Valleys adds considerable weight to the concerns regarding the suitability of the site and turbine arrangement;
g) the Applicant's cumulative assessment systematically understates effects for a number of landscape and visual receptors and does not provide a sufficiently reliable account of the additional cumulative change… [with] the relationship between Banc Du and the proposed Rhiwlas Energy Park … of particular concern."

41) Point g) here refers to the fact that the Applicant's Landscape Consultant has not correctly applied the assessment methodology which she specified she was going to follow. In these circumstances, the Applicant's LVIA is not fit for purpose.

42) We make additional brief comments as follows:

a) Both the individual size and the density of these turbines is too large for this landscape. The proposed 6 turbines each up to 200m high would be approximately equal to the height of the hills themselves above the rivers. As a result they would be highly visible and completely out of scale with the rolling Cambrian Mountains and settled valley landscapes.

b) Llangurig is the gateway village on the east side of the Cambrian Mountains, at the junction of two significant roads between east/west and north/south Wales. Consequently, the Energy Park's long term effects would go well beyond the site,

affecting the wider area of Mid Wales, the Welsh population and the many tourists who flock to Ceredigion each year to enjoy its stunning open landscapes, famous tranquillity and abundance of wildlife.

43) The Applicant seeks to brush what it admits would be significant adverse impacts on the landscape aside in the Planning Statement, observing that "Significant landscape and visual impacts are to be expected for commercial scale wind energy development." (Planning Statement at 6.1.2). Describing the Site as contained within a "large-scale upland landscape"[10] attempts to suggest that surrounding landscape features would dwarf, or at least overshadow, the turbines and render their impact acceptable. These statements are at best misleading and completely fail to acknowledge the requirement of Policy 18 that there should be no unacceptable adverse impact on the surrounding landscape. No significant impact should be acceptable.

44) The Applicant should be required to redo the LVIA, correctly implementing the asserted methodology for cumulative impacts and also taking the omitted Prince Llewellyn Ride properly into account.

Culture and History

45) The current proposal would, like the Rhiwlas project, have an immediate and material impact on St Curig's Church, already introduced in our Representation in that application.[11] Its listing status recognises its national importance as among the most significant 7% of buildings anywhere in Wales. This is a most remarkable building to find in a tiny remote hamlet, which it dominates both in stature and position.

Figure 4 St Curig's Church, a spectacular building designed by a great architect for a unique setting

46) Under Cadw guidance (Setting of Historic Assets in Wales) and TAN 24 (Section 1.25), an asset's setting includes how its surroundings are

[10] Planning Statement at 6.1.3

[11] It is a Grade II* listed building dating from the 12th Century though remodelled more than once in subsequent centuries. The current building was restored in 1877 by Sir George Gilbert Scott, architect of the Midland Grand Hotel at St Pancras Station in London, the Albert Memorial and the Foreign and Commonwealth Office, at the

experienced and appreciated by the public, including key views from the building. Section 1.25 confirms that setting includes non-visual factors such as tranquillity alongside these visual relationships. The introduction of huge industrial structures on the ridge immediately above and behind it, two visible from the church base and all from the tower, would immediately trivialise the ancient church from many angles, reducing it to the status of an unloved anachronism with the loss of immediate connection to the scale at which buildings have been experienced in this landscape since time immemorial.

47) The 18th Century Grade II Blaenbythigion farm house would also be directly affected through the industrialisation of its setting. The farm was built to look directly across the stream valley at the hillside atop which the Site lies.

Lighting up dark skies

48) Welsh Government's *Dark Skies Good Practice Guidance* recognises natural darkness as an important environmental resource. The visibility and lighting consequences of the proposed Banc Du development would be significant, just as that of the proposed turbines at Rhiwlas, given the landscape prominence of the turbines.

49) Both the same impacts apply here as at Rhiwlas:

a) aviation lighting would compromise the region's dark sky quality, which is desperately rare within mainland Britain. These turbines would be even closer to the Elan Valley International Dark Skies Park and therefore have a worse impact on the night sky for observers and photographers. The Applicant's visualisations do not appear to reflect the real impact; their assessment acknowledges the High sensitivity of the designation but emphasises the limited accessibility of elevated areas where turbine lighting would be visible. There is however

b) We note Powys County Council's Ecology submission has raised concern with respect to the impact on bats. Night lighting, necessary due to the Low-Fly Training Zone, is an additional factor which would increase the development's impact over and above the known collision risk. In a very dark upland space, lighting is critical in attracting insects[12] and accordingly bats. The very high mortality of insect populations through collision with wind turbines is a serious concern not merely for the many important

request and cost of the Revd Chevalier J.Y.W. Lloyd of Clochfaen, itself a significant Grade II listed Arts & Crafts building on the edge of the village.

[12] Grubisic and van Grunsven, *Artificial light at night disrupts species interactions and changes insect communities*, Current Opinion in Insect Science, Volume 47, 2021, Pages 136-141, ISSN 2214-5745

ecosystem services the insects themselves provide, such as pollination, but also as a food source for bats and many birds. [13]

50) We do not comment on the potential aviation impact as National Air Traffic have already submitted an objection.

Tourism

51) Official 2025 STEAM figures show that tourism supports 7,592 Full-Time Equivalent local jobs across Montgomeryshire and Radnorshire combined.[14] Official visitor surveys show that 44% of visitors state the natural countryside and landscape is the single main reason they come – making it the top overall driver for tourism in Powys. Visitors come specifically to interact with our natural environment – 24% engage in long walks (over 2 miles), 21% go general sightseeing, 13% visit nature-based attractions, and 12% participate in wildlife watching.

52) 74% of staying visitors and 92% of day visitors return to the area regularly, contributing to over 2.7 million visits across Montgomeryshire and Radnorshire annually. As a result tourism supports roughly 13% of all local jobs across Montgomeryshire and Radnorshire, with the vast majority of annual visits coming from repeat visitors who return for the scenery, walk or ride the trails, and spend money in local businesses such as the popular Blue Bell Inn in Llangurig itself. The area has a number of routes dedicated to active travel in accordance with Powys LDP Policy T1. These include C2020, the minor road from Llanidloes to the Hafren Forest, and the minor road running east of the Site from Penygreen Farm to Llangurig village. Both of these form part of National Cycle Network Route 8 (NCN 8, popularised as Lôn Las Cymru).

53) Likewise, the iconic Wye Valley Walk, Glyndwr's Way National Trail and the Severn Way as well as Prince Llewellyn Ride (a long distance horse riding route) bring visitors as part of their longer distance active travel objectives.

54) Banc Du, if built, would directly threaten a very significant part of this economy. Tourist demand, driven by interest in iconic trails, river walks including the Wye Valley Walk and the Severn Way, long distance bridleways such as the Prince Llewellyn Ride (which passes

[13] Voigt CC. *Insect fatalities at wind turbines as biodiversity sinks*. Conservation Science and Practice. 2021;3:e366. https://doi.org/10.1111/csp2.366

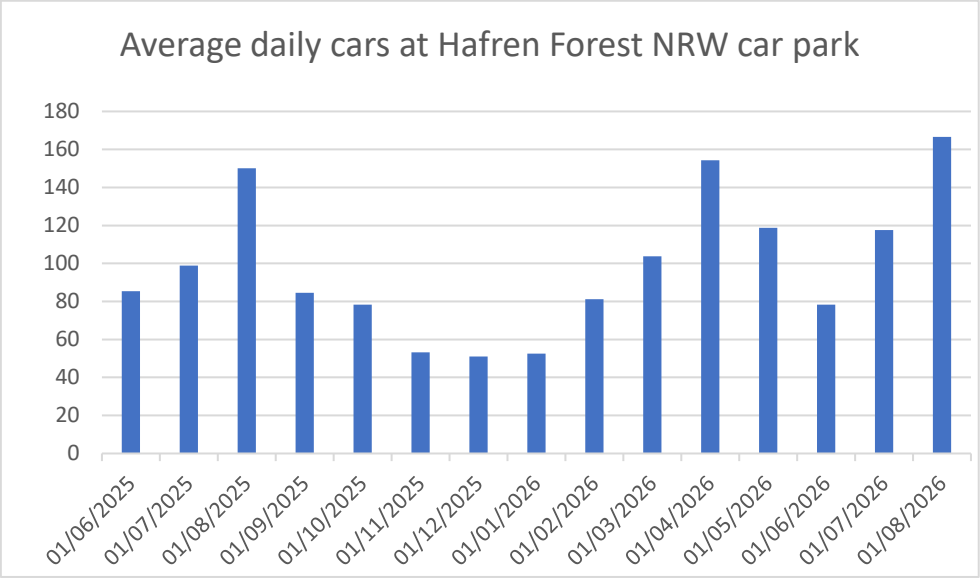
[14] Powys STEAM Summary Report 2025 (GTS UK Ltd) & Wales Visitor Survey Report: Powys County Council (Beaufort Research / Visit Wales)

through the heart of the Site itself) and scenic backdrops, has led to a accelerating surge in visitors since 2021. The official route guide to the 250 mile NCN 8 eulogises the 9 miles of the route from Rhayader to Llangurig: "the tiny valley lane is one of the finest on the NCN. Lush and verdant, winding around the curves of the river below, it's almost entirely bereft of traffic." Were Banc Du and Rhiwlas to be built, this section would change a few miles north of Rhayader from a "lush and verdant" experience to a view alternating between foliage and ever-approaching turbines.

55) Hafren Forest, sitting at the top of the Severn Valley immediately north of Banc Du, has seen such a major surge in visitors that earlier this year NRW submitted a planning application (Ref: P/26/0262/FUL) to expand the car park and also build a second one, trebling capacity for day visitors and adding potential for overnight camper vans. The Hafren Forest is particularly popular because of its location close to the famous tourist attraction of Severn-break-its-neck waterfall and its trails up the Severn Way to the river's source on Pumlumon.

56) In order to reach the NRW car park at Hafren Forest, visitors drive from Llanidloes along the minor road up the Hafren/Severn Valley, along which they would be confronted with the proposed turbines for several miles. The graph below uses NRW data from its visitor counter at the existing car park[15] to display the average number of cars entering the car park between 1 June 2025 and 31 August 2026. On the busiest days, nearly 400 cars enter the car park. Of the period for which we have data, 39 of the 50 busiest days were in 2026, illustrating the overall upward trend in daily visitor numbers. Of course, this does not show total visitor numbers: most cars will have more than one occupant; and also all too frequently at busy periods the car park is full and many further cars park along the road edges and at track junctions in the forest.

[15] Data used by permission of NRW under OGL v3. Contains Natural Resources Wales information © Natural Resources Wales and database right. All rights reserved.



57) In support of its application, NRW specifically linked this surge to the area's visual appeal. PCC Highways confirmed that the expansion was required to 'formalise and better manage existing parking demand'.[16]

58) Turning these landscapes into industrial wind sites puts the year-round local jobs and businesses which tourism supports, at risk. This breaches the guidelines outlined in FW2040, Planning Policy Wales, and the Powys LDP, which mandate the safeguarding and enhancement of tourism resources while avoiding harm to landscapes that form the foundation of the visitor economy. In contrast, the Banc Du proposal would jeopardise these assets and weaken one of Powys' most vital economic sectors.

59) Out of 22 detailed viewpoints evaluated, the Applicant concedes that 12 will experience significant visual degradation; Munro Landscape's review (at Annex 2) concludes that in fact a fair assessment would be 16, or 73% experiencing degradation. The Planning Statement admits indirectly that tourism will be affected, claiming that "the Proposed Development has sought to minimise landscape and visual impact, particularly for nearby homes and communities as well as with regard to tourism interests". Seeking to minimise harms is not the same as not causing harm in the first place. No mitigations are proposed.

60) Finally, as we have pointed out in reviewing Rhiwlas, a visitor from England can presently drive across from Shropshire, Herefordshire, Worcestershire or Gloucestershire and reach Aberystwyth without passing a turbine more than 120m high. It is therefore possible that

[16] In the event, the application was turned down because local roads were insufficient to handle the additional traffic – ignoring the fact that the visitors are already coming on the inadequate roads, leading to seasonal and weekend chaos.

if any of the many new giant turbines proposed in Mid-Wales are built, it may have a brief celebrity as the tallest – a suggestion frequently put forward by developers seeking to minimise the impact renewable power stations will have on the region. But even if, temporarily, turbines of this scale are a novelty, this is unlikely to survive the expected roll-out of multiple giant turbines. Once the experience of reaching West Wales becomes one of driving past a series of enormous tower groups, the novelty will very quickly wear off.

61) Accordingly, the proposed development's impact on local tourism needs to be fully assessed. This area has very little alternative to farming and tourism for income and employment, so the effect of losing these visitors will be far greater than might be in other locations. Llangurig is also one of very few gateways for the many visitors who travel to the Ceredigion coast. There is a real prospect that industrialising this space will have a substantial adverse impact on the economies of both counties.

62) The Inspectors will already be familiar with the research published in July 2026 by Amsterdam Business School and the University of Rome concluding that wind turbines in rural Italy had a substantial negative impact on both visitor numbers (down 20%) and visitor spend (down 19%).[17] This reaffirmed the conclusion of a 2024 'study of studies' from the University of Southern Denmark and Business Academy SouthWest which reported that most of the research done globally up to that time suggests that wind turbines can negatively impact tourism.[18] Whilst this cannot provide proof that building Banc Du would have exactly this magnitude of effect on tourism in Powys, as a minimum it demonstrates that there are real grounds for expecting an impact which would be highly significant on the economy of a remote, tourist dependent area.

Public Rights of Way

63) Despite Powys CC raising concerns, it is still not clear whether this land will remain designated as open access land after construction, threatening to permanently restrict public recreational access.

64) Two of the turbines are proposed to be sited very close to public highways. There does not appear to be any guideline in Wales as to how close a turbine can be to a road, but regardless, this raises a significant public safety concern. With T06 at 70m away closer to

[17] Castellani, Davide and Dröes, Martijn and Pinto, Gabriele, Beauty and the Blades: The Local Economic Impact of Wind Turbines (July 20, 2026). Available at SSRN: https://ssrn.com/abstract=7148158 or http://dx.doi.org/10.2139/ssrn.7148158

[18] Liburd et al *Tourism and Turbines An exploratory literature review of the relations between tourism and wind turbines* Kolding: University of Southern Denmark, Center for Tourism, Innovation and Culture. ISBN 978-87-85268-67-9

the road than the length of one of its own blades, and T02 at 200m away at the edge of topple distance there is an obvious risk to road users. The English National Highways guidance, *Strategic Road Network and the Delivery of Sustainable Development*[19] requires for Commercial Turbines a set-back distance equal to their height + 50 metres, with the developer required to demonstrate that any relaxation of the standard requirements would not pose an unacceptable risk. For T02 and T06 this would be 250m; neither meets this requirement. Accordingly, the Applicant must be required to demonstrate that the proposed siting does not pose an unacceptable risk. It is difficult to see how T06 in particular can possibly meet this; nor will a minor adjustment in its location solve the problem.

65) Some of the 5 footpaths which cross the Site would need in theory to be permanently diverted although, as Powys CC comment in their Local Impact Report (adopted on 12 October 2026), it is not apparent given the density of turbines proposed for the Site, that there is space available for the necessary diversions – including the U2727, diversion of which would require a significant additional environmental impact. Certainly permanent diversions would have to pass over land not within the Applicant's control and may, therefore, not be possible at all. At present, the Applicant has established that there would be a direct impact on local public access, with a knock-on effect on recreational tourism, but has not put forward any detail of potential mitigation capable of being assessed for long-term sufficiency. If such mitigation is possible, it must be provided for assessment before the application can be determined.

66) Tranquillity will also be permanently lost on some PRoWs, changing from routes where there are currently no vehicles at all to ones where motorised vehicles are a norm. Noise and flicker from turbines in operation are further highly unpleasant effects experienced at very close range and would have an impact on highly sensitive PROW users, both human and equine, acting as a deterrent.

[19] Most recent update 2022; paragraph 66. Available at https://www.gov.uk/government/publications/strategic-road-network-and-the-delivery-of-sustainable-development/strategic-road-network-and-the-delivery-of-sustainable-development#special-types-of-development

67) The Prince Llewellyn Ride, shown here as the blue line passing through the heart of the Site on U2727, would become a challenge rather than an amenity since riders would need to pass between turbines T02 and T03 at less than topple distance, then within 80m of T06 so that 20m of the blades would be above riders' heads. With T05 close and highly audible on the other side, many horses will find this unpassable; the integrity of the long distance route will be lost entirely.

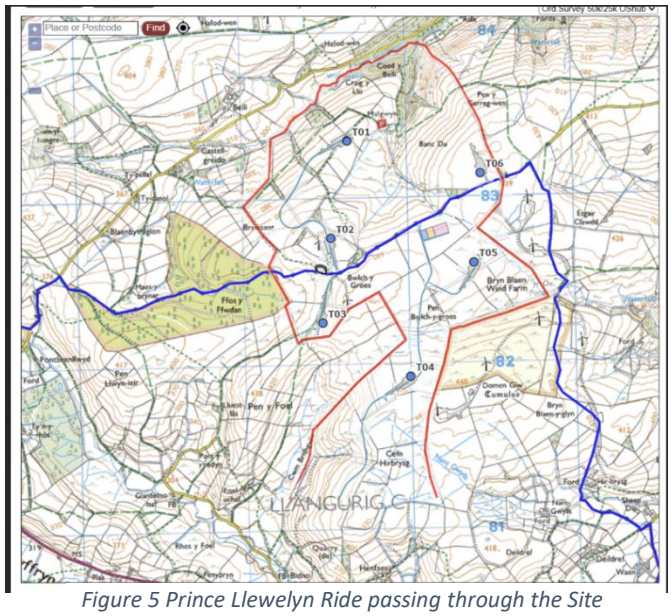


Figure 5 Prince Llewelyn Ride passing through the Site

68) The Applicant's mitigation for the loss of tranquillity relies on erecting physical barriers to separate walkers and horse riders from heavy machinery. But this is purely a safety measure. It will do nothing to diminish the intimidating effect, aural and visual intrusion of the vehicles themselves, whilst further compounding the industrial feeling of the formerly open, peaceful, and rural recreational character of these paths.

Community impact

Figure 6 St Curig's church seen looking from the Gŵy/Wye looking North

69) The small communities of Llangurig, Old Hall, Cwmbelan and environs as well as the town of Llanidloes 5 miles away, would be severely affected by the proposed development. We note the Representation filed by Llangurig Community Council in response to Rhiwlas; this equally represents the negative impact which local families and businesses would suffer were Banc Du to be approved.[20] The local economy is dominated by tourism and farming. Thus, the development's impact on local businesses, from village shops and pubs, to accommodation providers, would be felt by all. The Applicant admits that "wind turbines are designed to operate largely unattended" (ESII Chapter 3 at 3.5.46). While a small number of landowners would benefit greatly, and some hospitality businesses experience a brief 'construction boom', the remainder would be left facing long-term disruption and loss of tourist income while the landscape within which they have lived was transformed under their eyes. Farmers have been encouraged to diversify and open holiday-lets on the farms, but that additional income stream is now in jeopardy, putting the future of family farms at risk.

70) This open upland landscape already holds two proximate wind farms, Bryn Blaen and Bryn Titli. Neither is of the scale of the Applicant's proposed further developments, either as to site area nor turbine height and therefore visual dominance. Nonetheless, their presence does impinge on the otherwise purely rural character of the area, so that the stricture in Policy 18 of PPW is engaged:

> "both within and outside Pre-Assessed Areas, communities should be protected from significant cumulative impacts to avoid unacceptable situations whereby, for example, smaller settlements could be potentially surrounded by large wind schemes".

71) This warning clearly applies in full to the present applications: Llangurig is a smaller settlement, already subject to industrial overhang to the north and south. The addition of two further, much larger and much closer sites would bring the total degrees of arc facing wind farms to approximately 200° - that is, 55% of the potential 360° view as shown on the map below. This would indubitably result in a perception that the settlement was effectively surrounded by large wind schemes.

[20] As Llanidloes Town Council has further affirmed in its Representation to the current Application

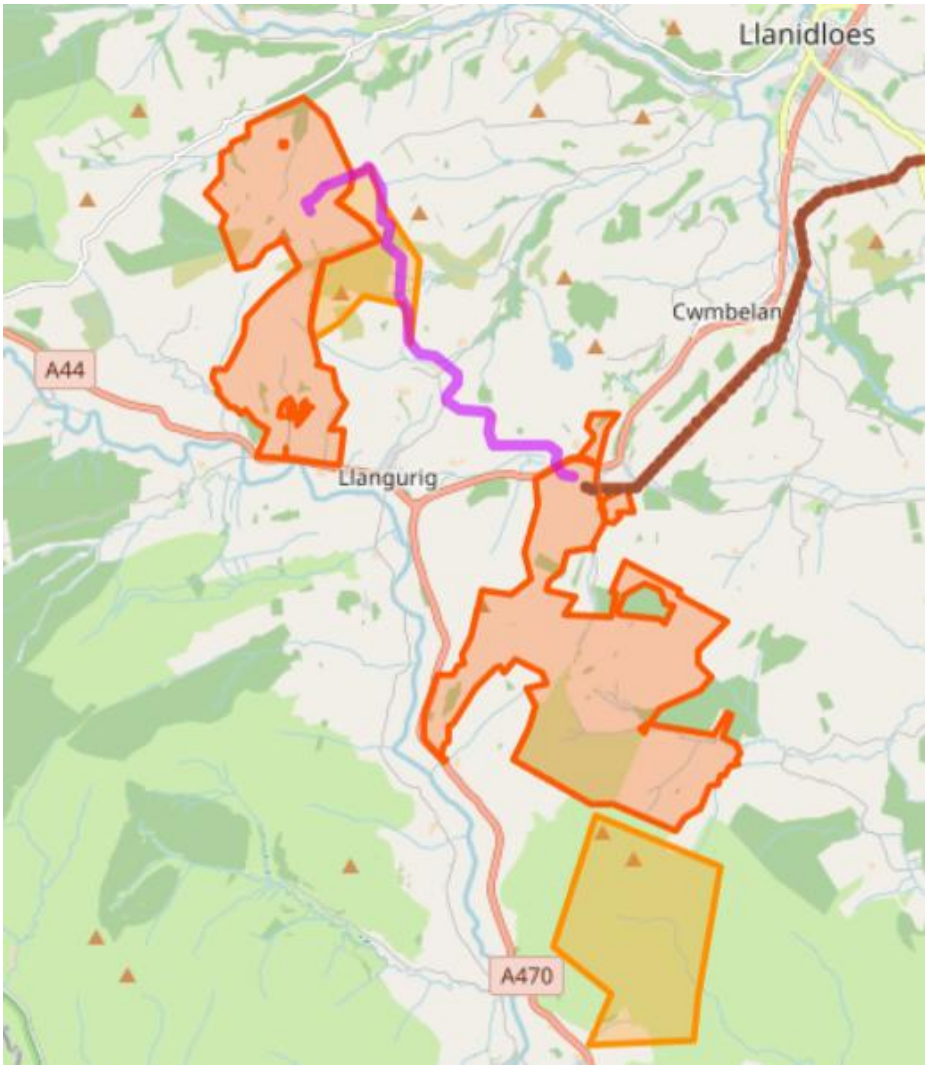


Figure 7 Existing and proposed wind farms in the Llangurig basin. Map courtesy of Caru Teifi

72) As explained in connection with Rhiwlas, the joint project "consultation" which the Applicant undertook for these Sites was essentially a sales exercise designed to divert attention from attendees' concerns to a consideration of the hypothetical community benefits which the Applicant (or its successors as site operators) *might* direct to favoured organisations. This was not a sufficient engagement with the community as a whole to meet the requirements of the PAC to establish the impact in a meaningful way.

73) Before this application was filed, the Society carried out its own Listening Project in 2024-5 (funded by the British Academy and designed and supervised by Dr Donna Oldbury-Thomas of Coventry University). Local people in Llanidloes expressed their strongest concerns about the future of community and agriculture as the two main issues, the third most important being the state of biodiversity in the uplands. A development such as this proposal is a major threat to all three.

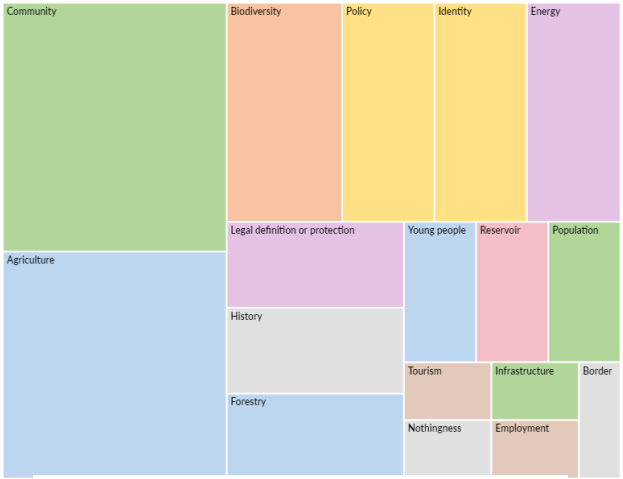


Figure 8 Listening project Llanidloes workshop results

74) The Application claims (Planning Statement) that the project would bring new jobs for the construction period both locally and across Wales, but makes no attempt to specify what kind of jobs. This failure is easily explained: the Applicant is well aware that no additional local long-term jobs would be created as a result of this project, and at most one or two logistical or site management jobs based within Wales as a whole. Experience from the construction of the most recent wind farm near Llanidloes, when similar promises were made, was that precisely no long-term jobs were created. Temporary low-skill roles such as security guards were indeed created for the duration of the construction project, but that was all.

75) This is not wilful on the Applicant's part, but inevitable: wind turbines on this scale require very specialist construction equipment and skill. In practice, a contracting team arrives and carries out the job, before leaving to construct the next wind farm somewhere else. Operation and maintenance require no more than periodic site visits carried out by remote workers. Without specific and detailed explanation of what jobs might arise in Powys and how local recruits would be matched to them, the Applicant's mere assertion of job creation should not be seen as a credible benefit to the local community or to Wales as a whole. The few 2 year jobs which do arise are hopelessly inadequate to compensate for the long term impact on jobs associated with tourism, which will be severely and permanently affected throughout Powys.

Grid Connection & Infrastructure

76) The Applicant acknowledges that there is as yet no suitable grid connection to the site and has not complied with the Scoping Direction of 2022 which required it to address the likely environmental impact of any grid connection. As we have noted above, an application appears to be under development by the Applicant's affiliate company GreenGen Cymru Ltd. The RGEN proposal is evidently still evolving but at present from the documents on the PEDW Casework portal[21] appears likely to include 3km of underground cable from the Banc Du site to the Rhiwlas site, then 35km of 132kV cables from the Rhiwlas site to the proposed (but not yet approved) Llyn Lort substation and a further 50km from there to a substation in Shropshire (the so-called Vrynwy-Frankton line). Accordingly, some additional 85km of infrastructure are required in the Applicant's view in order for any power from the proposed site to reach any consumer. In ES Appendix 3-5, the Applicant has provided no more than an overview of a potential connection rather than a thorough assessment of the environmental impacts.

77) The application cannot properly be determined until this very material omission has been rectified. This extent of infrastructure entails an enormous additional environmental cost, with extensive overhead pylon corridors or, if the recently announced new Welsh Government policy on undergrounding is applied, deep trenching across Mid Wales. GreenGen have announced statutory consultation on their current iteration of the route, for later this year. This will be the first consultation in which Community Councils on the route are asked for their input, so there is every reason to expect that further material information will emerge and additional route adjustment required. An unknown but potential material impact cannot appropriately be excluded from consideration as part of the overall project. There are substantial concerns, expressed by NESO among others, over the inefficiency of the proposed route as part of the overall UK grid structure. In these circumstances, the Inspector cannot safely assume that it will ever be approved.

78) As a result, there is a material risk that should Banc Du be approved subject only to planning conditions it could, like Hendy wind farm, be built without any connection: incurring significant environmental and economic harm to the area, and yet never make any contribution to reducing Wales' reliance on fossil fuels. There would be visual impact, habitat impacts, traffic impacts, construction noise impacts, safety considerations including both road and aviation issues,[22] and possibly telecommunications impacts. The

[21] Inception Meeting Note dated 22 April 2026
[22] the impact on air traffic control systems is highlighted by NATS in their response

Applicant must therefore be required to provide an EIA of the infrastructure elements before any assessment of the Banc Du application is made, to enable the decision maker to assess their cumulative impact as part of this application. This cannot yet be done.

The wrong turbines in the wrong place

No genuine assessment of alternative sites

79) All developments deemed to be of national significance, as outlined by the Environmental Impact Assessment Regulations, the Habitats Regulations, FW2040, Planning Policy Wales, the Environment (Wales) Act, the Well-being of Future Generations Act, and the relevant Local Development Plan, must prove that they do not result in unacceptable harm, respect environmental limits, and ensure the long-term wellbeing of communities.

80) FW2040 requires developers to demonstrate that alternative, less harmful sites have been fully considered. The proposal for Banc Du does not satisfy these essential criteria. It began as a potential extension to the existing wind farm at Bryn Blaen and evolved from there in successive stages to the current proposal. The Applicant notes that sufficiency for commercial scale was a factor, yet follows that with the bland assertion[23] that "the Site was selected to ensure minimal environmental effects, with no technical or engineering constraints". This contradiction does not survive contact with the reality: a complete absence of grid connection; serious obstacles to the components reaching the site at all; positioning two turbines too close to a public road for safety;[24] and a third in a meteorologically poor position even after several rounds of design adjustment; hydrological integration with not one but two major rivers; the presence of priority habitats and numerous protected and threatened species. The Non-Technical Summary fails to show that this site—close to sensitive habitats, visible from key viewpoints and lacking any reliable grid connection —is the least harmful option. At no point does the Applicant appear to have considered starting afresh from any alternatives *to this site*.

[23] Non-Technical Summary, page 9

[24] The absence of any turbine setback guideline under PPW is clearly a matter to be addressed in the forthcoming National Development Framework review; but regardless of any guideline, positioning a turbine within blade-length of a public highway is self-evidently a high risk. Within topple length – double blade length – may pose slightly lower risk but clearly still introduces a hazard to public safety from the risk of flying impact fragments over a wider area.

Inappropriate site for efficient and reliable generation of wind power

81) This section is prepared by Lorna Brazell and Dr Jeremy Price (BSc PhD).[25]

82) The area of the site on which turbines are proposed is at an altitude between 350-450m. The wind shadow and turbulence caused by the surrounding hills have significant implications for the potential generation. We explained the principles of wind sheer and its impact on wind farm operation (both as to generation potential and turbine longevity) in our Representation in response to Rhiwlas, and for brevity do not repeat them here; for ease of reference the information is set out in full in Annex 1 below.

Application to proposed Banc Du site

Ridge lee effect

83) Turbine T01 is proposed to be sited significantly lower down in the valley on the lee side of the normal westerly flow. Its base is at 360 metres above sea level. The surrounding ridge top heights are much higher: 454 metres to the south west, 440 metres to the south east, 450 metres to the west and 404 metres to the north west. This means that T01 would be sited between 44 and 94 metres lower than the hill top (depending on wind direction), and in the region of low wind speeds and high turbulence. The hub height will barely protrude above the hill top meaning that, approximately, only the upper half of the area swept out by the blades will be above the hill top line. This turbine would therefore be exposed to far less wind power than a turbine optimally sited on the hill top. It would produce significantly less electricity, perhaps half or less, than the turbines located closer to hill tops.

84) It would also experience far greater blade stresses as each blade would experience wind pressure differential progressively over its length as it turned from the wind shadow/turbulent area to emerge into the above-hill wind stream and then back again. Such stresses cause structural fatigue leading to the development of cracks and ultimately requiring blade replacement, as well as increasing the frequency of gearbox replacement. Since the blades in this setting would experience continuously varying differential turbulence along their length, the known solution of adjusting blade pitch dynamically (using real-time wind measurements and adaptive control systems) would not avail: it can only be applied to the whole blade. This simply is a bad place to position a turbine of this size. Indeed, the BBC has reported that the smaller (100m) turbines of Bryn Blaen wind farm built in 2017 east of the Site have suffered unusually long static periods, possibly

[25] Dr Price is a retired meteorologist of 30 years' experience, including 20 years leading a research team in the Met Office investigating boundary layer meteorology. His most recent role was as Principal Meteorological Officer at the UK Met Office.

(though unconfirmed by the operator) due to precisely such equipment issues.[26] The Applicant does not appear to provide for any abnormal stresses, its maintenance proposals (ES II Chapter 3 at 3.5.44) being limited to

- "scheduled routine maintenance and servicing, usually conducted at least bi-annually, which will involve the undertaking of servicing of gearboxes and generators
- high voltage (HV) and other electrical maintenance
- blade inspections
- any necessary routine civil maintenance of tracks, drainage and buildings."

85) Disassembly to replace blades and/or gearboxes requires considerably greater downtime than these routine actions.

86) The degree to which the turbine would be affected depends on the precise position of the turbine, particularly the altitude of the base (not yet finalised due to micrositing flexibility), but also on the wind direction and speed from time to time. Since the latter is continuously variable, there will be periods when all turbines will experience relatively benign operating conditions but there will also be periods when T01 is severely constrained. In operation, with a prevailing westerly or south westerly wind, only one of its three blades would have any significant portion exposed to the wind *above* ridge crest height at all, at any one time. Even then, the proportion of the blade which was above ridge crest height would vary as the blade turned, with some of the blade being below crest height even when the blade is vertical and therefore shielded from the wind to some degree.

87) The portion of the blade exposed to the full wind speed would be between 0% and approximately 94%, the higher number representing the extent exposed to the cross-ridge wind only for that single instant per rotation when that blade was perfectly vertical above the tower. All of the rest of the time while that blade reached above the crest at all, only a progressively smaller portion of the blade would be above the ridge horizon.

88) The remaining two blades would contribute much less for the 66% of the rotation period when they were below the horizon of the ridge crest.

89) This means that the effective wind pressure experienced by the turbine as a whole will be *at most* about one third of that which a turbine on the crest of the ridge would experience

[26] https://www.bbc.co.uk/news/uk-wales-46826710 . Detailed data on Bryn Blaen's output and constraints are not publicly available as it is not part of the GB Balancing Mechanism.

– and that maximum effective wind pressure would be experienced only for an instant, with the effective wind power on that blade less at all other times.

90) Consequently, the turbine would in reality turn far more erratically and generate far less power than it would if it were positioned so as to receive the full force of the wind on all three blades continuously. This is not an efficient way to generate electricity. Although the precise model of turbine has not yet been selected, the carbon calculation in ES Volume III Appendix 10.1 assumes turbines rated at 6.6 MW each; hence, the predicted total instantaneous power generation from all 6 turbines is given as 40 MW. This figure is very unlikely ever to be achieved even in ideal wind conditions, yet the capacity factor which has been applied, at 25%, is typical for any wind farm on the west of Britain.[27] It is impossible to calculate the likely actual output of the affected turbine without detailed, turbine location- and blade altitude-specific wind measurements, which are not available.[28] Nevertheless, it can be confidently concluded that turbine T01 is unlikely to reach its rated generation level at any time in operation and may never reach more than a fraction of it, potentially as little as half.

91) The situation is not improved much if the flow is easterly, since the turbine will then be in the wind shadow of Banc Du itself, at 440m.

92) Nothing in the application suggests that the Applicant's projections as to the power output of Banc Du wind farm take the permanently degraded function of one sixth of the turbines into account at all.

Loss of energy due to Bryn Blaen wind farm

93) The presence of the Bryn Blaen wind farm immediately adjacent to the east of the proposed site would also have a significant impact. We explained the principles of the so-called "wind theft" effect in our Representation in response to the Rhiwlas proposal and do not repeat them here. It should however be noted that the impact of Bryn Blaen on Banc Du turbines in an easterly wind would be considerably greater than the impact of Bryn Titli on Rhiwlas turbines, simply because at 100m tip height the more modern Bryn Blaen turbines are considerably taller than the 54m Bryn Titli turbines. Air turbulence generated by the presence of wind turbines can be seen at least to a distance of fifteen times the height of the turbines.

[27] The capacity factor applied, of 25% on average, reflects the fact that wind speeds vary and so the turbines will receive appropriate wind speeds only part of the time anyway.

[28] Apart from anemometer data measured on site at a single location the Applicant has relied upon "meteorological data obtained for the last 30 years at the closest meteorological station (Birmingham Airport and Manchester Airport)" (Planning Statement 2.2.9), 80 miles away to the east.

94) Yet greater would be the impact of Banc Du's turbines on Bryn Blaen's power output in a westerly wind: proposed turbines T04, 05 and 06 would all 'steal' wind from the array. Combined, the wake effects on total power generation from siting two wind farms as close together as Bryn Blaen and Banc Du would be very substantial.[29]

95) In tightly spaced wind farms, this effect can reduce total energy output by up to 10–20% if not properly managed.[30] Once again, it is impossible to calculate the quantitative impact of this effect at Banc Du without detailed location- and height-specific wind measurements. The Applicant should be required to disclose the power loss which its development would cause to the existing wind farm; and the carbon calculation should be limited to the *incremental* power generation which the Site would add to Wales' carbon budget, not the whole projected power from Banc Du alone.

Project lifespan

96) The Applicant claims an expected 40-year lifespan for the development, as it did for Rhiwlas. This is at odds with historic and current experience of the wind power industry worldwide: to date, turbines have typically lasted a maximum of 20-25 years, with performance degrading significantly with age to the point where they are no longer economic.[31] These data relate to turbines which were on average smaller than those proposed at this site, with industry experts noting that "Blades typically work for about 20 years. Their durability becomes harder to maintain as wind turbines grow larger. These components face heavy aerodynamic and gravitational loads, which increase with length. Trailing edge failures have become a common issue during operation and ultimate load testing".[32] The positioning of the turbines proposed for this particular development would, as explained above, mean that they were subjected to greater than normal blade stresses and very significant additional wear to the bearings in the nacelle. These are among the key factors which constrain turbine life.[33]

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[29] Göçmen et al, *Wind turbine wake models developed at the technical university of Denmark: A review* Renew. Sustain. Energy Rev., 60 (2016), pp. 752-769

[30] Faria, *Why Wake Losses Matter: What Every Developer Should Know Before Commissioning* (2025) https://www.aff-windservices.com/index.php/2025/07/28/why-wake-losses-matter-what-every-developer-should-know-before-commissioning/

[31] https://energyfollower.com/how-long-do-wind-turbines-last/ Unreliability of the rapidly scaled-up technology has been a substantial problem for the offshore wind industry over the last 20 years.

[32] https://freen.com/insights/blog/average-lifespan-of-a-wind-turbine/

[33] "Vibration - excessive vibration is the main cause of wear and tear across a wind turbine. As an example, a wind turbine gearbox helps to produce electricity by converting the slow blade rotation into faster rotation for the generator but, if it is exposed to high loads from wind speeds and turbulence it can affect the mechanical parts and cause it to fail" *Weathering the challenges of aging wind turbines* Allianz Insurance plc June 2025, at https://www.allianz.co.uk/news-and-insight/insight-and-expertise/weathering-the-challenges-of-aging-wind-turbines.html

97) Accordingly, it is unlikely that this particular installation would continue to perform for any more than the typical industry maximum to date of 25 years, and the Application's asserted benefits should be assessed against a currently more realistic operational lifespan expectation of 20-25 years.

Conclusions on potential energy contribution and carbon payback

98) The Applicant's discussion of the potential energy generation in ES Volume III Appendix 10.1 acknowledges that with variable wind speeds, theoretical maximum generation rates are rarely achieved; instead, a proportion in the region of 25% is more typical. It does not, however, acknowledge:

a) the intrinsic meteorological unsuitability of the site and the impact that will have on potential generation;

b) the realistic operating lifespan of the project is likely to be 20-25 years rather than the highly theoretical 40 years suggested;

c) the wind theft effect between this proposed development and the operating Bryn Blaen wind farm – in both directions;

d) that despite apparently planning to construct this set of turbines in 2027, there is no prospect of a grid connection being built for several years after that: neither the route nor the technology have yet been fixed. It cannot fairly be assumed in the Applicant's favour that a grid connection will be built at all.[34] Consequently, as a minimum several years need to be deducted from the Applicant's projected generation;

e) that with increasing intermittent and variable energy sources connected to the grid across the United Kingdom, in practice grid constraints already lead to numerous wind farms being paid to turn off for significant periods of time in the attempt to balance supply with instantaneous (and variable) demand, to maintain grid stability. In future, with increasing numbers of fluctuating power sources connected and the increasing incidence of negative electricity prices in the wholesale markets across Europe, such constraints are more likely to increase than diminish.[35]

99) The Applicant's asserted 3.9 year period to reach carbon payback is therefore wholly unsubstantiated.

[34] *Raeshaw* decision op. cit.

[35] https://www.pv-magazine.com/2026/05/08/europes-negative-electricity-price-hours-double-in-q1-amid-renewables-surpluses-market-imbalances/

100) This is not to deny that the development could have the potential to make *some* contribution. We merely point out that accepting at face value a clearly optimistic assertion about *what* generation it might theoretically achieve over a theoretical 40 year period, and against *what* hypothetical future Welsh demand,[36] is not a sound basis for deciding upon the application. This insufficiency of evidence is further amplified by the absence of EIA for the grid connection, meaning that the decision maker has no way at present to assess the balance of purported benefits against harms.

Water/hydrology

River ecology

101) **Impact on the River Gŵy/Wye:** The Site lies within the headwaters of the Gŵy/Wye and the proposed Site access from the A44 is merely the road width away from the river. The River is designated as both SSSI and SAC. Over 10% of freshwater and wetland species are threatened with complete extinction in the UK; it is therefore an increasingly urgent imperative to conserve the remaining biodiversity of all rivers; those such as the Gŵy/Wye which are supposedly protected for that purpose must rank highest. Despite this, lack of maintenance and enforcement of the rules against contamination of such sites has caused the river's water quality and health to decline to the extent that the Wye and Usk Foundation have warned that the river ecology is at risk of collapse.

102) NRW's most recent surveys of the headwaters show that this is not solely related to the widely reported agricultural run-off issues affecting the river lower down its course.[37] "In particular, channel modification and the loss of natural bank structure emerged as two of the most consistent pressures affecting the River Wye and its tributaries".[38] Any increase in sediment, pollutants, organic material, or changes in flow patterns could significantly jeopardise the integrity of this protected feature. Even from routine oil leakages and dust from vehicles coming and going at the site access point, this presents a clear risk of additional pollutants reaching the adjacent river. Four watercourses draining into it will be crossed by the new access tracks, causing channel modification, and a floating road

[36] Demand in Wales has been falling 2% p.a. for a number of years as increasing insulation of houses and energy efficiency measures take effect (https://www.gov.wales/sites/default/files/publications/2026-03/energy-generation-and-use-in-Wales-first-combined-edition.pdf)

[37] "Diatom assemblages in the headwaters of the River Wye fall short of the desired High Status class" Jones, NRW Research Report 783 *Diatom and macroinvertebrate surveys of the River Wye SAC (Wales) in 2022- 23* at p43

[38] Bywater, NRW Research Report 967 *River Habitat Surveys (RHS) and Plant Community Surveys of the River Wye SAC (Wales) in 2024 and 2025* at p121

introduced over a wetland. The Applicant's assertion that there will be no direct impacts at ES II Chapter 8 Table 8-11, is over-confident. The potential for impacts must be thoroughly assessed.

103) A SCIMAP Diffuse Pollution Risk map of the area[39] prepared for us by the Wye & Usk Foundation (for another project) shows a significant level of pollution risk to both north

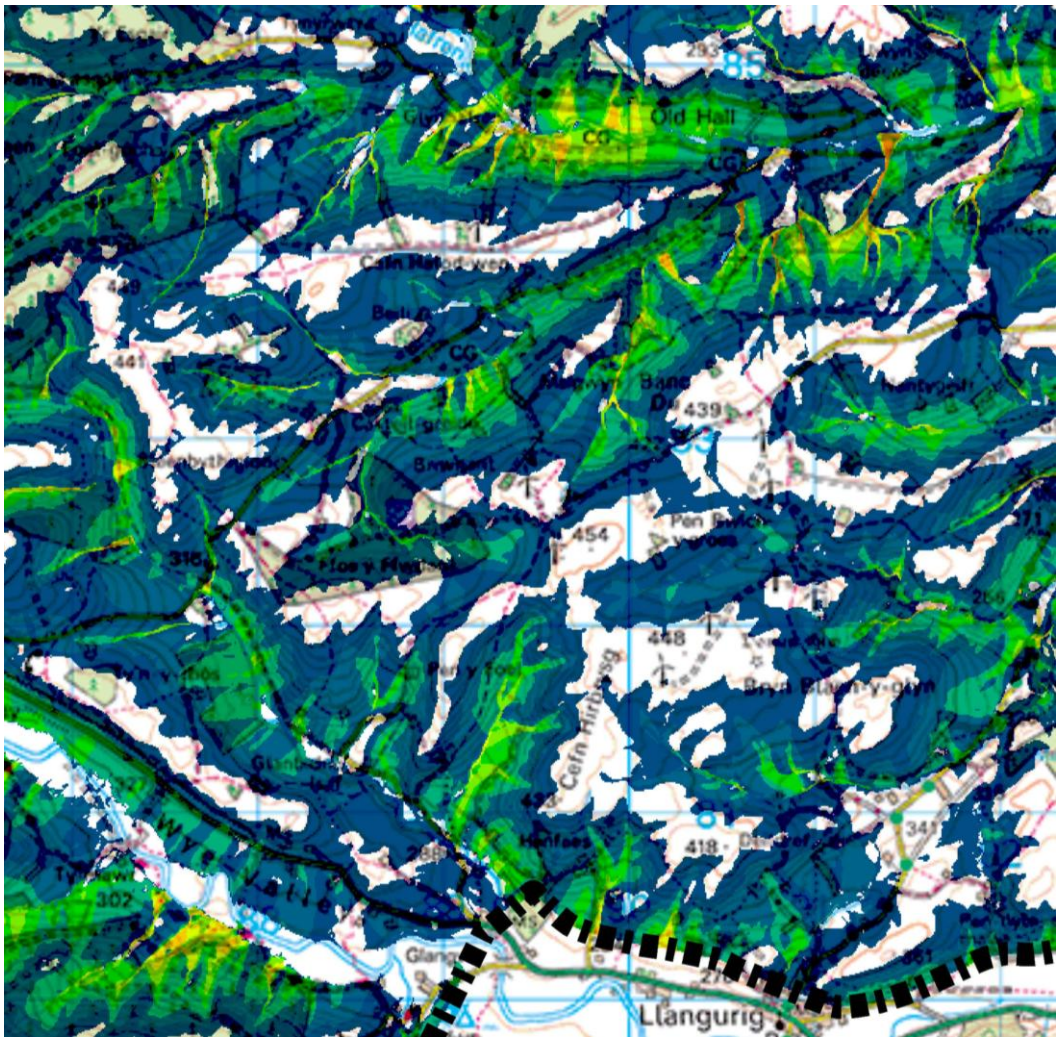


Figure 9 SCIMAP Diffuse pollution risk map of the Site. Pollution diffusion risk rises as the colour changes from blue to green and then yellow.

[39] SCIMAP is an approach to the generation of risk maps for diffuse pollution within catchments. it aims to determine where within a catchment is the most probable source of diffuse pollution and is based on a probabilistic/ relative approach. Diffuse pollution is a major management challenge as it commonly involves processes that are: small in magnitude; distributed over a large spatial scale; and associated with particular types of land use activity when they are also well connected to the drainage network. See https://scimap.org.uk/scimap-overview/ for more details of how risk factors are calculated.

and south from the Site, into the Gŵy/Wye and the Hafren/Severn. In particular, the access road and foundations for T03 and T04 run along the steep slope of Cefn Hirbrsyg which has a **high** diffusion risk for pollutants seeping into Cwm Brithgwm and hence into the Gŵy/Wye. T01 is in a **high** diffusion risk area for pollutants seeping into Nant Bronfelen and hence into the Hafren/Severn. All activity around the lower part of the site closest to the A44 access is also within an area of increased pollution diffusion risk, not to mention the more obvious potential for run-off in heavy rainfall periods.

104) The Applicant should be required to carry out a full assessment of the potential impact on the river of all construction activities, including the washing of concrete trucks and storage of materials, within any of these areas, and provide a detailed drainage plan with provision for the once-rare but increasingly likely exceptional storm events, such as Storm Darragh which wreaked such havoc in the Cambrian Mountains in 2024 (with 30,000 trees blown down in the Elan Valley just a few kilometres south) and the intensified El Niño predicted for autumn 2026.

105) It is clear that a major industrial development such as this construction has a high potential to add additional pollutants including phosphorus and foul drainage to the River Gwy/Wye SAC. In the Pre-Application Consultation, NRW raised serious concerns due to inadequate information being provided on the proposal's impact on groundwater and the Gŵy/Wye SAC. The Applicant has ignored this instead responded by deferring "Further information on protected sites, WFD and hydrology" - a sweeping and vague set of data which does not meet NRW's concerns - to an eventual CEMP (PAC Report p69). This demonstrates the same unacceptable attitude to the risk of pollution during construction as the Applicant evinced in respect of Rhiwlas, namely proposing an hypothetical future document as a catch-all into which obligations it is unwilling to meet at present can be swept in the expectation that once permission has been granted no one will look too closely at future implications.

106) It is wholly inappropriate for such critical information as baseline water quality in and flow impacts on an SAC to be provided post approval since this precludes any meaningful assessment of impacts during the PEDW examination process. It therefore does not comply with EIA Regulations or secure the protection of the river. The Inspectorate has already warned developers nationally that "significant effects cannot be screened out by vague future mitigation". The complete impact on rivers as important both for ecology and flood risks as the Gŵy/Wye and the Hafren/Severn may well, if fully assessed, be significant. That complete data set necessary for assessment must be provided by the Applicant *in advance* of any determination.

Hydrology

107) The Applicant has not adequately assessed the full hydrogeological impacts of the proposed development. A potential for impact on private water supplies was identified, but has not been addressed. The Applicant must investigate in advance of determination of the Application what impacts the potential construction, both the turbine foundations and the various other infrastructure and tracks, could have so that any negative impacts can be taken into account.

108) All run-off, whether through watercourses, over access tracks or groundwater seepage, from the south-facing slopes of the Site, will drain to one or other of the Rivers Wye or Severn. Yet full details of settlement pools, drainage ditches, swales and filters are omitted. The culverts and watercourses proposed at and adjacent to the site entrance which drain directly into the River Wye are not included in the outline drainage plan. Without details of the Applicant's proposals for managing run-off, it is impossible to assess the impact the Proposal would have on either catchment.

109) The extent of groundwater movement even on the higher area of the site is evidenced by the presence of the non-designated historic asset Banc Du Well. A well is, by definition, constructed to tap into groundwater; water continuously seeps from the ground next to it, showing that this hydrogeological feature remains active. The water can regularly be seen flowing onto the public road, where it is captured by a deep agricultural ditch on the other side, and then flows west and downhill into Coedydd y Beili, Malgwyn a Cribin SSSI (within the site boundary), contradicting ES Volume II Table 11-14's claim of 'no direct linkage'. The Applicant proposes to site turbine T06 just 100m from this Well. Construction of the foundations, and the access area hardstanding around the base, will inevitably disrupt the movement of groundwater through this area.

110) Similarly, water seepage can be seen on the rock face of the existing disused quarry on site even on dry days when there is no surface runoff into the quarry. As a result, a permanent pool forms within the quarry floor. An image on Google Maps taken in June 2021 shows water from this quarry pool crossing the U2727.[40] This then flows down a gentle slope into the basin bog near Ffos y Ffwdan at the west of the Banc Du site and ultimately forms one of the tributaries of Nant Bronfelen. Excavation of the borrow pit at the quarry will completely change this flow – not least as the outline Construction Environmental Management Plan (CEMP) proposes at 3.6.6 that "Any water collected

[40] See https://maps.app.goo.gl/1HgVabEyL7fbaxfE9

within excavations would be pumped out prior to further work in the excavation. This water is likely to require treatment to remove suspended solids prior to discharge to ground". Clearly, the water will be transferred elsewhere on the site before discharge, and ultimately seep or run-off through a different channel.

111) The CEMP does not address at all what will be done with the pooling water which collects in the borrow pit once excavation is finished. The construction of foundations and hardstandings for turbines T02 and T03 may also change the flows towards the current drainage route. Together, these changes risk permanently diverting this flow away from the ecologically rich bog area, compromising its hydrology and potentially also affecting the water levels in Nant Bronfelen and the SSSI.

112) We note that Powys CC LLFA has also identified limited groundwater assessment and possible construction effects on groundwater flow paths as a concern in its Representation. The Applicant must provide a comprehensive FCA covering fluvial, pluvial, groundwater and infrastructure-related risks before an evaluation of the impact can be carried out.

113) **Proposing a CEMP is insufficient:** A Construction Environmental Management Plan (CEMP) can manage known construction risks; it cannot and should not be used to discover the nature and extent of potentially serious hydrological impacts. The outline CEMP which has been provided is insufficient for detailed assessment. For instance, it has not yet made up its mind as to what measures will or will not be implemented. Statements such as "It is recommended that a pre-works check be undertaken 200 m either side of any proposed new watercourse crossings" (ES Appendix 3-3 at 3.3.12) and similar illustrate no firm intention to do such checks. Consequently, a Principal Contractor short of time and money is likely to opt *not* to do the 'recommended' checks. This would result in actions with substantial consequences for water flows and local wildlife being taken without any data as to the impact ever having been collected let alone assessed. It cannot form a sound basis for acceptance of the effectiveness of either future data collection or future mitigation actions.

114) The site also drains directly into the catchment of the River Hafren/Severn, whose upper catchment is the subject of a very extensive management plan currently in consultation. Low water levels in the summer of 2026 were followed in August 2026 by an application, jointly with the Environment Agency for England, for a 6 month River

Severn Drought Order.[41] In its Pre-Application Consultation response NRW identified significant risks that deep excavations, borrow pits, and linear cable trenches across the hillsides could act as preferential flow paths, permanently diverting groundwater and surface water volumes across catchments. This could have a significant adverse impact on stream and river water levels, in the context of future dry summers.

115) At the other extreme, flood risk has been assessed using only data from 1990 to 2020 – despite the fact that with increasing extreme weather events, 9 of the wettest years in Wales since 1873 have occurred in the last 20 years.[42] Modelling for the *Evidence for the third UK Climate Change Risk Assessment: Summary for Wales* found that in winter, rainfall is expected to increase by approximately 6% by the 2050s and by between 7% to 13% by the 2080s from a 1981-2000 baseline, depending on global efforts to reduce greenhouse gas emissions. If operational for the projected 40 years, this development could face approximately 10% more rainfall (by 2070) than that upon which the Outline Drainage Strategy at ES Volume III Appendix 11-1 has been based. It is further expected that yet more extreme events will become more common in the coming 40 year operational lifetime of the development.[43] This could lead to a significant underestimate of the flood potential for major development on an upland site, with potential impacts on two major rivers. In this context, the request from Powys LLFA for a more comprehensive FCA and further design information is entirely reasonable. The Applicant should carry out a detailed assessment of the potential impacts of both higher *and* lower seasonal rainfall levels, and of what were formerly considered 'once in a century' events, to review whether or not its proposed measures will be adequate.

116) In sum, the Application is not sufficient for the EIA process. A detailed hydrological investigation remains necessary to establish the specific impact that construction would have through these effects in addition to the expected increase in run-off speeds through introducing roads, trackways, hard standings and concrete foundations.

117) **Extraction of water for construction:** The lack of clarity as to where the water necessary for producing the concrete to create the foundations would come from further

[41] The application has been paused following the initial hearing as water levels in Llyn Clywedog are at last improving

[42] See https://www.metoffice.gov.uk/hadobs/hadukp/data/ranked_seasonal/HadNWEP_ranked_seasonal.txt

[43] "This is projected to lead to an increase in the likelihood of flooding of infrastructure, businesses and homes. Conversely, summer rainfall is expected to decrease by approximately 15% by the 2050s and by between 18% to 26% by the 2080s. Periods of water scarcity may become more prevalent under these scenarios, leading to possible implications in agriculture and industry, for example." Netherwood, *Evidence for the third UK Climate Change Risk Assessment: Summary for Wales* June 2021 https://www.ukclimaterisk.org/publications/summary-for-wales-ccra3-ia/#undefined

emphasises the need for more detail before this application can be fully considered. The base for each of these turbines will take roughly ten times more concrete than those for past turbines with a 10m base, so the total amount of water required is a very significant issue. If it is not to be extracted on site, as is normally the case for wind farm construction, then the application should stipulate where the necessary volume will be procured.

118) If it *is* to be extracted on site, then the Applicant should specify precisely how, how much and the impact of the loss of that volume of water on the groundwater and surrounding private water supplies needs to be fully assessed. NRW declared a drought across the whole of Wales during the summer of 2026, which remains in effect. This once-inconceivable situation underlines how fragile any assumption the Applicant may be making as to an abundance of available water must be.

Ecology and Ornithology

Principles

119) In 2021, the Welsh Government declared a Nature Emergency. This reflects the steep human-induced decline in biodiversity as reported in successive NRW State of Nature reports (SoNaRR), and is more recently emphasised by the fact that Wales ranked 224th out of 240 countries on the Natural History Museum's biodiversity index in 2025. Things can barely get worse in terms of nature resilience. Nearly one in five species are reported to be at risk of extinction in SoNaRR 2025. Wales has international commitments to achieve good management for nature of 30% of land by 2030 but is reported by Wales Environment Link to be on course to fail comprehensively, with only 2.1% of Welsh land properly protected for nature.

120) The 2025 NRW 'Species in Peril' report[44] showed that almost 3,000 species in Wales exist in five locations or fewer; *almost half are restricted to single locations*. We are extremely concerned that the scale and cumulative impact of wind developments and the associated infrastructure proposed in and around the Cambrian Mountains, and in particular on the highest and most ecologically fragile areas, will not merely involve the deaths of many individuals across a range of species, but exacerbate the overall rate of species loss and negate efforts to halt and reverse the biodiversity loss over recent decades.

[44] Bosanquet et al Report 818 November 2025 *Terrestrial and aquatic species in peril* https://cdn.cyfoethnaturiol.cymru/4bqlg3ic/nrw-evidence-report-818-species-in-peril.pdf

121) Stability of the much-lowered baseline of biodiversity present throughout Wales and the United Kingdom today can no more be taken for-granted than could (and was) the much greater abundance of nature which society enjoyed 50 or 100 years ago. The Lawton Review established the core principles which must be implemented to enable nature to respond resiliently to climate change: we need natural habitats that are more numerous, bigger, in better condition and – crucially - joined up.[45]

122) Forming a nature network at landscape scale connecting the iconic (but nature-depleted) mountain landscapes of North and South Wales, the Cambrian uplands including the Site are uniquely suited, and critical to, this need. The landscape itself and the land uses it supported remained largely unchanged for centuries. This is an extraordinary and fortuitous circumstance given that, since 1972, development and severe environmental degradation have overtaken an ever greater proportion of the British Isles. The relatively stable land uses, including far less intensive farming than lowland areas with richer soils; exceptionally low population; and remote location, mean biodiversity has so far suffered less severe impacts from human activities than anywhere else in the country. This is reflected in the striking ecological and ornithological diversity present at the proposed Site.

123) Planning decisions have a large role to play in contributing to nature recovery and avoiding further declines in populations. Without such action, the overall biodiversity of Wales will continue its precipitous decline despite the very substantial money and energy spent on local, small scale conservation projects or minor mitigations. Remedial action to restore biodiversity at landscape scale in the future will cost vastly more than the cost of prevention through precautionary measures today – if full remediation is even possible.

124) Inevitably a large scale scheme such as the Banc Du wind farm will necessitate the disruption, fragmentation and destruction of habitats both on site and beyond. Yet the Applicant fails to assess the impact of fragmenting habitats within the Site such as through constructing an access track across an area of Wet Modified Bog. The reduction of 0.045 ha in area, which is assessed, is only part of the impact.

125) The associated projects of Rhiwlas and RGEN would further intensify the damage to habitats by increasing the fragmentation. Mitigation efforts, however thorough or well-intended, are no substitute for not causing the damage and disruption in the first place.

[45] Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J., & Wynne, G.R. (2010) *Making Space for Nature: a review of England's wildlife sites and ecological network. Report to Defra.* http://archive.defra.gov.uk/environment/biodiversity/ documents/201009space-for-nature.pdf

Small patches of habitat are more vulnerable to climate impacts than larger areas. Wildlife and plants of all scales depend on the interconnectivity of habitats for their resilience to the changing conditions. Displaced species may migrate over time, but they can only do so effectively if there are suitable habitats sufficiently proximate. Off-site effects such as dust can crucially affect the soil composition and alter an area's suitability to plants and lichens which are closely adapted to a narrow range of conditions.[46] The Applicant's conclusion that "there would be no significant residual adverse effects arising in relation to nature conservation interests" (Planning Statement 5.2.43) is patently unsupportable. The assertion that there would be "no unacceptable impact on ornithology or ecology" (5.2.53) is inappropriate. For the public interest, it is solely a matter for the Inspector to assess what impacts are acceptable.

Importance of this site

126) **SSSIs, Special Areas of Conservation and Special Protection Area:** The Proposed Development adjoins the Upper Wye SSSI and the ancient woodland of Coedyddy y Beili, Malgywn a Cribin SSSI lies partially within the Site. It is close to another 6 SSSIs within a few kilometres. As discussed above, the Wye/Gŵy SAC is also directly engaged through the drainage of water. The Elenydd -Mallaen SPA is within a few kilometres with its important populations of a range of scarce bird species.

127) The biodiversity value of the area as a whole, including apparently unspectacular components, is emphasised by the proximity of Beili Road Verge Nature Reserve, designated by Powys County Council for its importance to wildlife through supporting a diverse range of plant species including in particular Wood Bitter Vetch, a Priority species.

128) **Priority habitat and species list has been revised:** The lists of priority habitats and species under the Environment Act have been updated in 2026 such that the Applicant's assessments are now out of date with legislative requirements. The Application should be required to review their site assessment and carry out such further surveys as would enable the Inspector to assess the ecological impacts in accordance with the new lists, since under section 6 Environment (Wales) Act the Minister is required to take "all reasonable steps to maintain and enhance the … organisms and … habitat included in any list."

129) Construction of the project would result in permanent loss of portions of a number of priority habitats, from hedgerows to peat. The Applicant proposes mitigations, but as

[46] For a more detailed explanation of the impacts of wind farm development on ecology, see Brazell, *The likely impacts of development proposals on the Cambrian Mountains* Natur Cymru (73) 2026 at pp50-51

Powys LIR points out, there is inevitably at least *some* time lag between creation (or in the case of native woodland, simple regeneration) of new habitat and the restoration of the ecological value, structural diversity and functional role of long-established habitats. In the case of hedgerows and woodlands, where species diversity takes decades if not centuries to build up, this is a very significant loss. In the interim, the extent of each habitat type is diminished with a multi-generational impact on numerous species dependent on it. To assume that this can be restored in full and unvaried through, for instance, ingress of invasive or simply *different* native species which find the interim habitat condition more suitable, is optimistic at best. Taking into account also the risk that the replacement habitat is *not* successfully re-established, given the limited and intermitted management and monitoring which is proposed, an overall permanent adverse impact must be considered realistic.

Inadequacies of the ecological data provided

130) The Application is seriously deficient in the ecological data provided for assessment. We note the comments to this effect made by Powys County Council's Ecologist throughout the LIR – and that, maintaining strict neutrality, the LIR for each issue where such a deficiency prevents proper assessment, the assessment given is of a "Neutral" impact. This is understandable: if there is no information, it is not possible to reach either a positive or a negative conclusion. We trust that the Inspector will recognise that a non-conclusion of Neutral in this situation is not the same as saying that the development will have no impact on the ecology and ornithology of the Site. The LIR is very clear that there are many and substantial risks to both ecology and ornithology; it is simply that the lack of data has made it impossible to put any actual value to how great that impact will be. In essence, the LIR concludes that the job has not been done: the case either way, not proven. We agree.

131) We note also the concerns raised by NRW in its response. The Applicant relies in part on surveys undertaken as long ago as 2019, and on Preliminary Ecological Appraisal surveys carried out in March 2023, outside the optimum survey period meaning that species may have been missed. No dedicated fungal or lichen surveys have been undertaken. Invertebrates were scoped out of detailed assessment despite records of small pearl-bordered fritillary within the Site. Invasive Non-Native Species (INNS) were not specifically assessed, with the Preliminary Ecological Appraisal acknowledging that some species may not have been visible at the time of survey. Ornithological surveys were undertaken between 2018 and 2022, which are therefore out of date for the purpose of EIA. Even then, the vantage point used for the purpose was one which had been selected at an early stage in site definition i.e. before the expanded site outline the subject of the

Application had been finalised. As a result, the selected survey vantage point is in a position where the location proposed for T01 and an important marshy area well-used by birds, cannot be seen. The Applicant has made no effort to establish what impact this exclusion of portions of the site has upon the baseline and collision risk monitoring for birds. This work must be carried out before any assessment of the ornithological impact can safely be done.

132) The ES lacks certainty as to the actual habitats present, with an area initially identified as Priority wet heath having been reclassified as wet modified bog or marshy grassland, but without the underlying data being available to support that change.

133) The Applicant minimises risks to protected and designated sites outside the Site boundary without proper investigation. For instance:

a) Beili RNVR is assessed not to be at risk since it is over 200m from the construction works. Likewise, the risk to the area of Coedyddy y Beili, Malgywn a Cribin SSSI which is outside the Site is discounted. But leading edge blade erosion of wind turbines is a serious issue currently the subject of substantial research co-ordinated by (among others) the International Energy Agency.[47] This is because "leading edge erosion has been identified as the main factor substantially reducing both blade lifetimes and energy output over time".[48] In brief, precipitation in the form of raindrops, snow or hail or wind-borne dust particles hitting the blades as the rotate causes blade materials to be shed. With blade tip speeds up to 200mph, Newtonian physics shows that particles eroded from the edge at a height of 200m above ground level can travel nearly 1km. The RNVR and entire SSSI is clearly well within the potential distance likely to be affected by additional blade material loss through a 25 year realistic operational lifespan.

b) Local Wildlife Sites at Marsh's Pool, Llanerch Wood and Tan Llwyd Bog were scoped out without consulting Montgomeryshire Wildlife Trust as had been recommended, on the basis solely of consulting BIS data and, oddly, Bannau Brycheiniog National Park some 30 miles away.

134) The update surveys vividly demonstrate the ecological evolution of the site: for instance, a previously identified badger sett having been abandoned but another one founded. It is therefore evident that the earlier surveys are out of date in their entirety.

[47] See for instance Hasager, *Erosion of Wind Turbine Blades Annual Report 2025* at https://iea-wind.org/wp-content/uploads/2026/06/task46_AR_15.6.26.pdf

[48] Topical Expert Meeting #98 on Erosion of Wind Turbine Blades IEA Wind Task 11 February 6-7, 2020 at https://www.iea-wind.org/wp-content/uploads/2023/05/98_TEM-Blade-Erosion_Proceedings_v21.pdf

Combining this with the fact that the initial surveys, done between 2019 and 2023, were confined to an initial site boundary which has itself evolved considerably (enlarged) during that period, the result is that the sum of ecological data available to the Inspector is

a) partial (as to area covered – steeper slopes were avoided altogether),
b) incomplete (as to species identification and abundance),
c) includes a significant proportion of data much older than 2 years, and
d) has been updated in a relatively cursory fashion.

135) Despite these limitations, evidence of an impressively wide range of protected species was found, confirming the exceptional biodiversity of this remote upland area. The reports noted the need for additional surveys pre-construction, but stop short of proposing to carry them out in full, pre-consent.[49] The Applicant seems not to have considered the possibility that the project's impacts on wildlife could be a cause to refuse (or abandon) the project. The Applicant simply intends to carry on and develop the site, regardless of a material risk that a protected and vulnerable species could be undermined by this development. The Applicant must provide the complete data set and proof that the proposed construction could be carried out without negatively affecting such vulnerable species, including where changes of turbine position are permitted through micro-siting. Without these, the Inspector does not have a sound basis for recommending approval of such a large scale development.

Inadequate approach to construction risks to wildlife

136) As with Rhiwlas, the Applicant proposes that ecological impacts during the crucial construction stage be supervised by a 'not necessarily full time' Environmental Clerk of Works.[50] This is inadequate. Construction is a complex activity involving a large number of people and vehicles on site much of the time. Any of the construction activities risk rapid choices being made in the instant when a particular job is in hand. If the Environmental Clerk of Works is not on hand at that moment to advise on the acceptability or otherwise, the construction crew will naturally plough ahead with the solution most convenient for their purposes trusting that any damage will be inconsequential and/ or undetected. For the construction to be compatible with the necessary ecological constraints, the Clerk of Works must be on the site throughout the construction phase.

[49] See for instance re water voles 4.4.1
[50] ES Volume III Annex 3-3 at 3.3.6

Inadequate approach to cumulative impacts

137) The Applicant accepts that this proposal is only one of a large number (three of which are its own) in a fairly small geographical area which already includes a number of older wind farms. This circumstance is important from the ecological potential for a wider area of damage than any individual wind farm or development, through the fragmentation of habitat and 'nature networks' on top of the individual impacts of each construction. The Applicant acknowledges that the combined impact of construction of these proposed new energy parks will be adverse (ES Volume III 8.8.6), though assessing it as 'non-significant' compared to the total area of Powys. In effect, the sheer and unwieldy size of Powys, at 5,181 km^2 nearly 25% of Wales (and more than double the size of the country of Luxembourg), is taken to render the biodiversity impact of any development nugatory.

138) As regards operational effects, the Applicant addresses the implicit biodiversity damage by assuming a net biodiversity gain from its own proposal and then assuming that the other developers will, likewise, deliver a biodiversity gain from their own developments. Accordingly, there can be no ecological bar to each development proceeding apace (ES Volume III 8.8.8).

139) This conclusion points to a simple, if absurd, solution to the catastrophic state of Welsh nature: *to restore biodiversity and nature resilience, it is only necessary to build wind farms on every suitable upland site in Wales*. The total area will never approach that of Wales as a whole and so, at the end of this process, the resultant biodiversity will presumably approach that of pristine Atlantic rainforest.

140) Unfortunately, in reaching this conclusion the Applicant omits the reality of ecosystem operation in an interconnected, semi-natural environment. Species displacement can only take place if sufficient areas of connected suitable habitat are available. Habitat construction and restoration are only effective if the underlying circumstances of soil types, ground aspect and hydrology are suitable and competing actors such as predator populations and invasive plant species absent. Well-meaning isolated and very long-term habitat management proposals are no guarantee of success.[51] It is patently improbable that a handful of unrelated neighbouring developments can each deliver a permanent biodiversity net gain across a fragile region through fragmenting and diminishing existing ecosystems and then engineering (and abandoning) patches of supposed alternative

[51] Wang et al, *Integrating habitat availability into restoration efforts for biodiversity conservation: Evaluating effectiveness and setting priorities,* Biological Conservation, Volume 257, 2021, 109127, https://doi.org/10.1016/j.biocon.2021.109127.

habitat, to revert or flourish according to the long term environment and land use changes around them.

Peatlands and carbon

141) The ES confirms the presence of five areas of peat within the application site. Attempts have been made to design away from these areas but, with a survey density of only 100m probes, there is a significant risk that actual peat and peaty soils have not been fully identified. Mitigation measures include micrositing, construction controls and the use of a floating road design to maintain hydrological continuity and minimise disturbance to sensitive soils. Notwithstanding this, infrastructure is proposed in close proximity to areas of peat and there remains potential for indirect effects on peatland hydrology, peat-forming vegetation and the wider ecological and carbon storage functions of the peat resource. This is insufficient investigation to allow a proper assessment of the actual peat impact of the proposed foundations. Instead, more detailed peat surveys should be carried out to assess the extent (area and depth) of peat in and around those initially identified parcels of peat.

142) Even if the final assessment of which areas are wet heath is accurate, avoiding direct excavation does not by itself demonstrate that retained peat and wetland habitats will ***remain hydrologically unaffected***, since trenches and access track construction may – indeed, almost unavoidably *will* - affect groundwater seepage and potentially result in wet peat drying out over time leading to degradation. Second, avoiding wet heath without actually surveying its precise extent is an exercise in faith. Does the desk-based site designer somehow divine where the actual wet heath is? Without eliminating this risk, the prospect of serious long term damage to important volumes of peat reserves has not been assessed or mitigated.

143) The Applicant asserts (NTS) that "if areas of peat soil are found during ground investigations, micro siting of construction works will allow these areas to be avoided". But with only 50m allowance for micrositing, and no motivation for making inconvenient changes post-consent, this clearly is insufficient. Peat habitats are Section 7 priority habitats of principal importance for the purpose of maintaining and enhancing biodiversity in Wales. They are subject to the section 6 Duty – "to take all reasonable steps to maintain and enhance." Peaty soils and organic soils also represent very significant carbon sequestration mechanisms which hold peat for the very long term – tens of thousands of years as opposed to the 3-4 decades which popular carbon offsetting approaches such as tree planting aspire to.

144) Construction of any major industrial development in an entirely rural, fragile upland setting cannot in reality be balanced by sporadic and fragmented 'mitigation' measures over small areas chosen 'on the fly' in the final stages of preparing construction. There will be no further opportunity for real scrutiny of the actual impacts and the efficacy of any proposed mitigation measures. The disturbance of soils, fragmentation of ecological networks, disruption of water flows and changes to vital upland habitats will inevitably outweigh any temporary human projects aiming to add biodiversity. This system as a whole is too large, too complex and too fragile for human betterment. A project that results in obvious biodiversity loss cannot adhere to statutory obligations.

The Application's Impact on Peat

Avoid or mitigate?

145) The Applicant has, contrary to government policy, chosen a site on which it has proved impossible to design a wind farm while completely avoiding damage to peat. The ES identifies marshy grassland, wet modified bog and other wet ground and includes measures intended to keep water moving through the site. The effect on the whole wetland system therefore matters, not just the areas mapped as peat.

146) Under PPW 6.4.15, development on peat can be permitted only in "wholly exceptional circumstances". Considerable pages in the Application are given to means of minimising harm and mitigation; and to questionable calculations intended to show that overall the carbon loss from the development is outweighed by the hypothetical carbon 'saved' from the generation of energy in substitution for burning fossil fuels.[52] Every aspect of these calculations is unreliable for one reason or another. But the single most important point is thereby buried: the Applicant did not have to choose *this* peat-rich site on which to construct a wind farm. There are many other sites across Wales which it could have selected, which did not hold any peat at all (96% of Wales' land area is not peat). Instead, it seeks to destroy peatland but justify it. But peatland is a known, secure, very long term carbon storage 'solution'. Mitigations and new technologies have nothing like the same credibility for achieving the same effect. "Carbon payback is not the same as peatland protection". As the independent expert authors of the Welsh Government's Peat Briefing Note[53] further state "Restoring peatlands is not the same as recreating peatlands. These habitats which are nearly all degraded to some extent can be restored to something approaching their target state. Removing or damaging the peat rules that out as an option

[52] We support, without repeating, the critique CPRW Ceredigion have submitted in their Representation as to the outdated carbon calculation methodology used in this application.

[53] Briefing Note on Irreplaceable Habitats, Peatlands and Wind Farm Development (Welsh Government Publications, 7/2/2025, available online

for present or future generations. These habitats support unique assemblages of species which once lost means that they will be lost too."

147) Peat does not form in convenient segregated blocks of different thicknesses. Rather than ending abruptly, areas of deep peat will gradually thin out and slope towards areas of shallower peat and then peaty soils. These shallowing peat margins are just as essential to the whole ecosystem as the deep interior. They help to retain the stability of the local water table and provide important habitats for specific wildlife including amphibians, reptiles, wading birds and insects. Common frogs and toads use these shallow, wet areas. It is therefore misconceived to "avoid deep peat" only to re-site turbines and infrastructure on the shallower margins or adjacent peaty soils. Such an approach risks destroying this crucial habitat and also destabilising the water table. Every part of the ecosystem depends, critically, on the integrity of the rest. Water movement ultimately governs the health and survival, or not, of the peat itself.

148) The data necessary to assess whether or not the Applicant's claim to have avoided peat is accurate has not been included in the public file of documents: so far as we can see, the underlying peat survey reports and the October 2025 coring data have been omitted, despite PEDW having asked the Applicant to provide them (or justify the exclusion). But these are the data which underlie the Applicant's conclusion that no Peat Management Plan is necessary. Nor does it seem that the Applicant has engaged with Welsh Government's Soil, Peatland and Agricultural Land Use Division to ensure that best practice required by PPW has been followed, as also requested. The Applicant seemingly requires an act of faith on the part of the Inspector and interested parties.

149) As NRW have stipulated in their Response, these data should be provided prior to further assessment of the Application.

The impact

150) Although no turbine is proposed to be sited on peat (so far as is known within the limitations of the peat surveys carried out, discussed below), infrastructure would be located close to peat areas, including the proposed access track between T04 and T05. Floating roads, though widely used, are not a panacea: since peat is predominantly made up of water + dead plant fragments, it is subject to consolidation & compression leading to settlement into the surface and deformation.[54] This may result in localised alterations

[54] Munro (ROADEX), *Roads on Peat* 2012 at https://www.roadex.org/wp-content/uploads/2014/01/3.-Roads-on-Peat-R-Munro.pdf

to hydrological and drainage regimes, impacts on peat-forming vegetation communities, and consequently on the peat's wider ecological and carbon storage functions.

151) **Insufficient peat survey:** The peat survey method involved probes only at 100m intervals. But on a slope of irregular rocky bedrock, there is a high probability that such a method will not have found smaller peat pockets – potentially, in theory, up to say 80m^2. This is in fact the case: drainage channels have been cut in the last couple of years across U2727, and it can clearly be seen that the exposed faces include peat soils. Consequently, the extent of peat potentially affected is inevitably an underestimate, and possibly an under-estimate by a substantial degree. This in turn affects the calculation of carbon emission resulting from the destruction and disruption of the peatland. Without detailed survey data, no reliable assessment of carbon balance can be made. Further, with a proposed micrositing allowance of 50m, foundation and infrastructure adjustment at the build stage would potentially shift excavation from points which have been surveyed to some which have not, but do contain peat. Given the variable depth of peat across the site, we consider that the Applicant should be required to carry out a full peat survey of each proposed turbine location and of the full length of the proposed tracks, hard standings and other construction access areas, including their micrositing allowances, at a spacing of no more than 20m, before any decision can be rendered.

152) **Lack of any soil survey:** The Outline Soil Management Plan acknowledges that no site-specific soil survey was carried out, instead proposing further soil investigations post-consent to inform a more detailed management plan. Once again, this fails to meet EIA standards. Detailed soil handling procedures can be appropriately controlled by planning conditions. But before agreeing to this approach, the decision-maker must be confident that the current baseline data is adequate to demonstrate the feasibility of peat and carbon-rich soil protection. If all of the evaluation against standards required by Welsh Government can be deferred until consent has been granted, then there is no realistic possibility of any development being refused for failure to meet those standards. And once granted, effective monitoring and enforcing of standards is woefully unlikely. The procedure of applying for permission gives the Applicant unlimited time to demonstrate its means for complying. Its failure to do so strongly suggests that the Applicant has no intention of complying and merely hopes that such planning conditions as may be imposed can safely be ignored in view of the reality that County Councils have no resources for detailed monitoring and enforcement. Consent cannot legally be granted on an assumption that unknown damage caused to peat and uninvestigated soils can be adequately reclaimed.

153) **Adding alkali to an entirely acidic soil environment:** There is no proposal at all to remove the thousands of tonnes of alkaline concrete foundations which will be installed for the development. In habitats defined by the acidity of the soils, this volume of alkali material will inevitably erode the very quality of the soils around it over the decades both before and after decommissioning, as ions leach into the groundwater. There can be no mitigation of this effect given that the foundations below 40cm from the soil surface are proposed to be left in situ permanently.

Invertebrates

154) **Reduced food sources for wildlife:** absence of dedicated invertebrate surveys and uncertainty regarding the distribution of marsh violet within the Site means that potential localised effects on small heath and small pearl-bordered fritillary butterflies, and other invertebrates associated with these habitats, cannot be fully assessed. We note that the Applicant scopes invertebrates out of the ES almost entirely, which at a stroke relieves it of any responsibility for the massive impact the turbine foundations, hard standing and access tracks will have on the abundance of food species for birds and small mammals on the site. This is a common approach, aided by the fact that invertebrates are mostly invisible to human observers and their ecological importance to the persistence of 'higher' bird and mammal species therefore hugely under-appreciated.

155) Unfortunately, insect and invertebrate numbers in Wales are no longer sufficient for this oversight to persist.

156) The Joint Nature Conservation Committee's 2026 publication *Official Statistic in Development on pollinating insect trends* shows a 37% decline in all invertebrate species across the UK between 2017 and 2024.[55] It follows that species dependent upon invertebrates will likewise decline in abundance, no matter what localised efforts are made to promote breeding sites and similar.

157) The fact that the foundations, hard standing and access tracks will be left in place permanently means this development will have a major, permanent negative impact on the site's ability to support invertebrates. Without proper assessment the impact cannot be quantified; but the simple land surface area involved is sufficient for it to be plain that the area overall will permanently support less abundance and potentially fewer species.

[55] https://jncc.gov.uk/our-work/official-statistic-on-pollinating-insect-trends

158) The major issue of the impact of turbine operation on flying insects is not adequately addressed. Insect deaths have been estimated to be 40m per annum per turbine,[56] calculated to amount to some 1200 tons pa in Germany up to 2019,[57] although this figure of course depends upon the abundance of insects in the area to start with. The German study was triggered by the widely reported observation of a 75% loss of flying insect biomass lost in several nature reserve areas of Northern Germany over the last decades – demonstrating starkly that the mere establishment of local protection is wholly inadequate to prevent population loss in migratory species.[58] The cumulative loss of such a substantial mass of insects will inevitably affect the resilience of affected species and their predators (principally birds and bats). The necessary presence of 5 white lights - at night 200 candela will inevitably serve to attract insects and so exacerbate this effect.

159) Inclusion of habitat enhancement measures, including grassland, wetland, woodland and hedgerow management, may provide benefits for invertebrates over the longer term. However, the extent of any such benefits remains uncertain due to the lack of baseline invertebrate data and reliance on the successful implementation and long-term management of the proposed measures. The Applicant should reassess its EIA taking the site's importance to both resident and migratory invertebrates properly into account.

Amphibians

160) Common Toad (*Bufo bufo*), a s7 Priority Species in Wales have been recorded on the Biodiversity Information System as breeding on the Site with tadpoles along the road past Malgwyn and in the ditch. The Applicant does not specify any measures to protect affected amphibian species during construction, its outline CEMP merely offering "a non-licensed method statement" as the means of mitigation (ES Appendix 3-3 at 3.3.10). This ambiguous approach offers no means for the Inspector to assess the likely impact at all: a statement could be anything, sufficient or otherwise; and even if it included specific instructions for how impacts should be avoided there is no means of monitoring or

[56] Voigt CC. Insect fatalities at wind turbines as biodiversity sinks. Conservation Science and Practice. 2021;3:e366. https://doi.org/10.1111/csp2.366

[57] Trieb, F, *Interference of Flying Insects and Wind Parks* Study Report October 2018 Energy Systems Analysis Department, German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) www.dlr.de/tt/fluginsekten

[58] Hallmann C. A.,et al (2017) *More than 75 percent decline over 27 years in total flying insect biomass in protected areas*. PLoS ONE 12 (10): e0185809. https://doi.org/10.1371/journal.pone.0185809

enforcing it. This does not meet EIA requirements; the Applicant should provide a clear methodology for mitigating construction risks, in advance.

Birds

Figure 10 Lapwings © Mark Parker

161) **This section written by Lorna Brazell and Dr M Green FCIEEM (rtd).**

162) Upland birds in the UK are, like other wild bird populations, in a state of crisis. A UK Government report released on 13 October 2026 disclosed that "The abundance of specialist upland species in the UK was 33% lower in 2025 than in 1994. It has continued to decrease steadily over the most recent period, by 15% since 2020."[59] Regrettably, it is unlikely that Wales-only figures would be better than the UK average; it is more likely they would be worse. In that context, an extremely precautionary approach must be taken to the impact of individual developments in ornithologically rich areas.

163) The site boundary sits just 692 metres from the Elenydd-Mallaen SPA, designated specifically for internationally important populations of raptors (Red Kite, Merlin,

[59] Betts, Accredited official statistics *Wild bird populations in the UK and England, 1970 to 202*5 at https://www.gov.uk/government/statistics/wild-bird-populations-in-the-uk/wild-bird-populations-in-the-uk-and-england-1970-to-2025#breeding-upland-bird-populations-in-the-uk-and-england

Peregrine Falcon). It is also noted for chough, part of a small inland population that breed in dis-used lead mines arid quarries, and about 50 pairs of golden plover.[60]

164) Slightly surpassing the associated Rhiwlas Site in richness of species diversity recorded in the Applicant's surveys, Banc Du likewise has a claim to be a site of exceptional ornithological value. The Applicant has nonetheless taken an approach bordering on reckless in deciding what surveys to carry out, scoping out Important Ornithological Features below County level of importance "as the size/rarity/vulnerability of species populations/assemblages are not of sufficient value that impacts upon them could give rise to significant effects at a species population scale." As we noted in connection with Rhiwlas, for highly vulnerable, scarce species, whose populations are already declining across Wales, the loss of breeding opportunity for a single pair for a single season can be critical and result in permanent displacement. With a very small initial population, a single death may have a severe impact, especially combined with an unexpectedly cold or wet breeding season for example. The comforting conclusion that each population is 'of only local importance' serves to mask the fact that every population is, indeed local: there is no 'capital city' for bird species where 'the national population' is safely ensconced. Further, a 'minor' additional decline in an already crisis-level breeding population should be assessed as a major risk to the national population. Finally, it bears repeating that 'County level' in Powys equates to 'country level' in Luxembourg: this is an exceptional County safeguarding a significant fraction of all of Wales' upland birds.

165) Birds in SSSIs were scoped out where the SSSI did not designate them as key species. But an SSSI protects a species assemblage, of which the birds are a key component. By failing even to study the species present on these sites of distinctive and important biodiversity, the Applicant has omitted key information about the Proposal's impact on the SSSIs' long term status. Starling, which are on the Red list of conservation concern, having declined 57% in the UK between 1995 and 2023, appear to have been scoped out (ES II at 9.2.14) despite breeding on Site and 900 being observed in January 2020.

166) This is not the only problem with these surveys. NRW pointed out at PAC stage that most of the baseline ornithology surveys are 5 years old. They directed the applicant to the CIEEM (2019) advice note regarding the lifespan of ecological surveys. The Applicant's response was to update the survey data rather than carry out complete re-surveys. Continued reliance on older data from 2019–2023, even with partial updates, means the EIA may not reflect current ecological realities. The viewshed maps completely fail to

[60] SPA Citation 1993, at https://naturalresources.wales/media/632578/SPA_UK9014111_Register_Entry_EN001.pdf

reflect ground-level visibility, missing birds flying 40m above the ornithologically important basin bog at the west of the current site, as they would be beyond the plateau, shielded by trees and below eye level. They also completely miss the deep ravine by the Malgwyn house ruin. Complete surveys including the areas omitted to date and using the most appropriate methodology for hard-to-spot ground breeding birds such as curlew should be carried out to provide a complete baseline for the ornithological status of the Site. We note that the number of species recorded, at 67, is only 3 short of the level which the Applicant would have rated as being of Regional rather than County importance (ES II Chapter 9 at Table 9-7). Were the bog and ravine areas properly surveyed, the Site's true importance is likely to reach that level. (We also note once again, in this context, the sheer size of the County of Powys; County level populations in such an area *matter.*)

167) The Applicant's Collision risk modelling is also insufficient, having been based upon models not benchmarked against turbines of the scale proposed, since none are yet operational anywhere in the UK.

168) **Red Kite:** A severe impact on Red Kite from the cumulative development at Rhiwlas, Banc Du and the existing wind farm Bryn Blaen is admitted, of an average 6.7 deaths per year. The impact of this is however stated to be unlikely to affect the SPA objective of 15 breeding pairs being maintained, relying upon Hereward et al's 2025 paper. It is correct that this paper assessed the Red Kite population to be secure at present. The assessment was however expressly based upon the assumption that commercial feeding stations, which have been present in Rhayader and the NRW Visitor Centre at Bwlch Nant yr Arian for many years and constitute a tourist attraction to the area, will be maintained. The NRW Visitor Centre has however now been closed as part of NRW's budget cuts, and it is not known how long the Red Kite feeding there will persist. Similarly, the private farm which currently feeds the birds in Rhayader is precisely the sort of small business which could be severely affected by a blight on tourism in the region. If the commercial feeding of this species were discontinued, then at a rate of loss of 6.7 birds per year the region's Red Kite population would drop drastically over a very short timespan.

169) **Inadequate weighting of Golden Plover:** the Applicant found consistently high levels of use of the Site by wintering and passage birds. As a result, Collision Risk Modelling predicts an annual mortality rate of approximately 88.9 golden plover, equivalent to around 3,555 individuals over the 40-year operational life of the development.

170) The ES assesses that this is a significant adverse effect at the local population level, but discounts it on the basis of an asserted total wintering population IN wALES. This assertion is inaccurate. It relies upon an incorrect reading of Pritchard et al 2021, the

Golden Plover section of which was written by Dr M Green, co-author of this Representation. There is no reliable estimate for the wintering populations of Golden Plovers in Wales. They are highly mobile and it is impossible to get total numbers, but radio tracking and ringing has shown they are very site faithful in their winter sites. Even if a site is used only occasionally in one year - they move due to weather conditions - they use the same ones regularly and the availability of these known food resources can be very important for their survival.

171) Banc Du therefore may be highly important for the survival of the 400 birds which the Applicant's surveys find use it. (In this context, the comment in ES II Chapter 9 at Table 9.1 that "the study area is of low importance for wintering bird species, due to the low diversity and numbers recorded during winter walkover surveys" is nothing short of alarming: if such a numerous population of such an endangered species is of low importance, is there any population of any species which the Applicant would consider important?) At the predicted rate of collisions, this entire population would be wiped out over a timespan less than half the projected life of the development. This is neither morally responsible nor legally acceptable: Wales has a legal obligation to protect migratory/ wintering birds under the Berne Convention (Convention on Migratory Species) under which Golden Plover are a listed species.

172) The Applicant admits (ES II 9.5.17) that "Data trends for waders suggests a decline for all species considered, compounded by threats posed to populations from climate change all three species (Curlew, Lapwing and Golden Plover) are likely to decline over the next 40 years." It nevertheless hastens to conclude at 9.5.18 that mitigation in the form of grassland habitat retention and enlargement will be beneficial: perhaps because before being killed by collision some birds will be better fed?

173) **Inadequate assessment of curlew:** This Site overlaps Important Curlew Area 9, under the Welsh Action Plan for the Recovery of Curlew. Curlew population has declined by 50% in the UK in the last 25 years, with fewer and fewer breeding pairs still active. It is a species of high – in fact, increasing -conservation concern in Wales.

174) The survey reports leave room for the possibility that curlew may in fact have been breeding on the Site, as it is unclear how much time (if any) the surveyors spent actively looking for them. It is well known that curlew may not show up in surveys using the normal 'Brown and Shepherd' method used.[61] Even if they were not breeding on Site, however, radio tracking studies have shown the birds use multiple fields to feed and roost

[61] See for instance discussion in Wilson et al, BTO Research Report 727 (2019) *Audit of local studies of breeding Curlew and other waders in Britain and Ireland* at 5.1.1

during the breeding season, all of which are vitally important to their survival.[62] If they were using the site during the breeding season, they were almost certainly breeding nearby and one or more of potentially only 400 breeding pairs of curlew left in Wales. Disturbance during construction could make them leave any adjacent breeding site. This is unacceptable given their dire situation.

175) Powys' LIR likewise points out lack of clarity as to how the Applicant has reached its suggestion of a beneficial residual effect. With a species where conservation efforts across a wide range of concerned organisations including Welsh Government must now be described in terms of a population scrabbling to maintain a fingerhold on a cliff edge, this suggested benefit can only be described as fanciful.

176) The actual effectiveness of habitat enhancement measures is, as ever, speculative. It is noteworthy that the Applicant does not propose any species-specific monitoring or adaptive management framework so that under the Applicant's proposal it would literally never be known what impact the development had. For an extremely scarce, and well beloved species such as curlew, this is not adequate.

177) **Lapwing**: this is species of grave conservation concern in Wales and the UK. Breeding Lapwing are incredibly scarce in Wales generally and Mid Wales in particular. The fact that it was recorded breeding within the wider study area, whether 'occasional' or consistently, is a cause for real celebration and should be given high priority in the assessment.

178) The Applicant's proposed habitat management measures intended to reduce use of the turbine influence zone cannot be relied upon either as to deliverability nor as to effectiveness over the 40 year projected operational lifespan – which equates to 10 generations of lapwing. This is underlined by the complete lack of clearly defined monitoring processes, with ecologist visits to the site only once a decade for the last 30 years and no defined intervention thresholds and adaptive management mechanisms. In our view an exceptionally precautionary assessment to the overall ornithological impact should be given due to the presence of this species.

179) The Applicant further concludes that there will be a neutral impact from operation of the development. This is unrealistic. As we have commented above, removing a large

[62] An NRW Report on these studies is in press at the time of this Representation but should be available by the time of any hearing. NRW Evidence Report 734: *Fine-scale distribution of breeding and post-breeding Eurasian curlew in relation to landscape elements in lowland east Wales* Authors: Mitchell, C., Green, M. and Cross, A.V.

area of habitat for invertebrates and insects, not to mention the millions of insects killed through collisions, will necessarily reduce the food supply for those bird species which depend upon them. The mitigation proposed for raptors is to create or restore other areas of grassland on the site, supposedly drawing the birds away from the turbines themselves when hunting. The efficacy of this is highly uncertain: birds necessarily fly between hunting grounds, and if any grassland remains around the bases of the turbines those will still be perceived as hunting terrain regardless of the presence of other possible areas. No mitigation at all is proposed for Golden Plover, on the basis that they are merely flying over the site. But it is precisely the activity of flying over that could bring birds into collision risk. The breeding populations survive or fail as local populations; the loss of one or two birds to a very small local breeding pool contributes a very significant impact to the ultimate loss of that breeding population, per se. With each lost local population, the climate resilience of the remaining total is significantly undermined.

180) **Impact of removal of habitat:** Similarly, in discussing the impact of direct destruction (permanent removal) of habitat, the report blithely concludes that "Measures such as replanting, habitat maintenance and habitat creation will be undertaken across the Site and will likely contribute to the resilience and increase of bird populations at a Site or local level." (ES 9.6.2). Uncertainty is implicit in that very telling word "likely". It goes on to point out (9.6.4) that the habitat creation proposals in Table 9.16 are "included for indicative purposes only, and should not be considered prescriptive". If that is so, how can it be banked as an enhancement? As with the rest of the ecological issues, everything is to be deferred to the drafting of a future Habitat Management Plan, with no firm commitment to any specific action. Even were all of the suggestions set out in Table 9.16 carried out, the mitigation by 'creation' of a different habitat area assumes birds can realistically be expected to recognise the new risk in their traditional territories, accommodatingly displace their activities and carry on. There have been many studies of bird and bat displacement by wind farms, but these are often flawed by incomplete assessment prior to construction. A recent overview of studies, mainly on wind farms with much smaller turbines, concluded that "*For flying species such as raptors and bats, displacement and collisions create a double-edged sword that causes population decline regardless of whether displacement occurs*".[63] The Applicant also fails to consider the impact on those populations displaced from the areas which it is proposing to seize to create additional habitat.

[63] Tolvanen, Anne et al. *How far are birds, bats, and terrestrial mammals displaced from onshore wind power development? – A systematic review*. Biological Conservation Vol.288 Dec 2023.

181) There is no surprise that the results of the Applicant's surveys do not reflect the full richness of these breeding populations: the Applicant assessed only part of the Site in full, and a limited buffer. In any case, fluctuations occur naturally between surveys due to natural variation and the limitations of single-visit surveys rather than genuine changes in populations size. Nevertheless, we submit that all of the species known to be breeding in the local area should be considered as at risk from the combination of:

a) habitat destruction (directly, and through the changes to groundwater and runoff resulting from the changed topography and water retention of the site which may critically affect invertebrate food species);

b) construction activity more broadly (including dust, noise and physical impacts, especially of young birds during breeding season);

c) increased human footfall driving species further away into potentially less suitable habitat;

d) turbine operation collisions not only of the birds themselves but in many cases of their food species, whether insects or smaller birds; and

e) the further round of disruption (if any species survive that long) when decommissioning takes place.

182) **Direct habitat loss contributes to cessation of breeding:** The discussion of these impacts in the ES is consistently over-optimistic. For instance, in respect of direct habitat loss, very low breeding populations (such as those for most of the birds under discussion) may be eliminated because of habitat changes in a very local area. Birds do not simply up sticks and move around the corner when evicted; they require a mosaic of suitable nesting and feeding areas. The disappearance of any part of the mosaic may be sufficient to deter future attempts. Breeding birds are declining even in the nearby Elenydd-Mallaen SPA: availability of other habitat, which appear similar to human eyes, does *not* result in a stable population with only a minor adjustment to distribution. Each disrupted breeding pair contributes to a permanent shrinking of the whole Welsh population.

183) **Incremental impact of human development:** Most of the strongest declines noted over the past 40 years have been among the more specialist upland species, and this despite relatively limited changes to the area over that period. If any realistic attempt is to be made to prevent these species becoming extinct in Wales, much greater weight needs to be given to enabling them to persist within their remaining fastnesses until conservation measures aimed at improving habitat in the Lawton sense – larger, joined up areas in better condition – can be reinstated. This Proposal would achieve the opposite,

increasing macro-level fragmentation within a region currently comprising a mosaic of bird-friendly habitats with a very low level of human disruption. Dismissing the incremental impact of each human-desired development on their total resilience as negligible, as the Applicant does, is symptomatic of an overall approach which has cumulatively led to this vast loss of natural life and, if maintained, will indubitably continue to do so.

Mammals

184) The lack of detailed reports available to statutory consultees during the scoping period means that the entire approach to protected species in this Application must be handled with particular caution.

Badger

185) This need for caution is highlighted by the Applicant's assertion claim that no active badger setts exist near infrastructure. However, an active badger sett exists inside the proposed Borrow Pit. This is recorded is visible on Google Streetview images from June 2021 and with Bis WiReD biodiversity service. We have verified it as still present and active in September 2026, when taking our Landscape Consultant to visit the site for the purpose of her report. The Applicant needs to re-do its survey to confirm the presence of Badger on Site.

186) Heavy excavation of the borrow pit directly on an active legally protected sett breaches statutory wildlife protection law without a 30-metre buffer and an NRW license.

Pine marten

187) The possible presence of Pine Marten, a section 7 Priority Species vital for maintaining the viability of the Red Squirrel in the face of the advance of the Grey Squirrel, likewise warrants proper investigation rather than dismissal based on a 2023 survey. This species is so scarce as to be the subject of numerous re-introduction projects in Wales in an attempt to rebalance woodland ecology.[64] The population is therefore already in a state of man-made flux. There are records of it as close as Old Hall, facing the Site across the Severn. An individual pine marten may have a territory from around 1km^2 to 30km^2 in

[64] See for instance the Vincent Wildlife Trust projects in 2013-4 and the Woodland Trust/ NRW Pine Marten Have established in Monmouthshire in 2025

size, depending on the quality of habitat and availability of food.[65] It is therefore entirely likely that pine martens do forage and travel through the Site as part of their overall range.

188) The Applicant should therefore be required to carry out thorough and uptodate surveys to establish the presence or absence of pine marten on site. Providing pine marten den boxes as a throwaway gesture of goodwill to mitigate harm, or otherwise adopt a non-licensed method statement in handling a priority species which the ES II Chapter 8[66] assessment admits could be adverse and significant up to county level, is unacceptable. Assessment of a potential net benefit to the species is a transparent attempt at 'having cake and eating it': permanent loss of foraging in a significant area of open habitat when turbines are present is admitted, yet the hypothetical possibility of encouraging breeding through den boxes in a totally rural area already provided with plentiful nesting spaces, is to be counted in the Applicant's Biodiversity Benefit.

Otter

189) Scoping out of otter is inappropriate given that otters are known to be active along both the Gwy/Wye and the Hafren/Severn, and the streams flowing down both sides of the Site have been recognised in previous planning decisions to form a likely otter corridor to link the two catchments. NRW have indeed commented in their Representation that "No otter have been recorded on site it is still possible that there are individuals present. As well as this there is the possibility that they may reside in the area during operation phases."

190) The Applicant also admits (ES II Chapter 8) that impacts on the River Wye including changes to water levels, pollution and vibration from construction could adversely impact internationally and nationally important populations of otter and white-clawed crayfish, up to international level. With a risk of such severity, minor mitigation as proposed is insufficient: avoidance of harm entirely must be the objective. The Applicant needs to submit proper HRA data as to how this is proposed to be achieved.

Bats

191) We are very concerned that the Environmental Statement does not adequately assess the risks to bats, given the identification of eight bat species active on the site between

[65] Vincent Wildlife Trust Briefing Note at https://pinemartens.uk/all-about-pine-martens
[66] P57

2019 and 2024, including rare priority species. As discussed at Rhiwlas, the Applicant's approach of excluding the very rarest species from its scoring artificially results in a reduced impact assessment – but given that these are already very rare species, it would not be expected for many to be present at any site. The loss of even very few could have significant population effects. The Applicant should be required to rectify this calculation on the basis of all species being included.

192) Bats are particularly at risk from wind turbines, from both direct collisions and barometric trauma. The principal ecological risk arises during the operational phase through collision and barotrauma. The Applicant's assessment identifies common pipistrelle, soprano pipistrelle and noctule as species potentially at risk and concludes that impacts can be managed through embedded mitigation measures, including turbine stand-off distances from key habitat features, blade feathering and lighting controls. Despite this, the tip of turbine T06 would be only 50m from woodland edge – quite close enough for foraging bats to fly into and so close that it would be difficult for them to evade being caught up in tip-caused turbulence.

193) Notably, NRW's suggestion that operational constraints be applied if necessary has not been addressed by the Applicant. Some uncertainty also remains regarding the assumptions used within the collision risk assessment. In particular, further justification would assist in relation to the project size and habitat risk classifications adopted within the assessment, given the scale of the proposed turbines, the presence of adjacent wind farm developments and the identification of numerous trees with Potential Roost Features and a confirmed roost in proximity to the Site.

194) The Applicant's proposal to adopt a Bat Monitoring Strategy through a planning condition would provide an opportunity to validate the assessment assumptions and monitor the effectiveness of mitigation measures following construction. It is not, however, sufficient. A monitoring strategy may, if the sampling is frequent enough and the results are published, assist in assessing the risk to bats from future wind farms in similar environments; but it will neither prevent the losses which it records as happening nor result in shutting down of the wind farm to prevent future losses at this site. This is the converse of a precautionary approach: it is a strategy of causing the environmental impact and then saying "sorry".

195) At the PAC, NRW asked for the Application to include details confirming if consideration has been given to the implications of improved habitat on the impacts of bats and if offsite enhancement has been considered as an alternative. Bute confirmed no

offsite alternative had been considered, but did not provide details of the implications of the proposal's habitat management on the bat species present. Instead, with perhaps unconscious irony, the OHMP proposes (ES III Appendix 8.20 at p35) that the results of bat carcass surveys can be used to inform (in the sense of provide evidence of) the effectiveness of the habitat creation schemes. In other words, the Applicant accepts the likelihood of ongoing bat deaths throughout the operational lifespan as a helpful means to determine whether bats are continuing to be born and forage within range of the Site. Would absence of bat carcasses be taken to indicate successful avoidance of bats, or failure of habitat creation to maintain an excess population able to continuously replenish numbers despite the turbine mortalities, or both?

196) Questions were also asked about curtailments and smart curtailment as means of mitigating risk to bats, and were referred to Appendix 8.10 in ES Volume III**.** This Appendix does not contain any use of the world 'curtailment'. The Applicant must provide details of the thresholds and mechanism to be used for this mitigation.

Outline Habitat Management Plan (OHMP)

197) Great store is, again, set by the Applicant on the HMP as a means to counterbalance negative impacts from permanent priority habitat damage and losses and species mortality. This is of course an essential component for a development which would necessarily wreak havoc on its local environment. In short, it is essential for decision-makers to have complete confidence that the Habitat Management Plan will deliver the outcomes claimed of it if it is to carry any weight in the decision as a counterbalance to the negative environmental impacts of the scheme.

198) **The Outline HMP is inadequate:** The OHMP submitted is variously

a) Aspirational, in that the 'creation' of new areas of native broadleaf woodland is hoped to arise through natural regeneration. This requires a source of seed within range. Whilst it is true that there are broadleaved trees providing a potential source of seeds for this purpose in the lower stream valleys at Coed y Belli and Maigwyn, by far the largest and closest area of woodland, directly adjacent to and on a level with the Site, is the NRW conifer plantation of Ffos y Ffwdan. The Applicant itself notes that "Ffos y Ffwdian is a larger block of coniferous plantation woodland adjacent to the western boundary" (ES II Chapter 9 at 9.4.2). The dominant species within the wood is Sitka

Figure 11 Ffos y Ffwdan conifer plantation

Spruce, a notoriously effective self-seeder threatening the biodiversity of native woodlands in the UK.[67] In all likelihood, the dominant 'regenerating' species within any area set aside for trees will be Sitka Spruce and persistent and forceful management would be required to achieve any level of broadleaf alongside it;

b) uncertain (for instance, locations for hedgerow planting, fences, gates and grazing stock levels to be set in the final HMP),

c) likely to be ineffective (as there is no provision for replacement of newly planted hedge plants which fail to be replaced. Young trees increasingly struggle to establish in challenging upland conditions, and more so in the face of highly variable climate conditions. Combined with large livestock grazing in the vicinity, it is highly unlikely that a self-sustaining wood can be created without a minimum of 5-10 years of annual replacements).

199) A number of management prescriptions are relied upon simultaneously as mitigation, compensation and biodiversity enhancement measures. As a result it is impossible to determine the extent to which net biodiversity benefits would be achieved beyond those required to offset development impacts. The feasibility of achieving the stated aims is uncertain given the absence of detailed baseline habitat condition information, habitat-specific targets, measurable success criteria, performance indicators, restoration milestones and clearly defined adaptive management triggers together with the complete lack of costing for the supposed plan, undermines confidence that the proposed land use changes and other prescriptions are either deliverable or sustainable.

200) The HMP is critically important in delivering counterbalancing benefits to the upland ecology of the site. Given these inadequacies, the Applicant needs to provide far greater detail including costing and funding arrangements for a 40 year lifespan on such matters before any weight can be attached to the submission draft.

[67] See for instance Boleskine Biodiversity Group's *Removal of Invasive Sitka Spruce* at https://boleskinebiodiversity.co.uk/boleskine-biodiversity-groups-projects/removal-of-invasive-sitka-spruce/

201) **Commitment to HMP of future operators:** The question of funding, monitoring and enforcement is also critical given the purported 40 year duration of this plan.

202) The Applicant seeks to address this by maintaining that a legal entity currently called Banc Du Energy Park Ltd will be responsible for the funding and management of pre-construction, construction, operation and decommissioning activities, and the implementation of the long-term management and monitoring proposed in this Outline HMP. This is however merely corporate sleight of hand. A limited company is a business vehicle; it is routine in corporate restricting to move assets and profitable contracts from one corporate vehicle to another.

203) Local authorities do not and may never have the resources to properly enforce planning conditions. No matter the *bona fides* of the present Applicant there can be no confidence that it will remain the operator of the development for the next 40 years – by way of comparison, a span of time equivalent to the elapse of years since Margaret Thatcher was Pime Minister. Enormous changes of diverse kinds will take place in that period. Yet the OHMP provides only for a monitoring visit by an ecologist ***once a decade*** for the second to fourth decades of the project. Once damage is done, it is done; identifying that damage some 10 years later, with no means provided for implementing any remedial actions is entirely futile. Consequently, the offered OHMP does not even purport to guarantee the asserted mitigation benefits.

Noise

204) Banc Du site is immediately above the village of Llangurig and also directly across the upper Severn Valley from the communities of Old Hall and Glanyrafon. A large number of residential properties sit within earshot of the proposed turbines, yet no noise monitoring was carried out in Old Hall, only 1.65 km downwind of several proposed turbines. The effect of the valley topography can lead to noise amplification as it reflects from different aspects. This is a serious omission which needs to be rectified before the true noise impact of the proposed development can be assessed. A suggestion that T01 could be operated in quieter modes in some conditions is not a solution: the precise threshold criteria when such curtailment *would* be implemented, need to be identified and committed to in a binding condition.

205) The Banc Du noise assessment was prepared using ETSU-R-97 and the 2013 Institute of Acoustics Good Practice Guide. Since the Environmental Statement was completed, new UK Government guidance, Assessment and Rating of Wind Turbine Noise (June 2026) has replaced ETSU-R-97. Using ETSU-R-97 the applicant predicts significant quiet daytime

noise exceedances at Beili before mitigation. The cumulative assessment with Rhiwlas also identifies significant exceedances. It is therefore necessary to assess how effective specific mitigation could be.

Transport

206) As for the parallel project of Rhiwlas, the Applicant has not yet defined the proposed transport and access for the project in full. The incomplete route review and site access design,[68] not to mention the lack of assessment of road safety, mean that it is not yet possible effectively to assess the transport impacts which the construction of the project would have. This is important since, as we show below, there are material concerns as to the deliverability and safety of the necessary transport.

207) **Inadequate assessment of Abnormal Indivisible Loads:** A detailed and up to date Abnormal Indivisible Load (AIL) Traffic Management Plan is essential before any proper assessment can be made. The abnormal-load route has not in fact yet been shown to be fully feasible. But the feasibility of constructing the project at all at this Site is not something which can be deferred to separate post-consent "approval outside the DNS regime, with any required regulatory approvals secured under the appropriate statutory regimes" (as the Applicant attempts to assert at ES Volume II). The 2017 EIA Regulations require the Applicant to demonstrate a verified, feasible and lawful transport arrangement before the application is decided upon.

208) National Highways identified four structures requiring detailed assessment for loads exceeding the specified thresholds of 68, 72, 101 and 115 tonnes. Some of the loads needed for this project may not be accepted across any or all of those structures: this depends on the final vehicle configuration and loading information. Further, the Applicant's own diagrams show that over-sail where the A470 curves at Cwm Belan will require rock removal. Nothing in the Application suggests that landowner consent for this has been approved and no EIA is provided.

209) The AILs' passage – if feasible at all – would require extensive street furniture removal, road modifications, tree felling, and rolling road closures on constrained Mid Wales trunk roads. Its impact on the Strategic Road Network needs full investigation. The additional

[68] We note that both Welsh Government Network Management Division and Llanymynech and Pant Parish Council have submitted Representations on this issue

environmental and economic cost of these works has not been assessed but should be part of any planning balance assessment.

0.5m grass embankment along the A470 at Llandinam. Before this was installed in 2024,, Llandinam village was prone to winter flooding by the Severn.

210) The Applicant appears to assume road modifications necessary for its road movements can and will be approved despite potentially major impacts such as the need to remove the embankment shown here, newly installed as an essential flood defence along the A470 at Llandinam. Drawing SK28A specifies physical ground excavation, verge strengthening, and third-party land access needed at this point; the implications appear to have been missed since the Applicant's own photographs of this point date from *before* the embankment was installed. National planning policy set out in PPW 12, Section 6.6 and TAN 15 prohibit site alterations that would increase flood risk or compromise existing flood defences. This may have arisen because the Environmental Statement relies on photographs taken before Powys County Council built the Llandinam flood defence bund. It therefore evaluates the verge as it was several years ago rather than the embankment now present.

211) In short, to comply with EIA Regulations, the Applicant must provide a detailed analysis of how the AILs can reach the site.

212) **Delays:** The Applicant's assertion that potential delays caused by the construction traffic would be 'no worse than those incurred by the movement of agricultural vehicles or static caravans' is fantastical: agricultural vehicles generally travel only short distances on public roads and farmers ordinarily time their movements to be outside peak traffic periods. Static caravans are extremely rare on public roads; whereas turbine blade convoys including several escort vehicles and temporary road closures, contraflow across roundabouts and over-sailing of verges and junctions would continue for weeks if not months at the peak of the construction. The impacts would be severe and prolonged for traffic across the region which, as previously stated, has very few major roads and no convenient minor road alternatives.

213) **Wholesale disruption of normal traffic flow:** The A44, A470 are used by residents, visitors, walkers, riders, cyclists, motorcyclists, agricultural traffic and tourist traffic, in a rural context often with limited margins for error. Safety has become an increasing concern on roads in the Cambrian Mountains in recent years as very small roads designed for vehicles from the 1970s and '80s are increasingly freighted with camper vans, SUVs

and delivery trucks moving at speed on the assumption that there is ample space for two vehicles to pass abreast. In this connection, it is notable that the Applicant's Primary Automatic Traffic Count data was collected in March 2023, outside the tourist season and therefore a material under-count of the actual peak usage of the roads. It is also out of date, in that traffic to the Hafren Forest area has surged year on year since 2021; data over 3 years old is no longer a valid representation even for the off-peak level. For three of the survey points what the Applicant presents is not in fact data at all, but estimates drawn from a Department for Transport database, to which a very small growth factor has been applied to calculate the traffic levels used in the Transport Assessment.

214) The addition of large numbers of HGVs and Abnormal Loads into this context is a cause for great concern. During the construction phase, thousands of heavy vehicle movements are proposed to thunder through a series of small rural towns and villages on the A470 and A44. The estimated peak of 324 daily vehicle journeys (260 HGVs per day/ 22 two-way HGV movements per hour) under standard delivery models represents a colossal increase over current traffic volumes (even allowing for the chains of camper vans and mobile homes on these roads in mid-summer).

215) **Potential for HGV accidents underestimated:** The accident baseline should also be treated with great caution, given the increasing traffic loads already being experienced in the area. The A44 has numerous points of restricted visibility due to terrain constraints, and a number of sections of reduced speed limit due to weak road edges. It has a poor safety record between Capel Bangor and Llangurig, with 89 casualties over the period 2020-2024 and 42 accidents including one fatality in 2025[69] – despite speed restriction to 50mph over most of the distance and sections at only 30mph. It is not clear how the Applicant proposes to resolve this, nor what the environmental impacts of the necessary tree, soil and vegetation clearance would be. The proposed mitigation of 'voluntary reduced speed limits' for their drivers is legally unenforceable and improbable when a construction project is in full swing with every delivery under time pressure.

216) If Rhiwlas and Banc Du are constructed concurrently, HGV traffic on the A44 from Capel Bangor through Eisteddfa Gurig will rocket by a staggering 155.8% [94, Table 12-16]. This adds 784 daily HGV trips on top of the 306 baseline movements, turning a key scenic tourist corridor into an industrial transport route [94, Table 12-16, 302].

217) All told, this Transport Assessment is not an accurate representation of the likely transport impacts in 2027 or, more likely, 2028 when construction might conceivably

[69] See https://roadcrash.co.uk/area/powys

start. The Applicant should be required to carry out full, physical traffic counts during peak summer months before any baseline figures are accepted.

218) Yet despite this, the Transport Management Plan ("TMP") itself is only "indicative" (Annex B) and would need to be revised after consent. The Application does not include any Stage 1 Road Safety Audit. This is inadequate: If the proposal cannot be delivered, safely, or not without undue public compromises, then it cannot be approved.

219) The Applicant's conclusion that there are no specific road safety issues which require to be addressed or which would be exacerbated by construction activity is ill-founded. It would be more accurate to state that the preliminary and superficial assessment which the Applicant has carried out has not revealed any such issues. But this is unsurprising: movement of AILs and numerous daily HGVs over small Mid-Wales roads requires meticulous analysis in order for the pinch-points to be identified. The route includes acute road curvature; weak road edges; and complex junctions such as the junction of the A470 at the level crossing at Caersws, which already causes delays when large vehicles need to turn let alone when trains passing between Shrewsbury and Aberystwyth cause the A470 to be closed. Adding a large number of HGV and AILs into this network will certainly require sophisticated management, not simply sending in long convoys hoping to barrel through unimpeded.

220) Indeed, the CTMP's stipulation of traffic management controls, signage, liaison with highway authorities, police involvement, possible temporary speed restrictions, advance warning and public information demonstrate that the entire procedure *would* involve wholesale disruption of the normal flow of traffic. Introducing sufficient safeguards to ensure safety would result in massive holdups and unpredictable journey times for everyone, not only those engaged in the construction project. This is no short-lived inconvenience for the relevant stakeholders but a material, continuing, unpredictable impact over the considerable construction timeframe.

221) For these reasons, the applicant should be required to provide a consolidated, updated and fully worked TMP before the Application is determined, including:

a) final or worst-case turbine transport assumptions;
b) DMRB-compliant access design;
c) full abnormal-load swept-path evidence, including proof of landowner consents where work on land adjacent to the highways;
d) ecological assessments where tree clearance or verge works are necessary;
e) detailed mitigation proposals,

f) road safety audit information, and
g) a finalised CTMP capable of public and consultee scrutiny.

Cumulative Impacts

222) This proposal is part of a suite of applications by related companies Bute Energy and GreenGen, comprising near-adjacent power generation at Banc Du and Rhiwlas and a pylon chain to connect Rhiwlas to Llyn Lort and then on to the national grid in Shropshire. That this is in reality a single complete development from the Applicant's point of view is acknowledged in the Non-Technical Summary and incidentally highlighted by the fact that Bute Energy themselves, in sending out their email to notify people who had registered a desire to be told the beginning of the period for making representations in respect of Rhiwlas, sent it from the email address banc.du@bute.energy, with the same email address for replies.

223) The site is in close proximity to two existing wind farms: Bryn Tutli, an array of 54m turbines on top of the St Harmon Ridge; and Bryn Blaen, a group of 100m turbines immediately above the village of Llangurig. Cefn Croes and Llandinam wind farms are each some 10km away. There is in addition a newly consented 50m turbine to be constructed at GlynHafren, slightly north west of the Site. Planning Inspectorate Advice Note 17 on Cumulative Effects (AN17) is the authoritative source for this issue. It requires other existing development including existing plans and projects that are 'reasonably foreseeable' to be taken into account.

224) In considering this application therefore, the existing wind farms at Bryn Blaen, Bryn Titli, Cefn Croes and Llandinam need to be taken into account as well as the approved repowering at Glynhafren and the approved EDF wind farm at Garn Fach. Further applications made by Bute Energy for wind farms at Waun Hesgog (DNS CAS-04275-X4L3J7) and Esgair Galed (DNS CAS-03102-P5D2P3) must also be assessed, along with the RGEN and Vrynwy-Frankton proposals by affiliate company GreenGen.

225) The Inspector will be well aware of an intensive wave of energy and grid developments proposed across Mid Wales. In addition to those named in the preceding paragraph, and including those already built or approved, there are within the 45km cut off:

- Bryn Cadwgan (DNS CAS-02917-K8D5Z2)
- Bryn Gilwern (DNS CAS-03010-F0X0Q1)
- Calon y Gwynt (DNS CAS-02905-P2F6M6)

- Carnedd Wen (DNS CAS-02040-L8C8B7)
- Carno I
- Carno III
- Esgair Cwmowen
- Garreg Lwyd
- Lan Fawr (SIP CAS-04522-V1F3G8)
- Llanbrynmair
- Llangyryfon
- Lluest y Gwynt (DNS/3246727)
- Llyn Lort (DNS CAS-02362-P3S4H4)
- Mynydd Clogau
- Mynydd Gorddu
- Mynydd Lluest y Graig (DNS/3213154)
- Nant Mithil (DNS CAS-01907-D7Q6Z1)
- Nant y Maen (SIP CAS-05003-P8C9T4)
- Tirgwynt
- Waun Maenllwyd (DNS CAS-02650-B0P0M9)

226) It is impossible to overstate the complete transformation these would collectively exert on the environment, infrastructure, and communities in the region. The Environmental Statement does not address these cumulative effects adequately. Careful cumulative assessment is an urgent matter of public interest.

Landscape

227) **Applicant's assessment of cumulative impact inadequate:** Munro Landscapes' review of the Applicant's LVIA identified a significant methodological failure:

a) "The cumulative assessment contains a recurring methodological weakness whereby the limited visual interaction between the Proposed Development and other wind energy schemes appears to have been used to justify reductions in the magnitude and significance of effects attributable to Banc Du. This approach does not adequately distinguish the additional effects of introducing the Proposed Development into a cumulative baseline from the degree of visual interaction between schemes. In particular, where other developments exert limited influence upon the baseline, the effects attributable to Banc Du would generally be expected to remain comparable to those identified in the main assessment. The review therefore considers that **the Applicant's cumulative assessment systematically understates effects for a number**

of landscape and visual receptors and does not provide a sufficiently reliable account of the additional cumulative change" with

b) "The **relationship between Banc Du and the proposed Rhiwlas Energy Park** is of particular concern" (Annex II LVIA Review at 13.8-9)

228) **Cumulative effects should include all infrastructure and landscape alterations:** The Applicant has only included the turbines in the cumulative visual impact assessment, stating: *"Other components of the Proposed Development (including the proposed grid connection) would be relatively minor additions to the view, which would not be visible over long-distances and whose influence upon the view would be both limited and localised. As such it is not considered that any of these other component features would give rise to cumulative visual effects with other wind energy schemes."*

229) This is not good enough. The grid connection and other components are all part of the project which in its entirety will have a cumulative impact in conjunction with other schemes. Each scheme in the cumulative picture should be represented in its entirety in order to present a true picture of creeping industrial-scale wind farm development. The Applicant acknowledges that combined with its own proposed adjacent Rhiwlas Energy Park there would be significant cumulative effects across three landscape character areas, five recreational receptor groups, and cycle routes. In combination with the existing wind farms at Bryn Blaen and Bryn Titli, the Llangurig area would become an overwhelmingly 'turbine landscape' where almost any direction of vision would include one or more turbines or associated infrastructure. At the scale of these proposed developments, this would far exceed the landscape's capacity to absorb further development.

230) This assessment should include, without limitation , wind turbines, the substation and its control building, grid infrastructure , borrow pits, access roadways and tracks and the reinforced concrete turbine foundations themselves.

Other Cumulative Impacts

231) The cumulative effects of a number of other aspects are also cause for concern.

232) **Cumulative traffic during construction of other existing proposals:** During the peak construction month (Month 5), the project is projected to generate an average of 324 daily journeys, including 260 HGV movements. This equates to 22 HGV movements per hour during peak construction compared to baseline, with 17.4% increase in HGV on the A470 near the site entrance. Cumulative HGV traffic for Banc Du and Rhiwlas *alone* on the 8 twisting miles of the A44 from Eisteddfa Gurig to Llangurig would be increased by 156%

(ES Vol III Table 12-16). This section of road is already subject to speed restrictions to 30 mph over some sections due to its sharp bends and weak road edges; the impact of these additional heavy loads will be to slow traffic along the entire road from Llangurig to Capel Bangor by a significant extent.

233) The Applicant treats construction traffic effects as temporary and largely capable of management. In a more central region with more and larger roads, this might be so. This part of Wales, however, has very few major or even minor roads, and is facing multiple wind, grid and energy infrastructure proposals, many of which would necessarily rely on the same constrained rural road networks and abnormal-load movement pathways. In the southern Cambrians, the A475 and A482 are proposed for construction traffic for the wind farms at Bryn Cadwgan, Waun Maenllwyd, Bryn Rhudd, Lan Fawr and possibly Nant y Maen. In the north, the A470 and A44 are expected to carry the traffic for Banc Du, Esgair Galed, Garn Fach, Lluest y Gwynt, Rhiwlas and Waun Hesgog. With construction for each one estimated to take several years, overlap of construction activity is inevitable. Cumulatively, three out of only 6 A roads which provide access to Ceredigion would be congested to the point of being almost unusable for several years – and there are only single track mountain roads available for any other traffic reaching that area.

234) The principal alternative for traffic to Aberystwyth in the face of the congestion of the A44 is the coastal A487 from Cardigan/Aberteifi, or the A489 from Caersws through Machynlleth – the latter being the road on which construction traffic for Calon y Gwynt, Carnedd Wen, Esgair Ddu and Llanbrynmair wind farms is likely to travel. The combined impact on businesses throughout northern Powys and Ceredigion, including but not limited to tourism and hospitality, not to mention local residents, would be severe over a prolonged period. Consumer and tourist avoidance which are reinforced over such an extended period risk becoming long ingrained. The public and highway authorities are entitled to understand the realistic cumulative pressure on strategic and local routes.

235) **Creeping erosion of historic and cultural landscapes:** Were even a small number of the proposed wind farms to go forward, the incremental erosion of this upland landscape from an open upland expanse which would have been recognisable to the Cistercians, Prince Llewllyn and Owain Glyndŵr to a modern industrial suite of wind turbines would be very rapid. As ever, the loss of such assets may only be noticed when they're gone.

236) **Cumulative loss of priority species and habitats:** The cumulative effects on priority species are particularly critical and have not been taken adequately into account. ***In particular, the environmental impacts of the necessary RGEN grid connection is currently unknown and unknowable***. Nor is the other GreenGen grid project, Green GEN Vyrnwy–

Frankton, EN020035, which the Applicant admits would lie within the cumulative Zone of Influence,[70] addressed at all.[71] This is inadequate. With no less than 9 projects already coming forward within the Cambrian uplands and another half dozen (Llyn Lort, Mynydd Lluest y Graig, Carnedd Wen, Llanbrynmair, Calon y Gwynt and Esgair Ddu) just outside the borders, the realistic prospect for successful species migration both of birds and larger mammals, such as otters which travel large ranges, is severely constrained. There is a realistic probability that potential alternative habitats to which they might retreat will in many cases themselves be the subject of major construction works.

237) The combined impact cannot avoid major reduction of ecological resilience through:

a) Fragmentation and reduction or replacement of upland habitats;

b) Disruption of wildlife corridors including verges and hedgerows;

c) Species displacement and reduction in abundance, including protected species of both plants and birds; and

d) Hydrological disturbance including potential contamination both from the concrete of the construction and the metal mines, changes in groundwater pH and sedimentary load in the Dulas-Severn, the Gŵy/Wye SAC and catchment tributaries.

238) There is a real risk that each of these impacts be "scoped out" or "considered negligible" in respect of each individual proposal, as the Applicant has to a greater or lesser proposed here. The result would be each relevant site is consented without meaningful holistic landscape scale consideration of the cumulative effects. It is precisely this approach which has, despite a half-century of increasing environmental awareness and statutory and policy protection in theory, led to accelerating nature loss in practice. In the past, each time humans have taken 'just a little bit' here or there, the shrinking dimension and fragmentation of what was left has reduced nature's resilience just a little bit. But NRW's conclusion from the State of Natural Resources Report 2025 was that "Wales' natural environment is at a critical tipping point… Nature across Wales is under sustained and intensifying pressure. Ecosystems are struggling to cope with the combined impacts of climate change, ***pollution, habitat loss and unsustainable land use***." A system at a tipping point is by definition liable to respond dramatically to a relatively small stimulus. The assessment of these proposals has to be made on the expectation that the next 'little bit' of habitat which is taken from the heartlands of Wales' biodiversity could

[70] See ES II Appendix 14-1

[71] We note again Llanymynech and Pant Parish Council's Representation in this Application

be the lever which tips the system as a whole.

239) **Cumulative noise impacts**: Air turbulence generated by the introduction of T05 and T06 upwind will affect the noise generated by the turbines of Bryn Blaen wind farm, which already create a sound easily heard in the Severn Valley along C2020.[72] This needs to be taken into account.

240) **Cumulative effects on people:** Similarly, the cumulative effects of this level of major and simultaneous or sequential construction on tourism have not been assessed, despite the presence of multiple largescale energy and grid projects planned across mid Wales. There are likely to be direct, indirect and cumulative effects on tourism businesses, visitor behaviour, destination reputation, and the enjoyment and the simple marketability of the area as a place for quiet recreation and nature-based tourism. The combination of visual, noise, transportation, and access challenges may critically undermine the long term potential of regional tourism.

241) The formal assessment process of cumulative impacts neglects the realities of life for local people and visitors. Every local person or visitor is a receptor and will suffer multiple impacts of both construction and an operational wind farm, simultaneously and sequentially throughout their daily lives in the area. The same people sit in gardens, look out of windows, walk, cycle, ride and drive, enjoy nature, watch birds, climb hills and visit beauty spots and historic places. For visitors, and even more so for local residents, the experience of once-beautiful but now industrialised surroundings would be oppressing and additive. Recent German research[73] on the health-related quality of life (HRQoL) impact of wind turbines of 50m hub height i.e. half that of those proposed for Rhiwlas and Banc Du, concludes that "cumulative exposure may matter more than proximity alone for certain dimensions of HRQoL,... For siting and impact assessment, this implies that attention to minimum distance from the nearest turbine may be insufficient on its own; the number and spatial concentration of turbines around residential locations may also be relevant."

242) **Cumulative impacts on dark skies**: When viewed cumulatively with the proposed aviation lighting at Rhiwlas, the significant nighttime visual impacts which Banc Du alone would entail would expand the zone within which the visual impacts felt would be significant. This is not acceptable on the very edge of Wales' only International Dark Skies

[72] Colas et al *Modeling wind farm noise emission and propagation: effects of flow and layout,* Renewable Energy, Volume 273, 2026, 126052, ISSN 0960-1481, https://doi.org/10.1016/j.renene.2026.126052

[73] Knies & Jetzkovits *Wind turbine proximity and health-related quality of life in Germany 2002 to 2022* Nature Portfolio Scientific Reports | (2026) 16:18380 | https://doi.org/10.1038/s41598-026-56835-5

Park. While specific points within the Park are promoted (for ease of access) to visitors, the entire Park is the designated area and its night-time integrity needs to be maintained.

243) **Cumulative effects should include all infrastructure and landscape alterations:** The grid connection and other components are all part of the application which in its entirety will have a cumulative impact in conjunction with other schemes. Each scheme in the cumulative picture should be represented in its entirety in order to present a true picture of creeping industrial-scale wind farm development across the Cambrian Mountains and beyond. This should include, but not be limited to, the impact of each component on:

a) peat destruction and disturbance;
b) hydrological disturbance;
c) damage, disturbance or contamination of the River Wye SAC and other protected landscapes;
d) Deforestation and loss of plant life;
e) loss of wildlife during a nature crisis. The human experience of walking in open upland areas is intrinsically linked with the enjoyment of the upland flora and fauna. The gradual decline in populations of all forms of wildlife changes the experience from one of feeling a participation with a broader biosphere to anxious seeking for signs of life.

The Planning Balance

244) This section reviews the submissions set out above and brings them together to consider the overall Planning Balance and Conclusions for this case. First we review the relative merits and Planning Balance for the Proposal, going through each main policy criterion and weighing the effects arising. Then 'other material considerations', relevant to decision making on the Application, are discussed. Next, various other factors which need to be taken into account are outlined. Finally, this section gives overall Conclusions.

LVIA

245) FW2040 identified PAA where the landscape impact of wind energy development was found to be acceptable, subject to local constraints and circumstances to be assessed during proposal decision making. This Site was excluded from PAA; accordingly FW2040 Policy 18 applies.

246) The Society's professional landscape assessment finds that:

a) the site selection and design process has not adequately reconciled the scale of the proposed turbines with the character and sensitivities of this landscape
b) the landscape effects cannot reasonably be characterised as confined principally to the immediate site and adjoining uplands
c) the development would produce a widespread pattern of significant adverse effects affecting residential communities, recreational routes and elevated viewpoints… substantially alter[ing] the rural outlook experienced by residents and visitors across a wider area than that identified by the Applicant;
d) Recreational receptors would be particularly affected along 19 km of National Cycle Route 8, the Wye Valley Walk and the Prince Llewelyn Ride;
e) [at] one property, Beili, … the effects are considered capable of reaching the Residential Visual Amenity Threshold… the concentration of residential receptors experiencing high levels of adverse visual effect within the Nant Bronfelan and upper Severn Valleys adds considerable weight to the concerns regarding the suitability of the site and turbine arrangement;
f) the Applicant's cumulative assessment systematically understates effects for a number of landscape and visual receptors and does not provide a sufficiently reliable account of the additional cumulative change… [with] the relationship between Banc Du and the proposed Rhiwlas Energy Park … of particular concern."

247) In sum, the Proposal is substantially out of scale, and not sympathetic to the local landscape.

248) FW2040 Policy 18, including 18.1 and 18.2, require there to be no "unacceptable adverse impact on surrounding landscape" and "no unacceptable adverse impacts on nearby communities and individual dwellings", while "the cumulative impacts … should be considered". The Proposal has not met these criteria.

History and culture

249) We have discussed the effects of the Proposal on the setting of the historic church of St Curig in Llangurig. The Applicant's assessment based upon treating each monument as a standalone asset failed to appreciate the importance of the complete setting in such a remote landscape itself. Overall, the impact is adverse.

Ecology and ornithology

250) The field habitat surveys are in places inadequate, especially as to the soil and ornithological surveys. This relates both to the surveys actually carried out but particularly

in respect of appropriateness of the methods used in and adjacent to an SSSI and SAC designated for the protection of scarce and increasingly threatened protected species. The conclusions and the OHMP on which the Applicant relies are inadequate to justify planning consent.

Access, transport and traffic

251) The Society's assessment raises concerns about the Applicant's traffic and transport plans. The flood defences of Llandinam cannot be sacrificed to make way for the Applicant's trucks. The Applicant has not sufficiently considered the circumstances of the limited local roads (even those A roads that exist) under the onslaught of multiple wind farm construction proposals. The arrangement for AIL lacks concrete detail. It is therefore not assured that these AILs can be delivered to the Site, and what the impacts and environmental effects from this would be.

Hydrology and hydrogeology

252) The Applicant needs to undertake more detailed study before the hydrological impacts of the Proposal can be properly judged. Crucial information as to the impacts of construction on groundwater, surface runoff, connection to and potential pollution of the Gŵy/Wye and Hafren/Severn river systems and private water supplies on and near the site is missing. The source of water to construct foundations also needs more detailed assessment in the drought circumstances currently prevailing at the site. Accordingly it cannot be demonstrated that the proposals, as they stand to be assessed, can be accepted to be without serious negative hydrological effects.

Grid connection

253) Unless a grid connection is constructed, the entire basis for construction of the Banc Du energy park is negated. The process being followed by the Applicant's affiliate company to progress this component of the project appears uncertain, with the Applicant having stated at the most recent Inception Meeting that it is not planning to re-do survey work despite route changes since initial EIA work was done (which may by the time any application is filed therefore be both insufficient and out of date).

254) In the circumstances, it is impossible either to

a) say whether any grid connection will be approved or

b) assess the complete environmental impact of the proposed combined Banc Du and Rhiwlas energy parks together with the necessary connection line. In view of the total extent of construction which the three parts of this single project entail, the proposal should be rejected pending a final application for the grid connecting line (if one is ever forthcoming).

255) Finally, as pointed out by the Court of Session in the *Raeshaw* decision[74] earlier this year, it is "irrational for the reporter to have placed considerable weight on the wider benefits that would result from the operation of the wind farm once connected to the grid whilst, at the same time, saying that the grid connection, and its disbenefits, would be considered at a later date."[75] Although *Raeshaw* was a decision of the Scottish court and therefore not a binding precedent for English or Welsh purposes, the legal analysis which it applied arose from identical underlying law – the Environmental Impact Assessment Directive[76] - and relied upon a number of decisions of the senior English courts which are binding on decision-makers in Wales. This factor is wholly relevant to this Application.

Climate change and carbon balance

256) The irrationality identified in *Raeshaw* is greatly exacerbated when even the putative benefits as to potential power generated are highly uncertain in view of the site's meteorologically poor location. The Applicant's assessment of the climate change effect and carbon balance of the Proposal is based upon:

a) Potential underestimates of the peat impact of the Proposed Development;
b) unrealistic assessment of the likely power output in view of the meteorologically inappropriate setting of the site;
c) an over-optimistic and unsupported 40 year lifetime claim for the proposal; and
d) unrealistic assertions as to the power generation potential of the development, given the omission of allowance for downtime for major maintenance such as blade failures and 15-yearly gearbox replacements owing to the high stresses which the Site would entail, not to mention the potential lack of any grid connection for several years of the expected lifetime.

257) The Applicant's CO_2 reduction calculations assume the renewable output reaches a maximum calculated on the potential generation were the turbines sited on the ridge

[74] *Raeshaw Farms Ltd v Scottish Ministers* [2026] CSIH 10
[75] *Raeshaw* judgment at para 56.
[76] Directive 2011/92/EU as amended by 2014/52/EU

crest; that it operates unrestricted and that it will offset the emissions associated with grid mix electricity generation. On this basis a carbon payback time of 3.9 years is asserted.[77] In reality, as we have explained at paragraphs 81-98 above, this development is extremely poorly sited for the purpose of continuous operation at any real fraction of its hypothetical output. Present grid operating experience already shows that its operation will be restricted from the beginning. This will only increase in future as fluctuations in renewable capacity exceed fluctuations in customer demand.

258) Further, as installed renewable capacity continues to expand, particularly with the large offshore wind farms already consented, any power from this development would with increasing frequency replace other renewables rather than fossil fuels, as the Applicant's calculations have assumed. This follows necessarily from both UK and Welsh government's commitment to the installation of more renewable power generation in order to reach Net Zero within the next 15 years, just 3/8ths of the proposal's asserted lifespan.

259) In the light of these shortcomings, the Applicant's assessment of the climate change effect and carbon balance of the Proposal is deeply flawed and cannot be relied upon.

Cumulative effects

260) The Applicant has taken into account only a limited subset of relevant other wind farms and infrastructure projects. It has further not taken account of a range of cumulative effects other than the landscape and visual impact. The Application does not comply with the last sentence of FW2040 Policy 18.

Need

261) A number of recent planning decisions on renewable power have been determined on the basis that the climate crisis is a "wholly exceptional circumstance" as a result of which the need for additional renewable power generation outweighs almost all other planning issues, taken separately or together.[78] This approach cannot, however, as a matter of logic, continue indefinitely. As regards the "wholly exceptional" nature of the circumstances, this application is being assessed not on a blank slate against a newly revealed climate crisis. It is part of a long queue of renewable energy proposals throughout Wales and, indeed, the United Kingdom. Many, both in Wales, the United Kingdom, offshore and elsewhere in Europe have already been consented. Yet there is no sign of any cessation in

[77] Planning Statement at 5.3.2
[78] Other than the impact on the view from a Designated Landscape.

the number of applications being progressed; nor is it likely, in view of humanity's insatiable desire for energy-hungry technologies such as Artificial Intelligence, that there ever will be.

262) In the light of this there is a pressing need to consider the merits of specific applications scrupulously without making a direct line from 'climate crisis' to 'wholly exceptional circumstance' warranting approval of every proposal. To accept such a conclusion would be to obviate entirely the need for any planning system whatsoever: for as long as energy demand continues to soar without upper limit, all available land could and ultimately might be subsumed for this purpose.[79] Secondly, if every application for a renewable power station is found to be wholly exceptional, then none of them are exceptional at all: the term "wholly exceptional circumstance" as used in PPW has come to mean "application for a renewable power station". This is irrational, even by the very high standard required for judicial review of an administrative decision. For the term to bear any actual meaning, it has to be possible for the weight of other factors[80] to counterbalance the demand for renewable power. This application is a prime candidate for that ruling.

263) Particularly important to the 'other material considerations' are the Welsh and UK Governments' energy policies and the ongoing changes to the regulation of the energy system being made by the UK Government. Wales's energy policy is about to change under the new Government to a reduced emissions approach which can be met through other developments. Further, as we have shown above, the project's ability to deliver the asserted power generation is very uncertain: two turbines may be precluded due to road safety issues, and a third is position in a location which will significantly compromise its ability to deliver anything close to its 'rated' output. Therefore, the weight to be applied to the requirement for renewable energy as such should henceforth be reduced in the balance against other priorities.

264) There is no need to sacrifice the environment, local communities and Welsh culture, potentially further eroding use of Welsh as a language of daily use.

265) The irreversible harms related to landscape, ecology, hydrology, and amenity (with its inextricable linkage to the physical and mental health benefits of access to nature) that this project entails are not compatible with the Welsh Government's responsibilities under the Wellbeing of Future Generations Act.

[79] Subject to changes in the electricity generation subsidy system and potentially global market forces
[80] Not limited to impact on the view from a Designated Landscape

Conclusion

266) Even on the basis of the subset of impacts affecting the Cambrian Mountains, and the inadequate EIA data so far available, the Site fails the test set out in Policy 18.1. PPW requires that when considering proposals due account is taken of the contribution a proposal could make to renewable energy targets and cutting greenhouse gas emission (PPW 5.9.19). At the same time proposals should 'avoid or mitigate adverse impacts' on local communities, natural and historic environments, cumulative effects, grid connection issues, transport and design building and operation of renewable energy (PPW 5.9.20). Assessing these factors for and against the Proposed Development it is evident that the adverse effects of the development in itself would be considerable. Even were the potential benefits of the Proposed Development to be fully achievable, which we have demonstrated they are not, they cannot be achieved without a grid connection; and it is irrational in law to assume those benefits in favour of a proposal whilst deferring consideration of the potential adverse effects of constructing that connection.

267) This development, along with others either operational, consented or in the planning pipeline, would have a severe cumulative impact across Mid-Wales and the Cambrian Mountains in particular. This impact will not be restricted to what will plainly be substantial landscape and visual amenity effects. Significant effects on ecology, hydrology and peat are also inevitable, while causing severe disturbance through traffic impacts and noise to neighbouring rural communities. Tourism, on which, with farming, this area largely depends is likely to be strongly negatively influenced, with local businesses ultimately disadvantaged. The health and well-being impacts of the creation of a cluster of enormous turbines within a small distance of a significant number of residential properties must also carry significant weight.

268) Lying as it does outside any Pre-Assessed Area for Wind, the siting and design of the application must be rigorously scrutinised against the stringent environmental requirements of Policy 18, FW2040. Consequently, weighing the "merits of the individual proposal" in accordance with PPW (5.9.15), and the policy criteria set out in FW2040, together with the 'other material considerations', planning consent for this Proposed Development should be refused.

LCB, for The Trustees and Members of the Cambrian Mountains Society

ANNEX 1: Relevant Material which repeats points raised in the Society's Representation in response to Rhiwlas

The Cambrian Mountains Society

269) The Cambrian Mountains Society ("the Society"), a charity (registration no. 1113037), was formed in 2005 to:

a) promote, for the benefit of local communities, and of the wider public, measures which will sustain or enhance the landscape, natural beauty, biodiversity, archaeology, scientific interest, and cultural heritage of the Cambrian Mountains;

b) advance the education of the public in the landscape, natural beauty, biodiversity, archaeology, scientific nature, cultural heritage and geodiversity of the Cambrian Mountains.

270) In pursuit of these objectives the Society campaigns to raise awareness of and protect the landscape and biodiversity, farming, rural communities, tranquillity, dark skies, clean water and air in, and adjacent, to the Cambrian Mountains. We also seek to ensure that individual development and management decisions take the special but fragile character of the region, and its irreplaceable climate resilience potential for Wales as a whole, fully into account.

The Cambrian Mountains' importance to Wales

271) The Cambrian Mountains, a dissected glacial plateau, are not as high as the peaks of Eyri or the highest hills of Bannau Brycheiniog. Their character and position nevertheless make them of great importance to nature resilience in the face of climate change, within Wales and the United Kingdom. *Future Wales The National Plan 2040* (FW2040) recognised the Cambrian Mountains as a biodiversity hotspot supporting two ecosystem services hotspots.

272) The much-lowered baseline of biodiversity present throughout Wales and the United Kingdom today can no more be taken for-granted than could (and was) the much greater abundance of nature which society enjoyed 50 or 100 years ago. The Lawton Review established the core principles which must be implemented to enable nature to respond resiliently to climate change: we need natural habitats that are more numerous, bigger, in better condition and – crucially - joined up.[81] Without such action, the overall biodiversity

[81] Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J., & Wynne, G.R. (2010) *Making*

of Wales, already ranking 224th out of 240 countries on the National History Museum's biodiversity index, will continue its precipitous decline despite the very substantial money and energy spent on specific, small scale conservation projects. Remedial action to restore biodiversity at landscape scale in the future will cost vastly more than the cost of prevention through precautionary measures today – if full remediation is even possible.

273) Forming a nature network at landscape scale connecting the iconic mountain landscapes of North and South Wales, the Cambrian uplands are uniquely suited, and critical to, this need. The landscape itself and the land uses it supported remained largely unchanged for centuries. This is an extraordinary and fortuitous circumstance given that, since 1972, development and severe environmental degradation have overtaken an ever greater proportion of the British Isles. The relatively stable land uses, exceptionally low population and remote location, mean biodiversity has so far suffered less severe impacts from human activities than anywhere else in the country. This is reflected in the striking ecological and ornithological diversity present at the proposed site.

Legislative and Policy: Principles

274) **Biodiversity:** In accordance with the Environment (Wales) Act, decision makers are tasked with preserving and enhancing biodiversity. In making policy the new Welsh Government will have to go further and apply the precautionary principle enshrined in the Biodiversity (Principles, Governance and Targets) (Wales) Act 2026.

275) **Long-term impacts:** Additionally, the Well-being of Future Generations Act emphasises the importance of considering long-term impacts, preventing harm, and safeguarding natural resources for future generations.

276) **Disappearing upland habitats:** This proposal would destroy peat soils, fragment ecological networks, jeopardise the quality of two major rivers, undermine the recovery of protected mammals, birds, and aquatic species, and alter vital and fragile upland habitats. A project that results in such obviously fundamental and multi-faceted biodiversity loss cannot adhere to existing statutory obligations and is highly unlikely to conform to any new Government policy.

Space for Nature: a review of England's wildlife sites and ecological network. Report to Defra. http://archive.defra.gov.uk/environment/biodiversity/ documents/201009space-for-nature.pdf

Future Wales

Policies

277) **Renewable energy projects:** Policies 17 and 18 of FW2040[82] set out requirements in respect of renewable energy central to the determination of this and other DNS applications. The then-Government's strong support for the principle of developing renewable projects of all sizes is set out, as part of an intended strategic approach. This clearly states that the Pre-Assessed Areas (PAA) under Policy 17 would be used to inform strategic discussions around the grid to enable an integrated approach to energy planning. That was never carried forward by the previous Government, leading to numerous disassociated planning applications in the DNS pipeline, and seriously undermining FW2040 as a strategic planning approach to be relied upon.

278) Nevertheless, the principle of a strategic approach remains in effect: in 2024 the UK, Welsh and Scottish Governments jointly commissioned from National Electricity Systems Operator a Strategic Spatial Energy Plan. When delivered, this is unlikely to endorse construction of power stations in areas without an efficient grid connection.

279) **Pre-Assessed Areas:** The Applicant's Planning Statement naturally mentions the presumption in favour of largescale wind energy development in PAA for Wind Energy set out in Policy 17. The proposed site of Banc Du is not within any of these PAA. The Policy primarily to be considered is Policy 18, which requires the applicant and decision maker to demonstrate that the proposal does not have an unacceptable adverse impact on the surrounding landscape. Policy 9, on ensuring the enhancement of biodiversity, the resilience of ecosystems and the provision of green infrastructure, is also pertinent.

280) The Applicant likewise understandably cites reference in Policy 17 that decision-makers must give significant weight to Wales' commitment to deliver its target to generate 70% (now 100%) of consumed electricity by renewable means by 2030. The Policy naturally does not discuss the specifics of how this is to be achieved; and the incoming government has announced a shift in its Net Zero policy to increase the focus on reducing emissions rather than specific renewable generation targets. The problem of intermittency means that no one form of renewable power can, alone, reach that target since weather systems are frequently Wales-wide. If wind generation is good in one part of Wales it is likely also to be good in another. But conversely, on calm days turbines are likely to be stationary across many parts of Wales at once. In practice, a blend of different

[82] A complete revision of FW2040 has now been announced but is likely to take some time.

forms of generation is required *combined with* massive investment in long term storage systems.[83] This, rather than an infinite supply of energy generated by a single source, is the target toward which the application of Policy 17 must be understood to be directed.

Outcomes

281) The Planning Statement claims that this development is compatible with the outcomes set out and sought by FW2040. It recites at length the last Welsh Government's aspirations for green jobs and their potential for the Welsh economy. This has no bearing at all on the application itself which does not even pretend that this particular development would create any significant additional employment.[84] The Applicant admits that "wind turbines are designed to operate largely unattended" (ESII Chapter 3 at 3.5.46).

282) The Applicant baldly asserts without supporting detail or evidence that it would contribute to Outcome 2 (creating vibrant rural places), Outcome 3 (sustainable growth) and the Outcome 11 (building a more resilient and equitable low carbon economy).

283) The backdrop to this application is, indeed, rural. Even before the National Park designation proposal, the landscape was widely acknowledged to be breathtaking. The proposed development, however, would severely compromise this beauty, detract from the vibrancy of the community, and diminish the vitality of the tourism sector which plays such a vital role in Powys' economy. The development may bring brief economic impact, in terms of itinerant construction jobs, and a brief bonanza for local hospitality businesses; but it offers no prospect of sustainable jobs, skills development or legacy benefit for future generations. The Applicant makes no suggestions as to how Powys, let alone Llangurig and Llanidloes, will be stronger, more resilient or more sustainable because a large-scale energy export company builds an industrial park upon the upper flanks of the Wye Valley. The development will export the energy generated, subject to network connection, with no significant benefits beyond small scale "Community Benefit" gifts nowhere near reflecting the anticipated profits or the wider economic and environmental damage.

284) Not only does this development not deliver the outcomes cited, in practise it would drive the opposite, accelerating depopulation from an area already experiencing

[83] Battery storage systems which frequently form part of energy park applications, although removed from the Rhiwlas proposal, are essential for short term (minutes to a few hours) grid balancing due to their instantaneous response. They are not however suited to providing long term energy supply for days and weeks; for that, pumped hydroelectric stations or in the longer term future green hydrogen storage will be needed.

[84] Notably, whilst the Applicant suggests jobs may be delivered it gives absolutely no indication of what jobs, where or any particulars of skill set or duration. The suggestion appears to be pure puffery.

population loss, undermining the potential for any long term growth of the local economy and having little to no impact on any part of Wales' economy.

285) In conclusion, the development fails when tested against the aspirations, intended outcomes and policies of FW2040, which is itself dated and flawed when measured against current energy technologies and markets and likely future policies. There is unacceptable harm to a sensitive landscape and important habitats. Nor is there any discernible sustainable energy[85] or employment benefit to local communities. The only lasting economic legacy would be one of blight.

Planning Policy Wales (PPW)

286) This section sets out the principal provisions of PPW which will be relevant when considering the planning balance. We anticipate that the Inspector is fully familiar with these; nonetheless, we provide them here for ease of reference. There is no additional evidence or argument in this section.

287) PPW requires that when determining applications the planning authority should take into account: the contribution of the proposal will make to meeting identified Welsh, UK and European targets; the contribution to cutting greenhouse gases emissions; and the wider environmental, social and economic benefits and opportunities from renewable and low carbon development (PPW 5.9.19).

288) Planning authorities should also "*require suitable ways to avoid, mitigate or compensate adverse impact of renewable … energy development … which should take into account: the need to minimise impacts on local communities, such as from noise and air pollution, to safeguard quality of life for existing and future generations; the impact on natural and historic environment; cumulative impact; the capacity of , and effects on the transportation network; grid connections issues where renewable electricity energy development are proposed; and the impact of climate change in the location, design build and operation of renewable … energy development. In doing so, consider whether measures to adapt to climate change impacts give rise to additional impacts*" (PPW 5.9.20).

289) In regard to local energy generation, having confirmed the presumption in favour of development in identified or Pre-Assessed areas for renewable energy development, PPW

[85] Mid-Wales consumes 6% of Wales' total energy consumption, *Energy Generation and Use in Wales* op cit.

states, "*outside identified area, planning applications for renewable energy developments should be determined based on the merits of the individual proposal*" (5.9.15).

290) Chapter 6, at 6.2.*3* states that: *"The public benefit of taking action to reduce carbon emissions, or to adapt to the impact of climate change, should be weighed against any harm to the significance of historic assets".*

291) PPW12, para 6.3.34 states that "*Where peat is identified within proposed developments considerable weight should be given to its protection because of its special importance in underpinning and supporting national natural resources such as soil carbon, biodiversity and flood management, and* unless other significant material considerations indicate otherwise it will be necessary to refuse permission".

292) On priority habitats, PPW 6.4.15 1b) states "*Proposals in statutory designated sites are, as a matter of principle, unacceptable and therefore must be excluded from site searches undertaken by developers. This principle also extends to those sites containing protected species and habitats which are irreplaceable and must be safeguarded. Such sites form the heart of resilient ecological networks and their role and the ecosystem services they provide must be protected, maintained and enhanced and safeguarded from development. It will be wholly exceptional for development to be justifiable in such instances*".

293) On Sites of Special Scientific Interest, PPW 6.4.24 states that "SSSIs are of national importance. The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000, places a duty on all public bodies, including planning authorities, to take reasonable steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of the features by reason of which a SSSI is of special interest. SSSIs can be damaged by developments within or adjacent to their boundaries, and in some cases, by development some distance away.

294) "6.4.25 Development in a SSSI which is not necessary for the management of the site must be avoided. This is a matter of principle to ensure that these sites can continue to fulfil their role at the heart of resilient ecological networks. What may be necessary for the management of a site will need to be considered on a case by case basis but it is likely to be limited to activities needed to meet its conservation objectives, including restoration and nature recovery, as well as site management infrastructure, natural flood management and other appropriate nature based solutions. There may be desirable interventions in SSSIs relating to public access, active travel, educational projects and other minor development necessary to secure its role as a living landscape. This may include agricultural development, such as new barns, slurry stores required to reduce

pollution, barn conversions to support tourism or other alterations or extensions to existing houses or buildings on existing employment sites where effects on the features for which a site has been designated can be considered to be acceptable.

295) "6.4.26 There is a presumption against all other forms of development in a SSSI as a matter of principle and this presumption should be appropriately reflected in development plans and development management decisions. There is also a presumption against development not within a SSSI but likely to damage a SSSI. In such cases, proposals must be carefully assessed to ensure that effects on those nature conservation interests which the designation is intended to protect are clearly understood. Development should be refused where there are adverse impacts on the features for which a site has been designated. International and national responsibilities and obligations for conservation should be fully met, and, consistent with the objectives of the designation, statutorily designated sites should be protected from damage and deterioration, with their important features conserved and enhanced and the capacity for restoration demonstrated by and through appropriate management.

296) "6.4.27 In wholly exceptional circumstances and only where development is considered to be appropriate and is not likely to damage a SSSI and there is broad and clear agreement for mitigation and enhancement as part of a development plan should development be proposed. This means that development will be considered unacceptable in the absence of an agreed position in a development plan which indicates that it is acceptable in terms of its effect on the notified features of a SSSI.

297) "6.4.28 Before authorising development outside of a SSSI but likely to damage any of the notified features of a SSSI, planning authorities must give notice of the proposed operations to NRW, and must take its advice into account in deciding whether to grant planning permission and in attaching planning conditions. Where local planning authorities are minded to grant planning permission against the advice of NRW they must notify Welsh Ministers. For the purposes of landuse planning proposed SSSIs will be treated in the same way as notified SSSI."

The demise of Welsh Energy Targets

298) Past Welsh Government policy set various renewable energy generation targets. The Applicant therefore emphasises the theoretical potential for its energy park to contribute to achieving such a target.

299) The incoming government however has announced that such targets are to be replaced by emissions reduction goals as part of a major change in the way energy development is planned in Wales. The new National Energy Strategy, details of which are to be published later in 2026, almost certainly before this application has been determined, will set out where energy infrastructure should be developed, the scale and location of developments to balance local impact with efficient delivery. One pillar will place greater emphasis on protecting productive agricultural land.

300) These are the precise issues to which the current Proposal gives rise. A location remote from either consumers or existing grid connection, and positioning on the lee side of a ridge in turbulent, low energy wind threatening both average actual production and the achievable lifespan of the equipment means that this energy park cannot contribute *efficiently* to energy consumption in Wales.

301) In these circumstances, consenting numerous wind power generation projects, such as this, in no way constitutes actively working towards an holistic, practical and sustainable long term energy outcome that ensures nationally generated, and consumed, renewable energy throughout Wales.

302) Even under the existing policy (until it is replaced), to give the existence of PAA meaning, some weight must be given to their status as a preferred option for renewable generation. As the PAA by themselves have plentiful capacity to host sufficient turbines to more than meet Welsh electricity demand, it is evidently not *necessary* to go outside these areas to seek sites for renewable energy development. Developers have however no reason to select sites based on the position of PAA unless planning decisions incentivise them to do so. To apply Policy 17 correctly and in full, then, the existence of PAA and the need to use any other site must be considered a pertinent factor in assessing any non-PAA sited proposal.

Conflict with the Powys Local Development Plan (LDP)

303) The proposal conflicts with several key LDP policies, including:

a) Policy DM2 – Natural Envirsonment: This requires refusal of permission where a development would impact an SAC unless there are imperative reasons of over-riding public interest; refusal where a European Protected Species (such as otter) or nationally protected species is affected unless it is shown there is no satisfactory alternative. Since several such species are present, the onus is on the developer to show no satisfactory alternative site exists. The Applicant acknowledges harm to peat,

priority habitats, and protected species and suggests that these can be mitigated, but does not demonstrate selection of a site so as to avoid or minimise harm.

b) Policy DM4 – Landscape - requires developments to be appropriate and sensitive in terms of integration, siting, scale and design to the characteristics and qualities of the landscape including its: topography; development pattern and features; historical and ecological qualities; open views; and tranquillity; and have regard to LANDMAP, Registered Historic Landscapes, and the visual amenity enjoyed by users of both Powys landscapes and adjoining areas. The introduction of industrial-scale turbines into a sensitive upland area, which the Applicant admits would have a significant impact from multiple viewpoints, would be contrary to this policy.

c) Policy DM6 – Flood prevention measures and land drainage. This requires development proposals to avoid unnecessary flood risk by assessing the implications of development within areas susceptible to all types of flooding; any development that unacceptably increases risk will be refused. The Applicant acknowledges that there would be an increased risk of surface water flows; yet attempts to defer development of mitigation measures until post-consent.

d) Policy DM7 – Dark skies and external lighting: The policy requires demonstration that any lighting scheme has been provided that demonstrates that the lighting will not individually or cumulatively cause unacceptable levels of light pollution especially in the countryside; or an unacceptable adverse effect on the visibility of the night sky. The proposed development will include aviation lighting, introducing lighting into the sky at an unprecedented altitude which will inevitable have an adverse effect on visibility of the night sky including the observation of the Northern Lights from the Elan Valley International Dark Skies Park.

Inappropriate site for efficient and reliable generation of wind power

304) **This section is prepared by Lorna Brazell and Dr Jeremy Price (BSc PhD).**

305) Dr Price is a retired meteorologist of 30 years' experience, including 20 years leading a research team in the Met Office investigating boundary layer meteorology. His most recent role was as Principal Meteorological Officer at the UK Met Office.

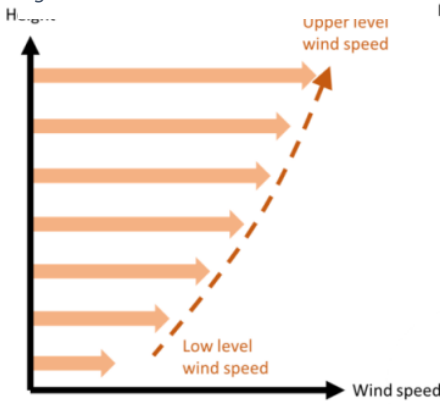
306) The wind shadow and turbulence caused by the surrounding higher land have significant implications for the potential generation at Banc Du, as we explain below.

Principles

307) The ideal operating environment in which a wind turbine is most likely to achieve its rated power output is when it is placed in a topographically flat area with a relatively constant wind speed. This enables the potential power output to be estimated with a high degree of confidence.

308) Wind speed is slowed at the sea or land surface by drag – friction between the air and the surface. An air mass therefore experiences wind sheer where the average wind speed measured drops progressively the closer to the surface that the measurement is taken. Where the land surface is relatively smooth, the result is a relatively even distribution of wind speeds with height, until at some height the land effect is lost. In such an environment, the wind stress imposed on the turbine structure is known and can be factored into the design choice. The likely lifetime of the turbine can therefore also be estimated with a high degree of confidence. These conditions apply at sea, and in some places on land.

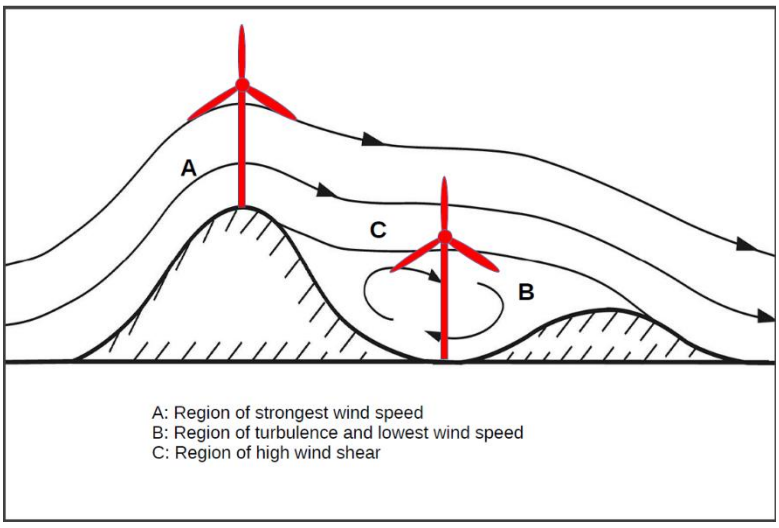
Figure 12 Wind sheer



309) Mid-Wales, and in particular the proposed site, is not such a place.

310) The prevailing wind in the Llangurig area comes from the south west, that is blowing overland across the Cambrian Mountains to meet the adjacent St Harmon Ridge.

311) Flow over a region of complex terrain is never uniform or constant in space or time. The topography of the region will distort the flow of air as it moves around and over features such as hills. This creates regions of stronger, and weaker flow, plus areas of turbulence. Here we consider the relatively simple case of flow over a two-dimensional ridge, as illustrated in the diagram. This is applicable to many hilly regions in Wales, including the Rhiwlas and Banc Du sites.



312) As an airmass approaches and then passes over a hill it should be clear that on average we must conserve the amount of mass in front of, and behind the hill. Due to inertial and buoyancy forces, the whole atmosphere does not rise up as it moves over the hill, but diverges into a shallower one. This is evident by measuring the static pressure at the bottom and top of the hill: it will always be less at the top of the hill. This means that to conserve mass the flow will speed up and we see a dynamic enhancement of the wind due to the hill. In this respect, placing a turbine on the hill crest may be beneficial as it will experience greater wind speeds than surrounding land.

313) Flow on the lee side (downwind) of the crest is more complex and erratic. Whilst the hydrostatic forces on the airmass act such that the air follows the hill contour, the inertial forces of the speeded-up air act such that it continues at the level of the hill top away from the hill. In practice this results in convergence of air behind the hill, but also a layer of wind shear at around hill top height above which the flow maintains significant velocity. Below the shear layer the mean flow is much weaker, often with strong intermittent turbulence. Sometimes the mean flow is completely reversed and flows back toward the hill top in a large eddy. In this respect, placing a turbine in the lee of a hill cannot be considered beneficial due to both the weaker winds experienced there, but also their variable nature when wind direction changes and reverses episodically.

314) The region in the lee of a hill is often turbulent. Levels of turbulence can vary significantly and often depend on the thermal stability of the atmosphere, which, due to the increased buoyancy forces in such conditions, can concentrate the turbulent motions into small but very intense regions. We can also note that high wind shear will always be present in this region. These two properties are not desirable for a wind turbine environment. The constant, high wind shear means that turbine blades will continually be moving through air of varying speed, plus there will be constant upward torque on the turbine bearings. Random turbulence means that the blades will always be flexing. One should expect reduced lifetime and higher maintenance costs for turbines placed in such regions.

315) Therefore, a turbine in that position will experience a significant imbalance of wind pressures: strong pressure on the tips of the blades above ridge crest height, very much lower on those blades in the more sluggish air in the lee of the ridge. As a result, the individual blades will experience varying stresses, flexing significantly with each revolution of the turbine. The bearings which govern that rotation will experience much greater wear because of the constant upward torque compared to those in a turbine situated in a region of low wind shear, such as over the ocean, which is the location for which turbines of this scale were designed. This situation leads to less reliable and shorter overall turbine lifetime, as components function less efficiently and eventually fail.

316) These meteorological effects are often further accentuated during thermally stable atmospheric conditions within an anti-cyclone. Such conditions can create calm winds in the valleys, whilst much stronger ones blow over the hill tops, creating a strong shear layer there. If winds strengthen further then a phenomenon termed breaking gravity waves occurs. Waves occurring in the atmosphere are much like in a turbulent stream or river, and similarly to a stream, waves can 'break' over features: stones in a stream and hills in the landscape. This can produce extreme 'washing machine style' turbulence, most of which exists on the lee-side of a hill below the hill top. This represents the worst possible conditions for operation of a wind turbine, and is why placing turbines below ridge height is never optimal.