



New 132kV Overhead Line Connection
from Tirgwynt Wind Farm
to New Pont y Sarn Electrical Substation

Environmental Statement

NON TECHNICAL SUMMARY

SP ENERGY
NETWORKS



February 2009

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1.1 Preface

1.1.1 This document provides a Non-Technical Summary of the Environmental Statement (ES), which has been prepared in support of two applications for consent pursuant to Section 37 Electricity Act 1989 for the development of a grid connection for the proposed Tirgwynt wind farm and the diversion of an existing 132kV overhead line. The ES also supports an application for planning permission to build a new 'switching' substation where the new connection would link or 'tee' into the existing electricity network, as diverted. The proposed overhead line connection is on land extending west from the proposed wind farm at Mynydd Y Hendre across to the north of Cwm at the top of the Cwm-llwyd valley and then extending southwards towards the A470(T), some 0.5km west of Carno. The proposed diversion extends from south of the railway line north-westwards into the new substation. The new substation site is currently part of a grazing field south of the A470(T).

1.1.2 The ES comprises the following documents:

- ▣ The Non-Technical Summary;
- ▣ The Environmental Statement (principal document); and,
- ▣ Technical Appendix.

1.1.3 Further copies of all these reports may be obtained by writing to:

Environmental Planning
SP Manweb (Registered Office)
3 Prenton Way
Prenton
CH43 3ET

1.1.4 Or, by e-mailing: tirgwynt@sppowersystems.com

1.1.5 This ES Non - Technical Summary is available free of charge. Additional copies of the main ES report are available for £50. All documents are available as a DVD for £10 in PDF format for screen viewing only.

1.1.6 Copies of the documents are available for public viewing at the following locations:

Council Offices

Planning Services
Powys County Council
Neuadd Maldwyn
Ffordd Hafren
Y Trallwng
Powys
SY21 7AS

Libraries

Welshpool Library Brook Street Welshpool SY21 7PH	Newtown Library Park Lane Newtown SY16 1EJ
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1.1.7 Representations are invited in writing within the specified period from the publication date of the Notice in the local and national publications advertising the submission of the applications. Representations should be dated and returned (e-mail or postal) to:

Secretary of State for Department of Energy and Climate Change
Section 37 Consents Team
Bay 2123
1 Victoria Street
London SW1H 0ET
ian.grimley@decc.gsi.gov.uk

1.2 Introduction

1.2.1 This Non-Technical Summary forms part of the ES prepared for SP Energy Networks (SPEN) on behalf of SP Manweb.

1.2.2 As the Distribution Licence holder for mid Wales, SP Manweb is required under the Electricity Act 1989 and the terms of its electricity supply licence to develop and maintain an efficient, co-ordinated and economical system of electricity supply. SP Manweb is contractually obliged to provide electrical connections when requested to do so and in this case have been asked to provide a connection from the proposed wind farm to the existing grid network. SPEN manages the network on behalf of SP Manweb.

1.2.3 SPEN proposes to build 6.5km of overhead line from the new Tirgwynt wind farm substation. This line will connect into the existing 132kV Carno to Newtown overhead line near Pont y Sarn, west of the village of Carno. At this point, a new substation compound is also proposed. This proposed substation is referred to as the Pont y Sarn substation. To connect into the new substation the existing 132kV overhead line will require diverting. This will require the dismantling of approximately 640m of existing overhead line and the construction of approximately 614m of new overhead line on single wood pole supports. An appraisal of the potential effect of both the proposed Pont y Sarn substation and diverted section of existing overhead line is included within the ES. These elements of the scheme are jointly referred to as the Development in this ES.

1.2.4 The proposed Tirgwynt substation is included in the wind farm application and ES submitted by Awel Newydd Cyf to Powys County Council (Powys CC) in September 2007.

1.3 Legal & Policy Framework

- 1.2.5 The ES first sets out the need for the project in terms of meeting renewable energy targets in Wales and SP Manweb's regulatory obligations to connect customers including wind farm developers.
- 1.2.6 As outlined below, the ES then refers to the background to development, including the route of the overhead line and the selection of the substation location. Reference is made as to how consultation has led over two years to some significant changes to the scheme including reducing the length of the new overhead line from the wind farm by 3.5km and how a 'scoping' process resulted in a number of matters to be addressed in the ES, which consultees would like to see included. The ES then explains the routeing process and how this resulted in design changes and the scheme now proposed. The proposed scheme is described in detail including reference to construction access.
- 1.2.7 The assessment starts with a review of relevant planning policies and refers to key planning policies for overhead lines as set out in the Powys County Council's Unitary Development Plan (UDP).
- 1.2.8 The ES then includes a number of sections on specific studies undertaken between 2007 and 2008 to assess the scheme's likely significant environmental effects.
- 1.2.9 The final section of the ES summarises the significant environmental effects identified and the measures proposed to mitigate them.
- 1.2.10 In identifying the proposed route, SPEN has sought to combine sensitive routeing with appropriate mitigation measures to avoid and reduce environmental effects on both the immediate and wider environment. At all stages of the project, SPEN has consulted widely with all the relevant local, regional and national bodies. In addition, public consultation exercises have provided the opportunity to gauge and respond to public concerns at an early stage in the design evolution process.

- 1.3.1 This ES supports two applications for consent pursuant to Section 37 Electricity Act 1989 to the Secretary of State for the Department of Energy and Climate Change (DECC) (formerly BERR and the DTI), which relate to the new and diverted overhead lines. A copy of the applications will be submitted to Powys CC for their formal consultation and their views will be taken into account as part of determining the S37 applications. The ES also supports the planning application made to Powys CC for the new substation at Pont y Sarn.
- 1.3.2 The ES has been prepared having regard to the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 (EIA Regulations) and the Town and Country Planning (Environmental Impact Assessment) Regulations 1999.
- 1.3.3 Following a full analysis of the site and the proposed scheme, SP Manweb and its professional advisors took the view that the Development should be the subject of an EIA.

1.4 Route Selection, Community Consultation & Scoping

- 1.4.1 In identifying the proposed route and the type of grid connection, SPEN whilst being obliged to provide a grid connection, have been mindful of their obligation under the Electricity Act 1989 to preserve the environment. In response to this, extensive studies and consultations were undertaken to identify the most suitable alignment and technical form for the grid connection. These were undertaken sequentially through a sequential routeing assessment process to allow the balance of technical and environmental issues to be fully understood.
- 1.4.2 Having considered the available capacity on the existing 132kV and 33kV networks, together with the environmental context within which the connection is proposed, SPEN identified that the most suitable connection was a new 132kV single circuit overhead line on double wood pole supports between the on site substation at Tirgwynt and the wider grid.
- 1.4.3 The wood pole design selected for this scheme is referred to as the Heavy Duty Flat Formation (OHL-132-03) design. It has been developed by SPEN for connections at a 132kV level, in particular, for wind farm connections, which tend to be on higher ground and are subject to more adverse weather conditions. SPEN considers that the use of this wood pole design in place of the traditional steel tower design is the first step towards seeking to mitigate the impact of the new connection.
- 1.4.4 A number of alternative schemes for the connection were considered including installing a new line back to Newtown and undergrounding the new line. These were ruled out based on not meeting SPEN's requirements to present the optimum scheme in both economic and environmental terms. On balance,

1.5 The Grid Connection

- the preferred option was originally considered to be a new 132kV overhead wood pole line between the proposed Tirgwynt wind farm and an extension to the existing Carno substation.
- 1.4.5 Having selected a preferred alternative, the next stage was the selection of the overhead line route and the site for the substation.
- 1.4.6 Although there were a number of environmental constraints identified within the area, these tended to be of local or regional rather than national importance. Taking these into account, the routeing of the grid connection was developed through a number of options to a stage known as the 'Preferred Route'. This represented SPEN's understanding of the most appropriate way to provide a connection, mindful of its obligation to preserve the environment. This Preferred Route was detailed in the following documents:
- Scoping Report (issued to DECC to allow them to identify the issues, which required consideration within the EIA);
 - Consultation Report (issued to a wide range of consultees to seek their opinions on the proposal); and,
 - Public exhibition material (held jointly with the wind farm developer over two days) in June 2008.
- 1.4.7 In addition, SPEN undertook a series of meetings with the Welsh Assembly Government (WAG), Environment Agency (EA), Cadw, Countryside Council for Wales (CCW), Clwyd-Powys Archaeological Trust (CPAT), Powys CC and others.
- 1.4.8 These discussions helped to agree with key consultees the main environmental issues as landscape and visual, ecology and cultural heritage. Independent expert consultants were commissioned to undertake assessments of potential effects on each of these issues. The main conclusions arising from these assessments are summarised below.
- 1.4.9 Following this round of consultations, the comments of those responding to the proposal were considered and SPEN's response set out in the Report of Scoping Responses and Pre-Application Public Consultation.
- 1.4.10 One of the main concerns raised during the consultations was the desirability of extending a new overhead line up the southern side of the Afon Carno valley to the existing Carno substation. On balance, it was considered that providing a new substation in the valley close to the A470(T) to facilitate a connection into the existing Carno to Newtown 132kV overhead line would minimise the length of new overhead line and therefore potential environmental effects. This is because the overhead line would otherwise extend up the hillside towards the Carno substation where it would run parallel to the existing 132kV overhead line and pass close to a number of properties.
- 1.4.11 In response to the feedback, this became SPEN's preferred option, which is known as the Preferred Route.
- 1.4.12 The scoping process has enabled SPEN to identify those areas where likely significant environmental effects might arise and areas where this is unlikely and do not require to be included in the EIA.
- 1.4.13 The completion of the scoping and consultation phases of the project allowed the Preferred Route to evolve into the Proposed Route, which is the subject of the applications and this ES.
- 1.5.1 The grid connection will be at 132kV. Typically, 132kV connections take the form of overhead lines carried on steel lattice towers of up to 26m in height. From the outset, SPEN identified that the connection should be provided on a wood pole structure of up to 16m in height rather than the more typical steel lattice towers. These were considered more suited to the local landscape.
- 1.5.2 The wood pole structures generally comprise twin poles with steel work above supporting the insulators, three conductors and the earth wire.
- 1.5.3 On this basis, the proposal was developed to provide a route and substation location, which both minimised the required length and avoided potential environmental issues. As a result, it was also necessary to divert a section of the existing 132kV overhead line nearby.
- 1.5.4 Based on these components, the proposals comprise the following:
- 6.5km of new 132kV overhead line on wood poles running between the proposed Tirgwynt and Pont y Sarn substations;
 - 73 double wood poles;
 - New fenced substation compound next to the A470(T) west of Carno; and,
 - Dismantling of 640m of existing and installation of 614m of new 132kV overhead line.
- 1.5.5 It is the above, which is referred to as the Development in the ES.

1.6 Environmental Mitigation

- 1.5.6 Following a detailed appraisal of route options, ground survey work was carried out to identify a 100m wide corridor within which the proposed overhead lines and the substation site layout could be positioned. The S37 application is for consent to install the proposed line within the 100m wide corridor and the reason for this is that whilst the line route is shown, it may need to change slightly following detailed site survey work carried out shortly before work commences when a contractor has been appointed.
- 1.5.7 The proposed scheme is described with details on pole positions, pole types, the nature of the overhead line conductors, the working areas around each pole, construction access. Similarly, details are provided in terms of the proposed substation layout and access. Reference is made to limiting potential environmental effects as set out in a draft Construction Method Statement included in the Technical Appendix.

- 1.6.1 Through the process of the EIA, including consultation, SPEN has sought to identify where significant environmental effects (both positive and negative) might arise and then assesses the extent of these effects, following prescribed methodologies in respect of each environmental topic and assessments by qualified experts in that field. Likely significant environmental effects are judged where the assessment points to there being a moderate or major effect. This is in respect of the construction and decommissioning and operational stages of the Development. Where likely significant adverse environmental effects are identified, mitigation measures are proposed to reduce or offset them and an assessment made of the remaining residual effect.
- 1.6.2 In this project, these areas include landscape and visual (including amenity), ecology (habitats and species, including woodlands and trees) and cultural heritage (archaeological sites, historic buildings and historic landscapes) effects.
- 1.6.3 Other topics, including geology and soils, hydrology, tourism and recreation, traffic and transport, noise and lighting, EMF radiation and waste management were considered by the project team and, following detailed analysis, a decision was taken not to make these topics the subject of a full environmental impact assessment. A brief outline of each topic and the issues raised is included at the end of the ES.
- 1.6.4 Preceding the assessment of individual environmental topics is a section on planning considerations, which acknowledges relevant planning national and local planning policies and which are directly relevant to utility infrastructure. Having had regard to these policies, SPEN consider there would be no adverse effects arising in respect of these policies. Other policies relevant to specific environmental topics are considered in the individual technical sections.

1.7 Landscape & Visual

- 1.7.1 An assessment of the potential effects on the landscape and on views (including footpaths and bridleway users) arising from construction, operation and decommissioning of the Development has been undertaken.
- 1.7.2 The landscape within which the proposed development is located comprises a variety of rural scenery, ranging from windswept moorland through steep valley sides and rolling pastures to the broad Carno valley. Within these different areas, small-scale settlements, upland farms, broadleaved woodlands, coniferous plantations and communications corridors have created a diversity of landscape detail. Below 300mAOD, much of the study area is covered by a scattering of small woodlands, trees, hedgerows and scrub. These add a sense of enclosure and intimacy to the landscape. The presence of small settlements and areas of well-maintained farmland reinforce this human scale. By contrast, some of the higher, more open areas to the north and west have a strong sense of remoteness, isolation and inaccessibility, with little apparent recreational use. The scenic quality of much of the landscape remains intact and has a tranquil quality. The only exception is the Carno valley, which is more urban in character. Architecturally, there are few buildings of distinction and the village of Carno has no distinct centre, being effectively a linear settlement on the A470(T). The valley forms part of the A470(T) and rail transport corridor and as such has attracted development.
- 1.7.3 The location of the wind farm in an area of elevated land comprising open moorland, necessitates the route dropping down into the valley to connect into the existing network. The valley landscape contains more environmental and people constraints than the elevated landscapes, with settlements, woodlands, principal transport routes and footpaths combining to elevate its sensitivity. Conversely, however, these

elements are also most effective in reducing the visibility of the overhead line. This is particularly due to the limited stature of the wood poles compared with the steel towers more commonly associated with 132kV overhead lines.

- 1.7.4 When considered alongside the Tirgwynt wind farm, the effects of the proposed overhead line on the elevated landscape will be limited, in both magnitude and extent. The landscape will be subject to appreciable change once the Tirgwynt wind farm is constructed, and the addition of the overhead line will only give rise to limited additional landscape effects.
- 1.7.5 The effects on the valley landscapes will primarily arise from the siting of the proposed substation west of Carno, where it will create a prominent new focus in the rural landscape. In time, however, with the maturing of associated planting proposals, the substation will become partially screened and its effect will be lessened.
- 1.7.6 Overall, no significant effects are predicted on the landscape within the study area.
- 1.7.7 The effects on visual amenity are limited and are only significant where the overhead line is seen in close proximity. Long term significant adverse effects will be experienced by one property, a short section of the A470(T) west of Carno and some short sections of the local public rights of way network. Mitigation proposals including new tree and hedgerow planting will, in time, lessen these effects but some significant adverse environmental effects are likely to remain.

- 1.7.8 The form and location of the overhead line and substation have been developed to minimise potential effects on landscape and visual amenity and to reduce those that cannot be avoided. This strategy is effective with significant effects after mitigation being limited to one property and some sections of footpaths. These effects are only located within close proximity of the overhead line or substation and are the direct result of the development being viewed in close proximity.
- 1.7.9 No cumulative effects arising from the presence of other proposed overhead lines were identified.
- 1.7.10 In conclusion, whilst there are likely to be some significant adverse effects on visual amenity arising from the Development, which cannot be mitigated against, these will be limited and localised.

1.8 Ecology

- 1.8.1 Two assessments of the potential effects on ecological interests (habitat, flora and fauna) arising from construction, operation and decommissioning of the proposed grid connection were undertaken. The first was an assessment of the effects on protected species and habitats, including woodlands with commercial plantations and hedgerows (including reference to commercial plantations). Baseline data for these assessments was collected in habitat walkover surveys in December 2006 and June 2008 by experienced and qualified ecologists as well as reviewing available records. The second assessment covered individual and groups of trees affected by the proposals as indicated in a survey carried out in September 2008.

- 1.8.2 The overhead line and substation are routed primarily through poor semi-improved, sheep grazed acid grassland or improved grassland of limited botanical interest, with relatively few hedgerows and trees. Other less extensive habitats present along the proposed route include marshy grassland, improved grassland, riparian habitats, hedgerows, mature trees, broad leaved woodland, coniferous and mixed plantation, scrub and fridd (rough pasture). All habitats within the survey corridor were determined to be of low (Local Low-High) nature conservation value.
- 1.8.3 There are no statutory nature conservation sites within the survey corridor, the nearest being 5km to the east.
- 1.8.4 Fauna recorded in the area included badgers, bats, otters, water voles (habitat only), and common lizard. All were determined to be of low (Local Low-High) conservation value.
- 1.8.5 Birds recorded in the area included song thrush, skylark, curlew, lapwing, cuckoo, black-headed gull and starling. These are considered to be of low (Local High) nature conservation value.
- 1.8.6 As part of the iterative development of the proposed route and substation location, various identified ecological constraints were considered and sensitive receptors avoided where possible. For the purposes of the assessment, sensitive receptors were identified as riparian habitats, otter, water vole, bats, reptiles and birds.
- 1.8.7 In assessing the proposals, no significant adverse ecological effects were identified.
- 1.8.8 No cumulative effects arising from the presence of other proposed overhead lines were identified.

1.9 Cultural Heritage

- 1.8.9 Although no significant adverse effects were identified in the assessment, in adopting a best practice approach to construction works, SPEN has identified a number of mitigation measures to address any potential minor adverse effects and to help enhance habitats and increase the nature conservation value of the area. These measures include collecting additional winter and breeding bird survey data, which will be completed by spring 2009, and mitigation strategies developed where appropriate.
- 1.8.10 A number of other measures have been identified to mitigate any impacts arising and these include measures such as hedgerow reinstatement, tree planting and provision of bird and bat boxes. Other mitigation measures relate to best practice during construction and decommissioning. These measures, which are particularly designed to prevent adverse effects from the accidental leakage of oil or other pollutants, are detailed in the draft Environmental Management Plan and draft Construction Method Statement for the project, to which the contractor is contractually obligated to adhere. The proposed mitigation measures will ensure that the construction, operation and decommissioning of the Development will have no significant effect on any of the identified sensitive habitats or fauna (including birds).
- 1.8.11 In conclusion, with the successful implementation of the proposed mitigation measures, the overall effect of the Development on protected species of conservation interest will not give rise to any significant adverse effects.
- 1.9.1 An assessment of the potential effects on cultural heritage assets (archaeological sites, historic buildings and historic landscapes) arising from construction, operation and decommissioning of the proposed grid connection has been undertaken.
- 1.9.2 Archaeological desk-based assessment, consultation and field surveys were undertaken to identify those cultural heritage assets that might be affected by the proposed development. The potential for the development to contain buried and, as yet undetected, archaeological remains was also considered. The assessment also includes an evaluation of likely visual effects on the setting of cultural heritage assets.
- 1.9.3 Within the 200m survey corridor there is only one recorded site of medium value, the remainder are of low, negligible or unknown value. Within 2km of the development (the cut off for the visual survey), there are five Scheduled Ancient Monuments and eight Listed Buildings. There are no registered historic parks, gardens or landscapes.
- 1.9.4 The assessment found eleven cultural heritage sites, which could potentially be physically disturbed due to construction works. These are at most of only local importance. Avoidance and reduction mitigation measures have been defined that would limit certain direct effects to nine of the eleven sites. In these cases, the effects are assessed as being not significant.
- 1.9.5 Additional mitigation measures are proposed that would provide for appropriate recording of sites, which could potentially be damaged either through the construction process itself or through gaining access. These would be implemented in advance of or during construction works. The probability of the construction works encountering hitherto undetected, buried sites or features of archaeological significance, given the generally limited and non-intensive ground disturbing nature of the proposed works is considered low.
- 1.9.6 The assessment identified a listed building site that would experience a potentially significant effect upon the quality of its setting due to the presence of the proposed development. To mitigate this, a tree belt is proposed to provide a screen between the site and the development. Slight adverse and not significant effects were predicted in relation to eight other designated sites. No specific mitigation is proposed for these sites.
- 1.9.7 A second site, a roman road, which is situated close to the proposed substation site and could be affected by the construction works. A watching brief is proposed to preserve by record any subsurface remains, which may be revealed by groundworks in the area and the residual effect is considered not significant.
- 1.9.8 No cumulative effects arising from the presence of other proposed overhead lines were identified.
- 1.9.9 Based on the limited impacts identified in the preceding sections and taking account of the proposed mitigation, the residual effect of the Development is considered not significant.
- 1.9.10 In conclusion, with the successful implementation of the proposed mitigation measures, the overall effect of the grid connection on cultural heritage assets is not likely to result in any significant adverse effects.
- 1.9.11 Proposals for mitigation will be developed with CPAT, with whom a scope of works and detailed project designs will be agreed prior to the commencement of any development.

1.10 Other Issues

- 1.10.1 A range of other issues were considered and found not to give rise to any concerns.
- 1.10.2 The issues considered included:
- ▣ Geology and Soils;
 - ▣ Hydrology;
 - ▣ Tourism and Recreation;
 - ▣ Traffic and Transport;
 - ▣ Noise and Lighting;
 - ▣ EMF Radiation; and,
 - ▣ Waste Management.
- 1.11.3 In response to the highlighted significant effects and with regard to a number of other effects albeit of a minor nature, SPEN has prepared a draft Environmental Management Plan that lists a number of environmental mitigation measures.
- 1.11.4 The limited number of significant effects and corresponding environmental mitigation indicates that SPEN have complied with their dual obligation to provide a technically feasible and economically viable grid connection, which causes the minimum disturbance to people and the environment.

1.11 Summary of Effects & Environmental Management Plan

- 1.11.1 The routeing and technical solutions adopted for this Development have resulted in a proposal that only gives rise to limited significant residual adverse effects and these are only in relation to landscape and visual considerations.
- 1.11.2 Inevitably, close proximity to the overhead line or substation will give rise to such effects and the identification of these effects cannot be further mitigated.

