

Llanbadarn Fynydd Wind Farm. Supplementary Environmental Information. December 2013. Non Technical Summary

1. Background

- 1.1.1 This Non Technical Summary (NTS) forms part of the Supplementary Environmental Information (SEI) submitted in respect of the Section 36 application under the Electricity Act 1989 to construct and operate a seventeen turbine wind farm (the Llanbadarn Fynydd Wind Farm) on land to the north east of Llanbadarn Fynydd, Radnorshire, Powys. The application was submitted in November 2007 to the then Secretary of State for Business, Enterprise and Regulatory Reform. The Secretary of State now has responsibility for Energy and Climate Change. Powys County Council is a statutory consultee.
- 1.1.2 Subsequent to the submission of the Environmental Statement, the applicant previously submitted and advertised the following Supplementary Environmental Information:
- SEI July 2008: This document introduced amendments to the alignment of certain stretches of the internal site access tracks, and the relocation of certain access points onto the highway. The SEI also provided an Outline Habitat Management Plan and Traffic Management Plan.
 - SEI September 2010: This document summarised information submitted to Powys with regard to the noise assessment and an assessment of the likely significant effects arising from proposed highway works. It also included a copy of a report submitted to DECC to enable it to discharge its legal obligations with regard to Habitats Regulations Assessment. It included a report which assessed the ability of the local highway network to accommodate abnormal loads.
 - SEI February 2013: The document set out the updated baseline conditions and revisited the assessments of significance. It also introduced scheme amendments and a cumulative assessment of the Llanbadarn Fynydd Wind Farm with other proposed wind farms.
 - SEI June 2013: This provided further environmental information and an assessment of environmental effects relating to amendments to site accesses and passing places. It included the results of the winter bird breeding survey and background information on the Great Crested Newt surveys of 2012.

2. Amendments to the Submitted Scheme

- 2.1.1 The SEIs of 2008, 2010, February and June 2013 considered minor amendments to the scheme as submitted. These amendments did not seek to change the height, number or location of turbines.
- 2.1.2 The proposed amendments to the Llanbadarn Fynydd Wind Farm Section 36 application presented within the December 2013 SEI include the works set out within the strategic Traffic Management Plan (sTMP). South of Newtown, these works include the construction of a haul road leading from the Mochdre Industrial Estate to the A483. A second option which does not form part of the sTMP, the Heol Treowen access option, is also included as a potential means of access should the Mochdre become unavailable at a critical point in the wind farm construction process. A third option is to access SSA C and the site via the proposed Newtown Bypass. If constructed in time this would be used in preference to Mochdre and Heol Treowen.

3. Additional Cumulative Assessment

- 3.1.1 In addition to the environmental assessment of the scheme amendments set out above, the SEI reports the assessments which have been undertaken with regard to the potential for cumulative effects between proposed schemes in Strategic Search Area B and C where these have not been covered previously. In addition it assesses the potential for cumulative effects arising from the development of the Llanbadarn Fynydd Wind Farm in combination with the proposed highway works associated with the sTMP and a number of possible grid combinations. Information on the grid combinations is contained within Appendix F (the Mid Wales Conjoined Wind Farm Inquiry Connection Options Review and Appendix G, the Mid Wales Conjoined Wind Farm Inquiry Grid Session 4 Evidence SEI on Grid Scenarios). It should be noted that the environmental effects arising from the sTMP alone are reported within the Mid Wales Wind Farms Transport Route Environmental Assessment December 2013 (which is attached to the main SEI document as Appendix E).
- 3.1.2 The conclusions reached within each topic chapter take account of the updated Environmental Statement submitted in October 2013 (http://spllandinamconnection.info/?wpfb_dl=289) for the Llandinam Wind Farm Grid Connection.
- 3.1.3 The remainder of the NTS provides a summary of the environmental effects which are predicted to occur as a result of the scheme amendments and changes to the cumulative baseline set out above.

4. Environmental Assessment of Scheme Amendments

- 4.1.1 Scheme amendments not included within the sTMP are associated with potential works to Heol Treown, Newtown. This option uses the A489 Kerry Road out of Newtown and the main route, Heol Treowen, through the residential area of Treowen, on the south side of Newtown before rejoining the A483 south of Dolfor Road Rail Bridge. The use of this route will require alterations to the junction of Heol Treowen and the A489, to the east; and Heol Treowen and the A483, to the west, to allow for the curvature required for the abnormal loads. There will also be a requirement for some minor realignment of the carriageway along Heol Treowen, although these works will be of a small footprint and completely within the existing highway. As such they have been scoped out of the environmental assessment.
- 4.1.2 Having re-joined the A483 vehicles will proceed southwards and there would be a requirement for works to the bend at the junction with Middle Dolfor Road. Amendments to the A483 south of this point have been assessed as part of the sTMP.
- 4.1.3 The environmental effects arising from the proposed works have been assessed and are reported within the SEI. The scope of the assessment includes for the identification of potentially significant landscape and visual, ecological/ornithological, historic environment and hydrological effects.
- 4.1.4 The proposed works are considered to be relatively minor in extent requiring works to be undertaken within or immediately adjacent to the existing highway. The existing environmental conditions of most individual locations are characterised by the urban location. The environmental assessment of the work proposed assumes that normal best practice construction techniques will apply with any areas of vegetation disturbed replaced by new planting and/or seeding. On this basis the assessment of effects concludes that for each topic, no significant effect would occur.

5. Environmental Assessment of Potential Cumulative Effects

5.1 Landscape and Visual Assessment

Cumulative effects between SSA B and SSA C

- 5.1.1 The minimum separation distance between the proposed Llanbadarn Fynydd Wind Farm in SSA C and any wind farm in SSA B would be 17.9km. The minimum separation distance from Llanbadarn Fynydd to the two proposed wind farms in SSA B that are part of the Conjoined Public Inquiry (Carnedd Wen and Llanbryn-mair) is between 26km and 32km. At present there are operational wind farms in both SSAs which provide an indication of the possible cumulative landscape and visual effects if some or all of the proposed wind farms become operational. The baseline

photographs with views of these existing wind farms show that there is minimal interaction between the two SSAs even at viewpoints specifically selected as being open and/or elevated.

- 5.1.2 Cumulative zones of theoretical visibility have been produced for the five wind farms involved at the Conjoined Public Inquiry. These show that in the areas that are located between the two SSAs, including the Caersws Basin, there would be few locations where people could even potentially see turbines in both SSAs. In these circumstances the weakness of the landscape and visual relationship between turbines in SSA B and SSA C is such that no significant cumulative landscape or visual effects would be generated. Llanbadarn Fynydd Wind Farm would make almost no contribution to any cumulative landscape or visual effects in the areas that lie between the two SSAs.

Llanbadarn Fynydd and the Grid Connection Combinations

- 5.1.3 A study undertaken in December for Vattenfall, RES UK & Ireland, RWE NPower Renewables and Fferm Wynt Llaithddu involved in the Mid Wales Conjoined Wind Farm Public Inquiry by an independent consultant identified eight possible scenarios for the five wind farms and their grid connection options (see SEI Appendix F). Only three of these scenarios relate to the proposed Llanbadarn Fynydd Wind Farm. Under these three scenarios electricity produced by Llanbadarn Fynydd's turbines would need to be transmitted to the national transmission network via either: a 132kV overhead line (OHL) to a substation near Welshpool; a 132kV overhead line to the proposed hub at Cefn Coch; or a possible 132kV overhead line to a substation near Shrewsbury. All these overhead lines would use wooden 'H' poles that would be ~14m tall.
- 5.1.4 Based upon these three identified grid connection scenarios, Vattenfall and their consultants identified ten potential grid connection combinations that would involve Llanbadarn Fynydd and its grid connection plus various combinations of the other six wind farms proposed for SSA C. Ten schematic figures were produced that show the route corridors where landscape and visual impacts would be concentrated under each combination. Each of the ten wind farm and grid route combinations was assessed against a selection of the landscape and visual receptors.
- 5.1.5 The cumulative assessments are concerned with the identification of landscape and visual receptors for which the additional effect of adding Llanbadarn Fynydd and its grid connection to a particular combination of other wind farms and their grid connections would result in a new significant effect arising. With regard to the Powys Landscape Character Areas (LCAs) the cumulative assessment concluded that such a change could only happen in a single LCA: Kerry Hill Powys LCA M29. These significant effects would only arise under the combination (Combination 1) in which Llanbadarn Fynydd would be the only operational wind farm in SSA C. As such the 132kV grid connection to Welshpool would be present solely as a consequence of Llanbadarn Fynydd's operation. Under the other nine combinations the grid connection infrastructure that would be utilised by Llanbadarn Fynydd would need to be present to service other operational SSA C wind farm(s).

- 5.1.6 The assessment results are more varied for the smaller LANDMAP¹ aspect areas than for the larger Powys LCAs. Significant additional effects that would result from the operation of Llanbadarn Fynydd Wind Farm would be restricted to those aspect areas or parts of aspect areas that either contain some of Llanbadarn Fynydd's turbines, are in close proximity to one or more of its turbines and/or would be crossed by the overhead spur lines required to connect it to the main 132kV lines routed to one of the three substations or hubs. The more complex the combinations of wind farms and grid connections assessed, the less likely it would be for any individual wind farm and its grid connection to be able to make the difference between cumulative effects being significant or not significant.
- 5.1.7 The additional visual effects generated as a result of the grid connection will not lead to a large increase in the number of people affected. In order for the grid connections to change a previous held conclusion of 'not significant' to a significant one it would be necessary for the grid connection route to be aligned close to a property or a section of trail or road and to have minimal screening. Given that flexibility remains in the selection of final route alignments it should be possible to avoid such situations arising. Residents in a small number of properties sited in the upper Ithon Valley could however sustain significant visual effects due to the presence of the grid connection infrastructure if 132kV overhead lines were to be present in close distance views in more than one direction.
- 5.1.8 With regard to the closest sections of Glyndwr's Way National Trail, none of the ten combinations would result in grid connection overhead lines crossing the Way. The presence of the turbines at some or all of the proposed SSA C wind farms would continue to make a greater contribution to cumulative visual effects that would the 132kV overhead lines and any collector substations that are required. For people using the Kerry Ridgeway any cumulative visual effects as a result of the 132kV Llandinam-Welshpool grid connection would be restricted to the short section west of Two Tumps. Views of the closest section of the 132kV Llandinam-Welshpool grid connection will be available over a minimum separation distance of 500m. However it is important to emphasise that the presence of the connection for this combination would only be due to Llanbadarn Fynydd Wind Farm were it to be the only operational wind farm in SSA C. Under the other combinations in which Llanbadarn Fynydd would need to utilise the 132kV Llandinam-Welshpool grid connection, westbound users of the western end of the Kerry Ridgeway would be likely to have limited cumulative visual effects from some views of sections of both spur form Llanbadarn Fynydd's substation and the main 132kV Llandinam-Welshpool overhead line. In this situation the spur line would be more distant and below the western horizon formed by the Waun Ddubarthog Ridge.

¹ LANDMAP assesses the diversity of landscapes within Wales. It identifies and explains their most important characteristics and qualities - whether they are ordinary, but locally important landscapes, or nationally recognised spectacular landscapes.

Cumulative Effects Strategic Traffic Management Plan, Heol Treowen and Llanbadarn Fynydd Wind Farm

5.1.9 In order to allow construction traffic to access the Llanbadarn Fynydd site from the north it will be necessary to undertake a number of minor road works and improvements at locations on the A483 between Newtown and Dolfor. The SEI considered if there was any potential for cumulative sequential effects to be experienced by people travelling along the A4583 between Welshpool and the Llanbadarn Fynydd Wind Farm. It concluded that sequential cumulative effects would not be significant along this section of the A483. This conclusion is based upon the small-scale of the works required, allied to the different timescales so that by the time that Llanbadarn Fynydd's turbines are operational, most of these road side works will be on their way to being restored. Also the sections of the A483 where the roadside works are required are on the north facing side of the Severn Valley and due to topography none of the turbines at Llanbadarn Fynydd would be simultaneously visible; indeed the time from passing most of the minor road side works and being able to see the turbines (or vice versa) would further reduce the potential for significant sequential visual effects to arise.

5.2 Ecology

5.2.1 The potential for cumulative effects between developments proposed with SSA B and SSA C were considered within the February 2013 SEI.

Llanbadarn Fynydd and the Grid Connection Combinations

5.2.2 The potential ecological effects arising from construction and operation of 132kV overhead lines can generally be avoided via micrositing or minimised through the implementation of best practice mitigation measures, ensuring that significant effects do not occur and legal compliance is maintained. It is therefore considered to be a reasonable assumption that construction and operation of the grid combinations would be achieved without resulting in significant effects on ecological receptors.

5.2.3 The assessment of the Llanbadarn Fynydd Wind Farm alone concluded that there would be no significant environmental effects. With the appropriate avoidance and mitigation measures in place within each scheme (wind farm and grid combinations), to ensure that the conservation status of species and habitats and integrity of designation sites is maintained, it is unlikely that significant cumulative effects would occur as a result of Llanbadarn Fynydd and any of the grid connection options combined.

Cumulative Effects Strategic Traffic Management Plan, Heol Treowen and Llanbadarn Fynydd Wind Farm

5.2.4 The environmental assessment of the sTMP and the assessment of Heol Treowen conclude with no identified significant effects due to the small working areas, the limited effects on habitats and species likely to occur and various mitigation measures proposed.

5.2.5 Whilst there is potential for the sTMP, Heol Treowen and Llanbadarn Fynydd Wind Farm to affect the same biodiversity receptors (e.g birds and/or badgers), the scale of

these potential effects is unlikely to be of sufficient size to cumulatively result in a significant impact on the conservation status or integrity of such receptors.

5.3 Birds

- 5.3.1 The February 2013 SEI considered the potential for cumulative effects between developments proposed with SSA B and SSA C. No significant effects were identified.

Llanbadarn Fynydd and the Grid Connection Combinations

- 5.3.2 There is the potential for the construction and operation of overhead electricity lines to result in cumulative effects on ornithological receptors alongside wind farms within SSA B and SSA C (including the Llanbadarn Fynydd Wind Farm). Birds may be displaced during the construction period as a result of disturbance created by the presence of engineering crews, and during the operational phase through an increase in the risk of collision. The potential loss of habitat associated with an overhead line is small and does not require further consideration.
- 5.3.3 Construction activities are however highly localised at any given time and temporary. Therefore, the potential for large numbers of birds to be displaced, for a sufficient length of time, to result in falls in productivity or survival rates to be realised is low and the cumulative effect considered negligible.
- 5.3.4 The potential for any of the grid connection options to result in a rise in collision risk for red kite to such an extent that population viability is challenged is negligible. The assessment of the cumulative wind farms alone (February 2013 SEI) demonstrated that the red kite population in the area was robust and would maintain the ability to expand regardless of whether or not all proposed wind turbines in SSA B and SSA C were to become operational. Combined with the presence of the grid connections the overall conclusion is that there would be no significant cumulative effect.

Cumulative Effects Strategic Traffic Management Plan, Heol Treowen and Llanbadarn Fynydd Wind Farm

- 5.3.5 The environmental assessment of the Mid Wales Wind Farms Transport Route concluded that the highway works required to enable access to the proposed Llanbadarn Fynydd Wind Farm are unlikely to result in detectable effects on any local population of birds. Mitigation, such as preventing vegetation from being removed if nesting birds are present, will ensure that appropriate legislation is complied with. A similar conclusion is reached with regard to the works associated with Heol Treowen.
- 5.3.6 As the level of effect is low and the types of habitats crossed by the transport access route are largely different to those within the Llanbadarn Fynydd Wind Farm, the potential for significant cumulative effects with the wind farm to become manifest is therefore considered to be negligible.

5.4 Historic Environment

Cumulative effects between SSA B and SSA C

- 5.4.1 The minimum separation distance between proposed Llanbadarn Fynydd turbines and those within SSA B will be 17.9 km, with the nearest turbines at Mynydd Clogau at this distance. As a result of this distance, and the intervening topography it is concluded that the operation of turbines would not result in significant cumulative effects on the significance of any identified historic assets.

Llanbadarn Fynydd and the Grid Connection Combinations

- 5.4.2 The construction of a grid connection can have the potential to affect the historic environment through direct disturbance to archaeological remains within the development footprint and through changes to the settings of features of historic environment interest.
- 5.4.3 A summary of the significance of the incremental effects on historic assets of Llanbadarn Fynydd and its associated grid connection infrastructure is provided in the SEI with reference to the grid combinations identified. In Grid Combination 1, with Llanbadarn Fynydd on its own and a grid connection to Welshpool, there will be significant incremental effects on the cross-dykes as well as the Crugyn barrows at Crugyn. This effect would arise from the presence of the grid connection as opposed to the turbines.
- 5.4.4 The proposed OHL route to Welshpool, which could also be adopted for a connection to Shrewsbury, could be to the north of the ridge on which Two Tumps Barrows is located, whilst Llanbadarn Fynydd will be to the south. However, as visibility of the OHL will be very limited, the cumulative effect of this on the monument will not be significant. In Grid Combinations 7-10 Neuadd Goch Bank turbines would be closer and will result in a significant effect, but the incremental effect of Llanbadarn Fynydd in these combinations would not be significant.
- 5.4.5 There will also be effects on the settings of other barrows and barrow groups to the north of Llanbadarn Fynydd with the presence of OHLs linking wind farm sites, and the incremental effect of Llanbadarn Fynydd turbines will be significant in certain combinations. These include Grid Combination 2 for the Crugyn and Glog Barrows and Grid Combinations 2, 3 and 5 for Bryn Cwmyrhiwdre Round Barrow.
- 5.4.6 The conclusions reached with regard to significance assume that the grid combinations will be overhead. Mitigation, potentially through sections of undergrounding, may be possible to reduce effects upon the setting of the historic features identified above providing the potential effect of undergrounding upon archaeological remains is considered to be acceptable, should they be present.

Cumulative Effects Strategic Traffic Management Plan, Heol Treowen and Llanbadarn Fynydd Wind Farm

- 5.4.7 It is considered that cumulative effects with the Llanbadarn Fynydd Wind Farm would not be likely to occur on any of the sections from Ellesmere Port to Newtown, or between Newtown and SSA B. This is because the nature of the proposed works and distance to the Llanbadarn Fynydd Wind Farm site will mean that there are no historic environment assets which could be subject to cumulative effects. This assessment has

therefore only considered the options for the route from Newtown to SSA C with regard to the sTMP.

- 5.4.8 The Mochdre Option involves the creation of a passing place at Gwynant, and this will be approximately 639m of Glog Round Barrows Scheduled Monument (MG121) and 735m of Bryn Cwmyrhiwdre Round Barrow Scheduled Monument (MG280). It is concluded that the highway works would not affect the settings of these monuments as a result of the distance, nature of their works and location within an existing slope terrace. There will therefore be no cumulative effect on these assets as a result of these works in combination with Llanbadarn Fynydd Wind Farm.

5.5 Noise

SSA B and SSA C

- 5.5.1 Because of the significant distances involved between the schemes in SSA B and C, there would not be any cumulative noise impacts across the whole of the two study areas. Accordingly, cumulative noise impacts are not significant and the agreed table of noise limits for Llanbadarn Fynydd Wind Farm would provide sufficient protection against adverse noise impacts.

Llanbadarn Fyddd and the Grid Connection Combinations

- 5.5.2 Noise associated with the construction and/or operation of the grid connection scenarios is scoped from the assessment. Whilst there would be localised noise from on-site construction activities, the most dominant source of noise associated with construction is most likely to occur from the movement of construction vehicles. The number of construction vehicles potentially required for the grid connection combination is in effect, already accounted for within the sTMP. This is because it adopts a worst case approach to the levels of traffic generated by the proposed wind farms.
- 5.5.3 Mitigation in the use of buffers to dwellings is a standard approach adopted by distribution network operators and it is assumed that suitable buffering will be employed when finalising the design of the networks. Operational noise effects resulting from the grid connection scenarios together with the Llanbadarn Fynydd Wind Farm are therefore scoped from this assessment.

Cumulative Effects Strategic Traffic Management Plan, Heol Treowen and Llanbadarn Fynydd Wind Farm

- 5.5.4 There may be situations where there is construction traffic using the local road network from more than one scheme.
- 5.5.5 An analysis of the % increase in HGV traffic has been undertaken and is reported within the SEI. A maximum noise change of 1 dB is predicted for one road link only which is the A483 from Dolfor to the B4356 at Llanbister. This noise change is considered to be a minor impact and hence is not significant.

5.6 Hydrology

SSA B and SSA C

- 5.6.1 The SSA B wind farms discharge into a different watershed to those proposed for SSA C. As such cumulative issues such as sediment laden flow can be scoped out of this assessment. Hydrological effects could lead however to secondary effects upon sensitive habitats as a result of construction works. Peat and other wet soils are those with the potential to be affected. The Llanbadarn Fynydd ES concluded that there would be no significant effect upon such habitats primarily due to avoidance. The inclusion therefore of Llanbadarn Fynydd into a cumulative scenario which included other wind farms in SSA B and SSA C would not lead to an increase in levels of significance.

Llanbadarn Fynydd and the Grid Connection Combinations

- 5.6.2 Potential effects could arise from the construction of an overhead line across the River Ithon and other watercourses or through the result of development within areas of recharge for private water supplies. The assessment for Llanbadarn Fynydd alone concluded that with suitable mitigation in place, no significant effects would occur to the River Ithon. Similarly it is assumed that similar construction mitigation would be in place during the construction of an overhead line. Furthermore the footprint of development, and the amount of material displaced by construction, is relatively small. As such it is considered that there will be no significant cumulative effects.
- 5.6.3 For similar reasons (the size of the infrastructure and the ability to micro-site) it is concluded that there should be no reason to install a wooden pole supporting the overhead line within an area that supports a private water supply. As such no significant cumulative effects are considered likely to occur.

Cumulative Effects Strategic Traffic Management Plan, Heol Treowen and Llanbadarn Fynydd Wind Farm

- 5.6.4 The environmental assessment into the proposed sTMP works (Appendix E to the SEI) concluded that with mitigation in place, no significant effects would occur. Similarly, no significant effects are identified as a result of the Heol Treowen option and cumulatively with the Llanbadarn Fynydd Wind Farm it is concluded that there is no potential for significant cumulative effects.

6. Conclusion

- 6.1.1 This Non Technical Summary accompanies the Llanbadarn Fynydd Wind Farm Supplementary Environmental Information December 2013. A copy of the full SEI is available for public inspection at Powys County Council, The Gwalia, Ithon Road, Llandrindod Wells, Powys LD1 6AA. The additional information is also available to view on the following website: <http://www.vattenfall.co.uk/en/llanbadarn-fynydd-wind-farm.htm>. Representations should be made to: Mr Chris Banks/Mrs Claire Jones Hughes, Banks Solutions, 21 Glendale Close, Horsham, West Sussex, RH12 4GR. Representations should be made no later than 21 February 2014.