

ECOCAS Wind Farm

(Esgair Cwmowen Central and South)

Volume 2

Planning, Design and Access Statement



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ECOCAS Wind Farm

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1 Introduction

This document comprises a Design, Access and Planning Statement prepared to accompany a planning application for 17 wind turbines and associated infrastructure at Esgair Cwmowen, Carno, Powys. The Wind Farm will be known as Esgair Cwmowen Central and South (ECOCAS).

It is the intention of this document to set out the planning policy relevant to the proposed ECOCAS wind turbine development and to the principles that have been employed in designing both the wind farm itself, the period of its construction and the impacts that both this and the completed project may have on the local environment and the people living in the area surrounding the proposed Site.

The Planning, Design and Access Statement has been prepared in accordance with advice from the Department of Energy and Climate Change (DECC). It is incorporated as part of the planning application and is not formally a part of the Environmental Statement. For this reason it is produced as a separate document.

1.1 Wind Power

The United Kingdom has the best availability of wind throughout the whole of Europe and it is essential that where this can be achieved with minimal impact, that full advantage is taken. Increasing emphasis is being placed on the need to reduce the phenomena of global warming. Renewable energy, of which wind power is a major component, can contribute substantially to reducing greenhouse gases. At present, most of the United Kingdom's energy requirements come from coal and gas burn and to a lesser extent from nuclear energy. The design concepts underlying the decision to proceed with a wind farm in Powys, Mid Wales, takes into consideration the need to further develop the wind resource available in the UK.

The land proposed to be utilised for the ECOCAS Wind Farm is only some 53% of the total land available from the two sponsoring farmers. This means that there is a good design balance between the land used for agricultural purposes and that utilised for renewable electricity generation. Further, the layout of the Wind Farm is such that no disturbance occurs on the amenity value of the land, either in regard to its use for recreational purposes e.g. footpaths, or in relation to its use for sheep rearing, which is substantially the present land use.

Messrs Watkins and Jones, the sponsors of the ECOCAS Wind Farm, are keen advocates of wind power and as a result of their land availability, proposed that a wind farm be designed which causes minimal disruption to the natural environment and to their normal farming activities. Whilst it would have been conceivable to design a project with additional turbines, this could not have been achieved without interference with adjacent land boundaries and proximity to residential properties. Therefore, the Wind Farm has been designed giving maximum consideration to the impact on all aspects of the development. The background of the two sponsors of the project follows.

1.2 The Sponsors

The intention of the two sponsors, Messrs Eurfyl Watkins and John Jones, both local farmers, is to endeavour to provide renewable energy for use through the National Grid, at a level of development that is not disproportionate to the total land area available for potential development. The two project sponsors are wholly independent of any organisation or company, making the project a totally locally funded planning application for a wind farm development. No external funds have been sought or used by the sponsors in the development of their proposals. Both of them have spent all of their lives in and around Newtown and Carno and, with their families, farm the hills above Carno, mainly sheep rearing, with some supporting livestock together with growing and harvesting crops for animal feed. It should be appreciated that the intention of the two sponsors is to provide a development that is compatible with their interests in the local area and in accordance with their responsibilities as custodians of the land.

2 Site Location

The proposed ECOCAS Wind Farm development is situated approximately three miles north east of the village of Carno and eight miles north west of Newtown, Montgomeryshire. The detailed study area for the landscape assessment covers an area of approximately 315 km². The ECOCAS Wind Farm lies in the centre of the landscape character area 'Esgair Cwmowen Uplands' as defined by LANDMAP. The area surrounding Esgair Cwmowen is assessed as being essentially rural in nature with the predominant industry being agricultural. The topography and elevation in the area is high and therefore the majority of agriculture is managed livestock which is typified by small to medium scale field patterns enclosed by strongly vegetated hedgerows. Typically, agricultural sheep farming has led to the patchworks of grazed land and rough heather and bracken. Irregular field patterns run along the rolling and undulating topography and there are intermittent small blocks of coniferous and mixed woodland. In the areas towards the edge of the landscape there are more sheltered areas with small irregular fields. The dominant feature in the landscape is the exposure and wind which give it a sense of wilderness.

The ECOCAS Wind Farm lies to the south behind the Esgair Cwmowen ridge. As the Site is located behind the ridge there will be some screening of the turbines for views from the north. The Site is also surrounded by a number of woodland parcels and to the east of the Site there are two commercial forestry plantations Bryn yr Ysbyty and Cryniarth. These plantations are made up of coniferous trees and therefore provide a screen for views of the wind farm from the west all year round. The landscape drops away sharply to the west which also provides screening of views due to the steep sided hills. To the south of the Site lies Garreg Hir and two lakes, Lake Llyn Mawr, which is a Site of Special Scientific Interest (SSSI), and the Llyn Du Lake which forms a distinctive pattern in the south of a more rolling and undulating landscape into the valley bottom. The northern part of the Site is primarily open upland grazing with intermittent streams whilst to the east of the Site views are dominated by the Mynydd Clogau Wind Farm.

The present character of Site area is open rough grazed plateau moorland with turbines and commercial plantations already accommodating some of the area. The relative vastness of the scale of landscape can accommodate the development of wind farms as the large scale landscape and the presence of existing wind farms do not dominate the underlying character but rather are accommodated within the landscape. There is certainly a capacity

for this landscape to accommodate a sensitively located wind farm such as the ECOCAS Wind Farm.

2.1 Description of the Development

The planning application for the ECOCAS Wind Farm is for 17 wind turbines, each with a maximum output of 3 MW. The total maximum output for the development would therefore be 51 MW. The proposed layout for the development, including positioning for the 17 wind turbines is shown in the Environmental Statement. The wind turbine design has been selected to maximise output, given the prevailing wind resource and land profile while keeping the potential impact to a minimum. Each wind turbine will have a hub height of 80 m, a blade diameter of 90 m, giving a height to tip of 125 m. The wind turbines each have three blades, and a swept path area of 6,362 m². The wind turbines have a cut-in speed of 4 m/s and a cut-out speed (to prevent damage in high wind speeds) of 25 m/s. Furthermore, they are designed to reach maximum output at a wind speed of approximately 15 metres per second. It is normal for the turbine and blades to be light grey in colour in order to give the best overall appearance against most landscapes and in various weather conditions.

In addition to the wind turbines themselves, the development will also consist of on-site access tracks, a purpose built electricity sub-station, underground cabling between the wind turbines and the sub-station, 132 kV overhead line to export the generated power to the National Grid off site, temporary site buildings, four borrow pits and a permanent anemometry mast to measure wind speeds on site. The construction phase of this project is expected to last for 12 months. All infrastructure development has been given in depth consideration by interested parties including the Countryside Commission for Wales (CCW), the Environment Agency (EA) and Powys County Council (PCC). However, any modifications required will be incorporated at the detail design phase of the project.

It is envisaged that the ECOCAS Wind Farm will be connected to the National Grid by means of a 132 kV overhead line from the on-site substation. The line is in the process of design by Scottish Power Manweb (SP).

3 Planning Statement

The UK Government is proactive in establishing a planning environment that stimulates the growth of renewable energy developments. Global climate change has been a driving force for this change as commitments to international agreements aiming to reduce greenhouse gases mean that Governments look towards renewable energy as an initiative to tackling climate change.

Renewable energy developments such as wind farms have been determined as a way to achieve these goals and are detailed in a number of national and regional policies which stem from the Kyoto protocol.

3.1 The Kyoto Protocol

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty that is intended to achieve "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". As of August 2009, 189 Governments have ratified the protocol, which was initially adopted for use on 11 December 1997. Under Kyoto, industrialised countries agree to reduce their collective greenhouse gas emissions by 5.2% compared to the year 1990. In the UK the Kyoto treaty commitment is to keep annual greenhouse emissions during the period of 2008-2012 to 12.5% below 1990 levels. In 2002, the UK was 14.4% below 1990 levels, and in 2003, 13.4% below.

Since Kyoto national targets for the reduction of greenhouse gases have been set out with accompanying guidance and legal frameworks to ensure that the UK achieves its contribution for tackling climate change.

3.2 UK Government Targets

The Government has increased the reduction target of greenhouse gases to 20% less than 1990 levels by 2010. This target has now been proposed to be increased to an 80% reduction by 2050. The Government proposes that this 80% reduction by 2050, measured against 1990 CO₂ emissions, be legally binding and is set out in the Climate Change Act 2008. In October 2006 The Government also published "The Stern Review; The Economics

of Climate Change". This review suggests that early investment in energy efficiency and carbon-free forms of energy generation will be of significant financial benefit if the full cost of climate change is to be avoided. In essence, all of the reviews carried out by the Government on the subject conclude that climate change is a very serious problem that must be tackled with some urgency. The suggested solution to tackling climate change is a mixture of a reduction in energy consumption combined with a significant switch from a carbon-based economy to a more sustainable economy based on renewable energy. The Government's main framework document in supporting renewable energy is the "Renewables Obligation Order 2006". The Government's targets for renewable electricity generation up to 2015 are set out in Table 3.1 which is extracted from the "Renewables Obligation Order 2006" mentioned above. Reforms to the Renewables Obligation are going to be introduced in 2010 as part of the UK Government's aim to drive towards a low carbon economy. The European Union is also supportive of renewable energy and in 2001 issued the "Directive to Promote Electricity from Renewable Energy (2001/77/EC)". The purpose of this Directive is to promote an increase in the contribution of renewable energy sources to electricity production in the internal market for electricity and to create a basis for a future community framework.

Obligation period	Percentage of total supplies
1st April 2006 to 31st March 2007	6.7
1st April 2007 to 31st March 2008	7.9
1st April 2008 to 31st March 2009	9.1
1st April 2009 to 31st March 2010	9.7
1st April 2010 to 31st March 2011	10.4
1st April 2011 to 31st March 2012	11.4
1st April 2012 to 31st March 2013	12.4
1st April 2013 to 31st March 2014	13.4
1st April 2014 to 31st March 2015	14.4
1st April 2015 to 31st March 2016	15.4
Each subsequent period of twelve months ending with the period of twelve months ending on 31st March 2027	15.4

Table 3.1 Renewables Obligation Order 2006

3.3 UK Climate Change Programme

The Climate Change Programme originally set out in 2000 was one of the main documents to respond to the Kyoto Protocol. This programme has since been revised and newer targets and plans are set out in the Climate Change Programme (2006) which sets out the UK Government's policies and priorities in terms of acting against climate change both in the UK and internationally. It details how action in the UK, to meet commitments of reducing carbon emissions, can also be tackled without damaging the UK economy. The aim of the programme is not only to cut greenhouse emissions by 12.5% from 1990 levels in the period of 2008-2010 but also to cut carbon dioxide emissions by 20% from 1990 levels by 2010. It also sets out further regulatory measures on climate change, including renewable transport fuel obligations which came into force in 2008 which required fuel suppliers to source 5% of the fuel supplies from renewable sources. There is also a requirement in the programme to produce annual reports to Parliament on emissions, future plans and the progress made on achieving national emission reduction targets which is now a legally binding obligation under the Climate Change and Sustainable Energy Act 2006.

3.4 Energy White Paper

The Energy White Paper, published on 23rd May 2007, sets out the Government's international and domestic energy strategy to the long term energy challenges including cutting CO₂ emissions by some 60% by about 2050, with real progress by 2020. In addition to this it also states the importance of removing the barriers that are slowing the deployment of renewables in the UK including the connection of renewable projects to the transmission grid. The new Energy White Paper: The UK Low Carbon Transition Plan, just recently published on the 15th July 2009, sets out the UK's first ever low carbon transition plan to 2020. The plan aims to deliver emission cuts of 18% on 2008 levels by 2020, produce around 30% of electricity from renewable sources by 2020 by increasing the requirement for electricity suppliers to sell renewable electricity and by clarifying that Ofgem, in its job to protect consumers, should help tackle climate change and ensure security of supply.

3.5 Climate Change Act 2008

The Climate Change Bill 2007 which was introduced into Parliament on 14 November 2007 and became law on the 26th November 2008 is now known as the Climate Change Act 2008. The Climate Change Act requires the Government to assess the risks to the UK from the impacts of climate change and to set up a committee to advise the Government on climate change. It also sets out a legally binding framework for the UK on how to tackle the climate change crisis with the goal to "ensure that the net UK carbon account for the year 2050 is at least 80% lower than the 1990 baseline". This target has increased by 20% and it is not yet clear how this optimistic target will be accomplished by the UK within the current legislation.

3.6 Welsh Assembly Government Targets

The Welsh Assembly Government (WAG) target is for 4 Terawatt hours of electricity to be generated from renewable sources by 2010 to reach the 60% carbon saving by 2050. This will require 800 MW of additional installed capacity from onshore wind resources, and 200 MW of additional capacity from offshore and other renewables.

All of the national targets aim for a reduction in greenhouse gases and a move to renewable energy sources. The WAG has published a Technical Advice Note 8: Planning for Renewable Energy (TAN 8) and a Ministerial Interim Planning Policy Statement (MIPPS) which provide local authorities, industry and government with guidance on the development of renewable energy, especially onshore wind. It is essential that planning policies, as detailed later, acknowledge the importance of climate change and embrace renewable developments to achieve these targets.

3.7 Planning Policy Wales (PPW)

Guidance on planning policy in Wales is set out in PPW (2002). The key objective of PPW is that all planning policies and proposals should “contribute to climate protection” and promote the use of energy from renewable sources. PPW encourages the generation and use of energy from renewable sources, especially as a means of reducing the effects of climate change. PPW also outlines how the WAG intends to “encourage the development of the renewables sector and promote energy efficiency and conservation in an economic, environmentally sound and socially acceptable way”.

3.8 The Wales Spatial Plan

The ‘Wales Spatial Plan 2008 update’ is the primary framework and integration tool for Wales of which one of the key aims is to reduce annual greenhouse gas emissions by increasing its renewable energy obligation.

3.9 MIPPS Planning for Renewable Energy

The Ministerial Interim Planning Policy Statement (MIPPS) Planning for Renewable Energy (2005) accepts that climate change is occurring and that the generation of greenhouse gases from the burning of fossil fuels is a major contributory factor. The WAG’s aim is to secure an appropriate mix of energy for Wales by strengthening its renewable energy production. This forms the basis of the WAG’s requirement to provide policies that will underpin their aims and secure the growth of clean energy in Wales by the use of natural resources. The WAG also recommends that local planning authorities should support renewable energy projects that aim to secure appropriate energy whilst avoiding disturbance

to nationally and internationally designated areas. The renewable obligation of the WAG is set out in paragraph 12.8.6 of the MIPPS.

"In order to meet the 2010 renewable energy target, the Assembly Government's energy policy is that 800 MW of renewables capacity should be provided from strategic onshore wind energy development - mostly in the form of a small number of large wind farms. A further 200 MW should be provided from offshore wind and other renewable technologies. This is based on Wales' abundant onshore wind resource and the fact that onshore wind power is the most viable commercial technology available that will provide a high degree of certainty of meeting the 2010 target".

The WAG recognises that although the introduction of large structures in the landscape needs careful consideration during planning, the need for wind turbines is now established and imperative as a key to reaching the WAG's targets. There has been much extensive technical work commissioned by the WAG which has led to the conclusion that developments should be actively steered by the land use planning systems to those areas deemed to be the most appropriate for large scale (over 25 MW) developments, referred to as Strategic Search Areas (SSAs) and these areas are set out in Technical Advice Notice 8 (TAN 8) Renewable Energy.

3.10 Technical Advice Notes (TANs)

TANs that are key to this proposal are listed below:

TAN 5 Nature Conservation and Planning (1996)

TAN 6 Agriculture and Rural Development (2000)

TAN 8 Renewable Energy (2005)

TAN 11 Noise (1997)

TAN 12 Design (2004)

TAN 17 Environmental Assessment

TAN 18 Transport (2007)

Much of the guidance within the TANs has been incorporated into the Unitary Development Plan (UDP) which is discussed in more detail below. The most relevant TAN is TAN 8 which is discussed below.

TAN 8 supplements Planning Policy Wales (PPW) and the Ministerial Interim Planning Policy Statement (MIPPS) on Renewable Energy. It is clear that onshore wind power offers one of the greatest potential for an increase in the generation of electricity from renewable energy in the short to medium term. In order to try to meet the targets that have been determined for onshore wind production the WAG has “commissioned extensive technical work, which has led to the conclusion that, for efficiency and environmental reasons amongst others, large scale (over 25 MW) onshore wind developments should be concentrated into particular areas defined as Strategic Search Areas (SSAs)”. There are seven SSAs in Wales that have been identified as being suitable for wind farm developments. For each of the SSAs there are indicative targets for installed capacity to help reach the energy targets see Table 3.2. The installed energy targets are aimed to help reach the WAG’s target of 4 TWh of electricity per annum to be produced by renewable energy by 2010 and 7 TWh by 2020. The planning system, therefore, has an important role to play in achieving the WAG’s commitment to enabling the deployment of all forms of renewable energy technologies in Wales.

Strategic Search Area	Capacity (MW)
A Clocaenog Forest	140
B Carno North	290
C Newtown South	70
D Nant-y-Moch	140
E Pontardawe	100
F Coed Morgannwg	290
G Brechfa Forest	90
Total	1120

Table 3.2 SSA Capacities

The national planning guidance documents clearly identify the importance of wind energy as a resource suitable for reaching the targets set at a national level. Therefore, it is important that the overriding aim of reducing greenhouse gases and reaching those targets is central to all planning applications.

3.11 Regional Planning Policy

3.11.1 Interim Development Control Guidance (IDCG)

The IDCG is taken into account by the local planning authority when determining planning applications and when responding to the Secretary of State for Business Enterprise & Regulatory Reform on proposed developments in excess of 50 MW. The first draft of the IDCG has already been authorised for development control and consultation purposes although additional drafts of the IDCG and further refinements are still in process for SSAs B (Carno North), C (Newtown South) and D (Nant y Moch). The Carno North and Newtown South SSAs fall wholly within the Powys County Council administrative area whilst a part of the Nant y Moch SSA falls within the Powys area with the remainder falling within Ceredigion. It is anticipated that the Carno North SSA will provide 290 MW of installed energy capacity by 2010, the Newtown South SSA will provide 70 MW of installed capacity and the Nant y Moch SSA will provide 140 MW of installed capacity which will contribute to the Welsh target of 800 MW of installed energy by 2010. It is clear that these targets will no longer be achievable by 2010 and that planning applications need to be determined more efficiently so that projects can be delivered without further delay. There are significant problems with the IDCG and revised SSA boundaries especially as the methodology carried out by Arup-White has been based on an assessment of landscape issues rather than an overview of all constraints. The Wern Ddu appeal raised this important issue of over refinements leading to a constricted development area for wind energy. The WAG addressed a letter to all chief planning officers in 2007 that stated more needed to be done in Wales to avoid dangerous climate change and to meet the targets set out in the Climate Change Bill. The letter detailed to local planning authorities that the SSA boundaries initially drawn up in TAN 8 were produced whilst taking considerable regard to expert advice. Whilst the WAG acknowledged that minor adjustments might be needed to account for local circumstances they commented that "...it is essential that LPAs conclude the changes being

made to the SSAs and press ahead so that planning applications can be determined and, subject to securing the appropriate consents, projects delivered on the ground without further delay". It is clear that onshore wind is the main way of meeting government targets and that the SSAs have been determined to identify those areas most suitable to this type of development. Whilst further refinements are continuously carried out on the SSAs the delivery of wind farms and the achievement of WAG targets are being restrained by local planning authorities. These refinements should be of concern to the WAG especially as cases such as the Wern Ddu application have already raised this issue in inquiries. During the Wern Ddu enquiry Mr. Stuart B Wild of the Planning Inspectorate stated that;

"The consequence of the study is that the area of the SSA shown in TAN 8 of about 100 km² has been reduced to about 35 km² in the finally adopted CWFZ in the IPG. I do not consider this level of reduction is compatible with the advice in Annex D to 'allow the local planning authorities to make minor adjustments to the SSA boundaries when translated into their local planning documents' particularly since the advice goes on to say that 'this will facilitate the inclusion of development on the margins of SSAs where local conditions recommend'."

It is clear from this appeal decision that any rejection of planning applications which fall outside of the redefined SSA boundaries, which fail to acknowledge the broader remits under TAN 8, will be under severe threat from any appeal lodged by an applicant.

At the time of submission the IDCG is still under review and should be given little weight in light of all the issues that have been raised. National needs for renewable energy and 2010 targets should be the overriding determination. Therefore this proposal adopts the SSAs as specified in the TAN 8 of which the site of the Esgair Cwmowen wind farm lies wholly within SSA B.

3.11.2 Powys Unitary Development Plan (UDP)

The UDP will be the basis for determining future planning applications up to 2016 and will replace the current structure and local plans. The existing adopted Development Plan for the area comprises of, The Powys County Structure Plan (Replacement) February 1996; and The

Montgomeryshire Local Plan (Deposit Version) October 1995 & Subsequent Modifications which the UDP has currently replaced.

The Planning & Compulsory Purchase Act 2004 requires Powys County Council as the Local Planning Authority to prepare a Local Development Plan for Powys (excluding the Brecon Beacons National Park). This is in its very early stages but when adopted it will replace the UDP and provide a strategy for sustainable development up to 2025.

The development plan is central to the development control decision process and the relevant sections relating to the ECOCAS development are discussed further below which, once adopted, will replace the Powys UDP.

SP3 - Natural, Historic and Built Heritage

According to SP3, proposals are expected to conserve and protect those features of importance in terms of their ecology, geology, scientific value and aesthetic quality. This policy outlines the Council's commitment to maintain and conserve the environment, historical and archaeological assets.

SP12 – Energy Conservation & Generation

SP12 sets out proposals for energy generation from renewable sources which will be approved providing that they meet the criteria set out in the accompanying policies.

Policy GP1- Development Control

Policy GP1 details how the design of the development should, wherever possible, take into account the landscape, ecology and historical context whilst also safeguarding wildlife habitats. The criterion also indicates that transport, highways access, soil and water quality, drainage and flood risk should also be included when determining the design and layout of the development.

Policy GP3 - Design and Energy Conservation

GP3 states that all proposals for development should make a contribution to the local environment and community through the use of quality design, layout, materials and landscaping in accordance with the policies of the UDP.

Policy E3 - Wind Power

This policy specifically relates to wind farm developments and sets out the criteria that should be met including taking into account the landscape, cultural heritage, habitat and ecology, noise and shadow flicker, access including public rights of way and mitigation measures. It also details the need for assessment of cumulative impacts and that assessments should determine that the proposal does not unacceptably impact upon the environment and landscape quality.

Policy E4 - Removal of Redundant Wind Turbines

As part of the planning application the removal of the turbines and restoration of the land back to an agreed standard should be detailed in the application.

Policy E5 - Off-site works

Off-site works, where necessary should be assessed to ensure the impact of the works are reduced.

Policy ENV2 - Safeguarding the Landscape

Policy ENV2 determines that proposals should take into account the high quality of the landscape and that proposals should be sensitive towards the character of the landscape. This should be done by seeking to conserve native trees and hedgerows and ensure integration of the development into the landscape.

Policy RL6 - Rights of Way and Access to the Countryside

Policy RL6 encourages appropriate proposals that improve access to the countryside for the public and the continued maintenance and enhancement of existing rights of way.

Policy EC3 - Special Landscape Areas

Policy EC3 sets out the need to maintain biodiversity and nature conservation of an area including the major importance for wild flora and fauna. It advises that wherever possible a development should seek to protect those species and maintain them.

Policy EC4 - Environmental Impact

Policy EC4 is designed to protect special protection areas (SPAs) and potential SPAs, special areas of conservation (SACs) and candidate SACs from developments which may have a

significant impact on them, except for when there are reasons of overriding public interest why the development should proceed.

Policy ENV3 - Safeguarding Biodiversity & Natural Habitats

Policy ENV3 recognises the need to protect the biodiversity and habitat through monitoring and protection of species worthy of conservation. Its primary aim is to safeguard and enhance biodiversity in Powys.

Policy ENV5 - Nationally Important Sites

Policy ENV5 seeks to protect areas of nature conservation interest, national nature reserves and sites of special scientific interest from developments that may have a direct or indirect impact. Developments that have a significant impact will only be permitted where the benefits clearly outweigh the nature conservation value of the site.

Policy ENV6 - Sites of Regional & Local Importance

Policy ENV6 seeks to protect areas of regional or local nature conservation, geological or geomorphological importance. Developments that have a significant impact will only be permitted where the benefits clearly outweigh the nature conservation value of the site and where mitigation measures are incorporated to offset the impacts.

Policy ENV7 - Protected Species

Policy ENV7 protects those species under European legislation. Developments are only likely to be permitted where there is a clear benefit that outweighs the protection of the species.

Policy ENV14 - Listed Buildings

Policy ENV14 protects listed buildings against proposals for development that may unacceptably affect the listed building or its setting.

Policy ENV16 - Landscapes, Parks and Gardens of Special Historic Interest

Policy ENV16 protects the landscape, parks and gardens of historic interest from any development proposal which would unacceptably adversely affect the character, appearance or their setting.

Policy ENV17 - Ancient Monuments & Archaeological Sites

The ENV17 policy protects those scheduled ancient monuments and archaeological sites from developments which would unacceptably affect the site or setting of a scheduled ancient monument or of an archaeological site of national importance.

Policy ENV18 - Development Proposals Affecting Archaeological Sites

Policy ENV18 protects the archaeological sites and remains on site that a proposed development may affect. The council advise that archaeological field evaluation should be undertaken before determining any planning application and where archaeological remains of importance are revealed their preservation should be carried out wherever possible.

Policy DC9 - Protection of Water Resources

The protection of water resources advises that development proposals which impact on the water environment and associated land will only be permitted subject to the development not unacceptably impairing the quality, capacity or flow of surface or ground waters.

Policy T2 - Traffic Management

Policy T2 aims to reduce the level of unnecessary road traffic and its adverse impact upon the environment. The council encourage traffic management schemes which utilise the existing road networks and are sensitively designed.

Policy MW6 - Borrow Pits

Policy MW6 states that temporary excavations for the extraction of aggregates in relation to a development, remotely from a quarry will be allowed where significant environmental advantage would be achieved by the prevention of heavy vehicle traffic passing through settlements.

3.12 Planning Statement Conclusions

The ECOCAS Wind Farm complies with all of the planning policies as set out above and supports the Government's aims to reduce carbon emissions by 80% (compared to a baseline set in 1990) by the year 2050, as detailed in the Climate Change Act 2008.

In the design of the ECOCAS Wind Farm in-depth consideration has been given to reducing the impact that the development may have on the environment and to local amenity and

people. This conforms to the need to minimise impact while at the same time, undertaking to provide a facility which maximises the benefits to be derived from renewable energy generation. TAN 8 and the wider Government policy for renewable energy emphasises that decision makers, be that at local authority, Welsh Assembly Government or central Government level.

While the ECOCAS Wind Farm has a visual effect, as do all large structures, and also has an impact on the cultural heritage of the immediate area it is evident that the long-term benefits that emanate from the proposals significantly exceed these impacts. It should be borne in mind that the planning approval is requested for a period of twenty-five years and in terms of the possible consequences of climate change and the long-term effects on the Welsh cultural heritage can be deemed to be of a temporary nature. The planning authority will have an opportunity after twenty-five years have elapsed to reconsider whether the disadvantages of immediate local effects are such that they outweigh any long-term benefits derived from renewable energy and its relationship to the destruction of for example, coastal areas, which may result from delaying any actions which should be undertaken in order to overcome it.

Taking all the above into consideration, it is concluded that the balance is in favour of approval of the proposed development when considered against the backdrop of the consequences of not addressing the climate change issue.

4 Design Statement

The Design Statement, which itself is part of the Planning, Design & Access Statement, contains six core components that are integral to the design of the development. These are as follows:

- Use – What the development will be used for.
- Amount – How much will be built on the site.
- Layout – How the different parts of the development have been arranged on the site, and how they relate to other buildings and spaces around the development site.
- Scale – The physical dimensions of the component parts of the development.
- Landscaping – How open spaces within the development are treated in order to protect and enhance the area in which the site is located.
- Appearance – What the development will actually look like, e.g. materials used, architectural style, colours etc.

4.1 Use

The site has been designed to harness the natural power of the wind, and to use it to generate electricity by means of a number of wind turbines. The electricity generated by the wind turbines is to be exported to the National Grid by means of a 132 kV overhead line from the on-site substation.

4.2 Amount

The ECOCAS Wind Farm will be comprised of 17 wind turbines, each with a capacity of 3 MW. Each wind turbine will have a maximum hub height of 80 m and a maximum blade radius of 45 m, and therefore an overall maximum height to the blade tip of 125 m.

The electrical generation capacity for each wind turbine will be a maximum of 3 MW, meaning that the total potential output from the Wind Farm will be up to 51 MW, depending on the prevailing wind conditions. The total area covered by the proposed development is approximately 278 hectares. Throughout the design process whilst determining the

optimum capacity of the Site, consideration has been given to environmental and technical issues, and also the appearance of the development.

The key elements of the site design are as follows:

- Each turbine will occupy an area of ground up to 42 m by 22 m, which includes the foundations of the turbine and crane pad.
- On-site access tracks cover a distance of some 8,440 m and include drainage channels and power and communications cable routes, parallel with the tracks.
- Culverting and water crossings have been kept to a minimum and the Environment Agency has been consulted on this. Further details can be found in Chapter 12 Environmental Statement.
- A temporary, secure, construction area has been identified adjacent to the entrance of the Site which will be used for all site staff amenities, including personnel car parking, mess and toilet facilities and site offices. All deliveries and site movements will be controlled through the facilities and, to be agreed with the Highways Agency, any necessary wheel washing facilities with associated water run-off controls. Some storage will take place within secure facilities, e.g. containers and bunded area, although all major components of the turbines (tower sections, blades, and nacelle) will be delivered direct to the turbine locations so as to avoid double handling.
- A substation, using four ring connections, will be used in order to minimise the possible loss of power through cable faults or damage. The detailed substation design will be completed when a connection to the grid has been agreed with interested parties including other wind turbine developers, Scottish Power, Local Authorities and the Welsh Assembly Government.
- Four Borrow Pits, utilising existing quarried areas, thereby minimising traffic movements off-site.
- A 70 m high lattice anemometry mast for permanent on-site wind monitoring.

4.3 Layout

The overall layout of the Site including the turbine locations, together with their related site access tracks, electrical site infrastructure and construction support facilities, has been undertaken by IPS using sophisticated software for wind profiling that is operated under licence from Garrad Hassan and the Risø DTU National Laboratory. This evaluation is undertaken over many thousands of iterations, in order to optimise the site layout, taking into account various design components, including the wind resource availability at each proposed turbine position from every point of the compass. The wind resource available at each turbine is determined from wind speed and direction, land contours and surface characteristics (e.g. forestry or grassland). Turbulence (wake effect) results from interaction between each of the turbines and this potential effect is also taken into the iterations in order to optimise the site layout. Some basic parameters input into the model include that no residence should be closer than 700 m to the nearest turbine, that the 'exclusion area' for other turbines be six rotor diameters in the direction of the main wind flow and not less than four diameters at 90 degrees to this; these criteria generate exclusion areas with elliptical shapes which give main wind resource exclusivity to each turbine. Further, also input into the computer evaluation, in order to take recognition of the possible environmental impact of the proposals, are the proximity of residences, boundaries, water courses and archaeological sites. The generated optimum site layouts were then subjected to detailed scrutiny to determine that no turbines were proposed for location in positions that were detrimental to the local environment and, as far as could be determined at that stage, to any cultural heritage sites or wildlife habitats. Details of any possible telecommunication and radio interference were also taken into consideration. All of the initial locations required 'micro-siting' and this was initiated by a walkover of the Site during which each proposed turbine location was marked by a wooden post driven into the ground, for fixed reference of any person undertaking a site visit. The turbine locations were identified by GPS with readings taken at tolerances of accuracy not greater than 6 m and the results recorded on Ordnance Survey maps.

As the design progressed, consultation took place with Powys County Council planning officers and related organisations, such that no features of the ECOCAS Wind Farm conflicted with any major concepts of the various interested parties. This consultation included a site 'walk-over' on the 20th January 2009 which was attended by Kayna Tregay,

Nichola Tomlinson and Paul Williams from the Environment Agency (EA), Ken Perry from Countryside Council for Wales (CCW), Steve Packer from Powys County Council, IPS staff, and the landowners Messrs Watkins and Jones. IPS provided detailed mapping of the proposed individual turbine positions and access tracks and on the visit all proposed turbine locations were visited and discussed. These discussions included the suitability of each proposed turbine location and the overall impact that each turbine and its access tracks may have on the Site. Where appropriate, the Officers suggested how turbine locations and access tracks may be modified in order to minimise any impact on water courses and other geographical features. For example, turbine number 4's access track in its initial design included a 'double crossing' of a water course and this, following detailed consideration, was able to be modified to a single crossing and has been incorporated into the revised site design. All of the Officers' suggested modifications were later reviewed and modifications made to the design of the Site in order to embrace their suggested design amendments. As the Site contains some cultural heritage areas, this was specifically addressed on the visit and the possible impact on some Bronze Age 'cairns' was discussed. The various issues relating to all environmental aspect of the Site, including possible ecological and cultural heritage impacts, are dealt with in depth within their own particular Sections of the Environmental Statement.

4.4 Scale

The height of each of the wind turbines is a key factor when considering the scale of the proposed development. As a general principle, the output generated by a wind turbine will increase as the hub height increases. In addition, the areas from which an individual wind turbine, or group of wind turbines, can be seen increases as the turbine's hub height increases. This may also increase the visual impact of any such turbines. A major factor on visual impact is the distance of the viewpoint from the proposed turbine; the distances from each of the viewpoints are shown with the photomontages.

As part of the design process a balance should be achieved between maximising the use of the wind resource, by selecting the highest feasible hub height, against limiting the visual impact. As a result of this process it was determined that each wind turbine should have a maximum hub height of 80 m and a maximum blade radius of 45 m. Therefore the overall maximum height to the blade tip for each wind turbine would be 125 m.

A further part of the design process was to determine the optimum number of wind turbines for the development. The result of this particular design process was that a proposed total of 17 turbines, each with a capacity of 3 MW, would yield the best compromise between maximising the potential level of renewable energy that the development could generate, and at the same time keeping the impact of the wind turbines on the existing landscape to a minimum. The process that was followed is described in more detail in section 4.3 of the Design Statement above.

The scale of the proposed development in relation to its existing landscape can best be illustrated by generating photomontages. To produce each photomontage, seven separate digital photographs were taken from each of seventeen agreed viewpoints, looking towards the centre of the proposed development. These photographs were then stitched together using computer software to form a panoramic view that follows the Scottish Natural Heritage (SNH) guidelines on the production of photomontages. These panoramic photographs were then developed into photomontages using Garrad Hassan's WindFarmer software.

Consultation to determine each of the seventeen viewpoints was carried out with Powys County Council (PCC) and the Countryside Council for Wales (CCW) and all the viewpoint locations were agreed after some micro-siting issues had been addressed.

The photomontages that have been produced have their own separate Appendix, which accompanies the Environmental Statement for the ECOCAS Wind Farm application. Each separate photomontage is designed to give an impression of any turbines that would be visible from a specific viewpoint in relation to its surrounding landscape. Every effort was made to take the required photographs only when the weather and light conditions were favourable, in order that a photomontage was produced that represented the situation during high visibility – in other words maximum visibility of the turbines, had they been in position.

4.5 Landscaping

While the design and access statement requires any landscaping issues to be addressed, this will mainly relate to, for example, residential, retail and commercial development but it can be deemed to have a wider application in regard to wind turbine developments being

designed to sit within the natural landscape. To this end, all the infrastructure and the wind turbines themselves have been designed such that they reside within the natural landscape with minimal conflict. An example of this is that we propose to use the available topsoil in the construction compound to construct a bund wall around the compound, as against erecting an imposing mesh fence and the site can be landscaped to its original structure on completion of the construction period.

Further, it is intended that the areas surrounding the turbine bases will be landscaped to reflect the surrounding land profile. Also, wherever possible, existing hard access road surfaces will be utilised and ground will only be disturbed where this is absolutely necessary. The construction of on-site access roads will be completed entirely utilising rock extracted from local borrow pits, thereby ensuring that their appearance is compatible with both naturally exposed ground and existing pathways.

4.6 Appearance

During the design phase of the ECOCAS Wind Farm, particular attention was given to the arrangement of the wind turbines within the boundary of the development. Due to the size of the wind turbines in relation to their immediate environment, the positioning of each turbine will impact on the relationship between each turbine, particularly from the perspective of appearance of the Site. The appearance of the ECOCAS Wind Farm has been designed to be cohesive in its nature as a single feature and therefore does not have an irrational sprawl effect, like so many other wind farms.

While the wind turbines will be the most prominent element of the wind farm design, all other infrastructure, including the electricity sub-station and all ancillary buildings have been considered as part of the design process, and will impact on the overall appearance of the development.

There is very little difference in the aesthetic appearance of various modern wind turbine designs. The planning application has therefore been made on the basis of the overall tip height of each turbine. It is normal for the wind turbine and its blades to be a matt light grey colour in order to give the best overall appearance against most landscapes and in various weather conditions. However, if required, the planning approval could be

conditioned to specify a colour or colours that are considered appropriate, following full consultation with all interested parties.

5 Access Statement

5.1 Footpaths

There are several long distance footpaths and trails within a 30 km radius of the proposed ECOCAS Wind Farm. Closer to the ECOCAS Site, there are two long distance footpaths, Glyndwr's Way and the Severn Way, and one cycle route, Sustrans 8, which pass close to the Site. The other footpaths and trails within a 30 km radius include the Ann Griffiths Walk, Kerry Ridgeway, Montgomery Canal Walk, Pererindod Melangell, Offa's Dyke Path and Sustrans 81.

Viewpoints have been selected to encompass a number of these trails to determine whether there would be a significant impact on the views experienced along the trails. From the viewpoint assessments it was determined that due to the distances of the trails from the proposed ECOCAS development that they would not experience a significant effect on their visual amenity.

Should it be deemed necessary to redirect any footpaths or bridleways on the Site during construction of the ECOCAS Wind Farm, this will only be done with the agreement of the Local Authority and CCW. Any alterations to footpaths or bridleways will be accompanied by appropriate signage. After completion of the construction of the Wind Farm, all affected footpaths and bridleways will be returned to their original locations. Maintenance of the footpaths across the site will be carried out during the construction process ensuring that there are new stiles and gate access that can be used by members of the public. It is believed that the proposed development will open up this area and give greater access to the general public.

5.2 Route to site

The route options were determined by detailed map evaluation and prospective route inspections by Entec in association with Independent Power Systems Limited and local knowledge input by the Project Sponsors. These initial appraisals took place over some 18 months and embraced every possible entry to the proposed Site, including the possibility of bringing all wind turbine equipment in by rail to Carno. After detailed consideration, in association with the officials responsible for the railways running to and through Carno, the

rail option had to be dismissed for a number of reasons. Firstly, the clearance required to carry the larger wind turbine components could not be met by the many bridges along any of the possible routes; bridge modification would mean numerous major road realignments and would not be feasible. Secondly, the bogies on which the wind turbine components would be carried would have to sit too low and would not conform to the rail clearances required. Thirdly, the length of the turbine blades, relative to the radius of the bends in the rail track, would mean that the train load would project into the path of oncoming trains or trackside infrastructure and therefore could not meet railway safety requirements. As a result, road delivery was determined as the only feasible option and detailed evaluation was undertaken. This evaluation resulted in three possible routes being considered. The reports into the access routes by road were completed by Entec, experts in the field of transportation logistics and evaluation. The three access routes considered worthy of further evaluation are:

Route 1 From Ellesmere Port to Site: M53 → A55 → A483 → A5 → A483 → B4568 → A470 → Un-named Road at Plas Llysyn → Site

Route 2 From Ellesmere Port to Site: M53 → A55 → A483 → A5 → A483 → A489 → A470 → Un-named Road at Plas Llysyn → Site

Route 3 From Newport Docks to Site: M4 → A470 → A40 → A470 → A483 → A4081 → A470 → Un-named Road at Plas Llysyn → Site

After detailed evaluation, including a desk based study and visual inspection along the route, it was determined that the preferred route to the Site should be Route 1. Detailed consideration of the route selection is discussed in detail within the Environmental Statement and includes the method of assessment for each of the three routes and swept path analysis for Routes 1 and 2.

The selected delivery route (Route 1) of the wind turbines to the Site will be from Ellesmere Port, south through Ruabon, Oswestry and Welshpool along the A483 as far as Newtown. It then continues on the B4568 up to the crossroad near Pont Dol-goch, where it returns on the A470 and continues up to Carno. From that point onwards, the delivery route continues on an unclassified road to Site. After detailed assessments, Route 1 was considered to be

the most suitable to carry both the blades and the nacelle. However, the Local Authority may also wish to consider the possibility of delivering the blades via Route 2 while the nacelle is transported along Route 1. It is evident that all off-site works and modifications to roads and road furnishings will need to be completed before any delivery of wind turbines can take place.

6 Conclusions

This Planning, Design and Access Statement summarises the relevant planning policies that have been considered and provides statements detailing both design of and access to the proposed ECOCAS Wind Farm.

Throughout the process of designing the ECOCAS Wind Farm, IPS has made every effort to minimise any impact on the existing environment. Therefore, assessments were undertaken to determine the impact on the following:

- Site access and traffic mitigation
- Habitat
- Protected species
- Bats
- Ornithology
- Hydrology
- Landscape & visual
- Archaeology & cultural heritage
- Noise
- Shadow flicker
- Aircraft, radar & telecommunications
- Socio-economics (including tourism & recreation)

Following these assessments it is considered that although the ECOCAS Wind Farm will have some potential impacts, the development provides an acceptable level of mitigation to protect against these.

It is evident from Government policies that there is a pressing requirement for renewable energy. It is also clear that wind power offers the greatest potential for an increase in the generation of electricity from renewable sources. Therefore, although there will be some impacts from this development, the benefits that this project will bring greatly outweigh any possible drawbacks.

To conclude, it is our belief that the planning process should not impede the government's objective of significantly reducing carbon emissions in line with the recently published UK Low Carbon Transition Plan. The proposed ECOCAS Wind Farm is expected to generate around 134 GWh per year (enough to meet the domestic needs of some 28,500 average households) by utilising the renewable resource of wind power. In addition the ECOCAS Wind Farm will offset an estimated 56,280 tonnes of CO₂ per annum. Therefore, granting planning permission to the ECOCAS Wind Farm would help to ensure that the Government targets can be achieved.