



## **Davidstow Community Windfarm**

### **Scoping Report**

**November 2010**

**Prepared by Community Windpower Ltd**

**Community Windpower Ltd**

Godscroft Lane, Frodsham, Cheshire, WA6 6XU

Tel: 01928

Fax: 01928

Email: [info@communitywindpower.co.uk](mailto:info@communitywindpower.co.uk)

Website: [www.communitywindpower.co.uk](http://www.communitywindpower.co.uk)

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## **1. Introduction**

### **1.1 Overview and purpose of the Scoping Report**

This Scoping Report has been prepared by Community Windpower Ltd (CWL) for their revised Davidstow Community Windfarm proposal.

CWL are proposing to construct and operate a windfarm comprising a total of 16 wind turbines and 1 community turbine with a typical generating capacity of up to 50 megawatts (MW) within the existing Davidstow Woods and the open farmland to the south. The site lies within the local authority boundary of Cornwall Council and is situated approximately 3km to the south east of Davidstow and approximately 3km east of Camelford, in North Cornwall.

As the windfarm proposal has an installed generating capacity of under SOMW, the planning application will be determined by the Local Planning Authority, Cornwall Council, under the Town and Country Planning Act 1990.

Schedule II of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, referred to hereafter as the EIA Regulations, states that Environmental Impact Assessment (EIA) must be undertaken for 'Installations for the harnessing of wind power for energy production (windfarms,' where there are likely to be significant effects on the environment. Guidance on what amounts to significant effects is given in the Environmental Impact Assessment Planning Circular 02/99 (Annex A). The circular states that the likelihood of significant effects from windfarms *'will generally depend upon the scale of the development, and its visual impact, as well as potential noise impacts. EIA is more likely to be required for commercial developments of five or more turbines or more than 5MW of new generating capacity'*.

By applying this guidance, it is clear that the proposed Davidstow Community Windfarm qualifies as a Schedule 11 development. CWL are currently awaiting pre-consultation confirmation from Cornwall Council, however in view of the nature and size of the proposed windfarm, it is likely that an EIA should be undertaken for this development.

The EIA process will help to ensure that potential significant environmental effects (both positive and negative) are assessed in a systematic way. The information compiled during the EIA will be presented in an Environmental Statement (ES) to accompany the application for planning permission.

The EIA Regulations provide for obtaining a Scoping Opinion from the Local Planning Authority regarding the potential environmental impacts to be considered in the EIA (Regulation 10(1)). The purpose of this Scoping Report is to request such a Scoping Opinion.

Furthermore, CWL have previously consulted a wide range of consulters in order to collate environmental information relevant to the site, determine assessment methodologies and to determine the way in which the findings of the studies are presented in the ES. This document sets out the development proposals for the windfarm and invites further comments from consulters.

### **1.2 Justification for the Development**

The Government has set national targets for renewable energy aiming to achieve 10% of electricity generation from renewable sources by 2010, 15% by 2015 and 20% by 2020 as outlined in the 2003 Energy White Paper. However these targets are not to be seen as a cap on development particularly as they have recently been increased to 40% of electricity to be generated from low carbon sources with 30% from renewable energy by 2020 as stated in recently published The UK Carbon Transition Plan: National Strategy for Climate and Energy.

In 2007, 'Meeting the Challenge — The Energy White Paper' was published which

established the government's energy strategy for the foreseeable future with a key statement being:

*"Renewable energy has a key role to play in reducing carbon emissions and achieving security of supply".*

Since this publication, a legislative framework has been put in place to support renewable energy development which includes the Planning Act 2008, Climate Change Act 2008 and the Energy Act 2008. The new Planning Act underpins the policies in national planning guidance and in particular the Planning Policy Statement (PPS) 1 Supplement 'Planning and Climate Change'. There are now statutory duties on regional and local plans to take action on climate change and consequently policies must secure the development and use of land to contribute to the mitigation of and adaptation to climate change.

The Climate Change Act 2008 also set legally binding 'carbon budgets', aiming to cut UK carbon dioxide emissions against a 1990 baseline by 34% by 2020 and at least 80% by 2050.

In 2009, the UK Government published its white paper, The UK Carbon Transition Plan: National Strategy for Climate and Energy which sets out a five point plan to tackle climate change and most importantly commits the government to getting 40% of our electricity from low carbon sources by 2020 and 30% of electricity generated from renewable energy sources.

Simultaneous to this, the UK Renewable Energy Strategy (RES) was published as a result of the UK signing up to the EU Renewable Energy Directive. This RES sets out how we all have a role to play in promoting renewable energy, from individuals to communities to businesses. The RES outlines how meeting our renewable energy targets is not just about preventing climate change and securing our future energy supplies but also how achieving our targets could provide f100 billion worth of investment opportunities and up to half a million jobs in the renewable energy sector by 2020. The RES sets out how more than 30% of our electricity could be generated from renewables, In comparison to 5.5% today, and how the majority of this electricity will be from wind power, both on and offshore.

The principal of renewable energy is strongly supported in the Cornwall Structure Plan, adopted in 2004, most specifically Policy 7: Renewable Energy Resources, which states that a range of renewable energy production should be encouraged, with a target of producing between 93- 108MW by 2010. However the Council has adopted the bottom end of this range as their target within the structure plan. Therefore the proposed Davidstow Community Windfarm would completely satisfy and exceed the 2010 target for renewable energy.

The regional 2010 target of installed onshore renewable energy capacity, as set out in the recently revoked Regional Spatial Strategy (RSS) was 611MW, however at present the region has only reached 28% of this target. In terms of onshore wind electricity generation, an anticipated target of 345.4MW was set, of which a disappointing 15.3% has currently been achieved.

The department of communities and local government said, in terms of renewable energy and the revocation of the RSS, guidance contains a clear restatement at the importance of national energy targets and the need to work towards their achievement. The government's climate change programme, affirms the government's commitment to meet obligations set out in UK and European legislation. As stated in RegenSW 2010, the regions failure to meet their 2010 target should be a spur to the efforts for meeting future targets. with an abundance of natural resources in the south west, the government's commitment to secure 15% of the UK's total energy supplies from renewable energy by 2020 is an important objective. In Regen SW's 'The Road to 2020' report, estimates that to meet this, renewable energy and heat generation in the south west must reach a capacity of approximately 5.5GW. It also states that the region has the potential of over 1,000MW of onshore wind capacity.

The Cornwall Structure Plan and North Cornwall Local Plan are progressively being replaced

by Local Development Documents such as the Core Strategy; however of the remaining policies in the Local Plan there is support for renewable energy developments.

In line with PP522 the renewable energy targets are therefore not to be considered a ceiling for development.

Cornwall and the Isle of Scilly is the leading county in the South West region for the number of installed megawatts of renewable electricity. The total amount installed in January 2010 was 58.13MW, with 43.72MW of this generated by onshore wind; however this only amounts to 53.8% of Cornwall's 2010 target, demonstrating that there is a huge shortfall between existing capacity and the sub-regional targets.

The proposed development would therefore make a significant contribution to the renewable energy targets set for Cornwall and the South West region, almost contributing all the remaining 50% required to meet the 2010 target in one development, rather than the proliferation of windfarms throughout the county.

### **1.3 Community Windpower Ltd**

Community Windpower Ltd (CWL) was formed in 2001 and is an independent UK company who works with local communities to build windfarms which can provide tangible economic, educational and environmental benefits to whole communities.

CWL believes in an open and consultative approach with local communities during the development stage of the windfarm project and prior to the submission of a planning application. By developing small to medium scale windfarms we are able to design sites that are sympathetic to local landscapes and can provide local generation to meet local energy needs.

CWL have an established track record with two operational windfarms; Dairy Community Windfarm in North Ayrshire which has a generating capacity of 18MW and was commissioned in 2006 and Aikengall Community Windfarm in East Lothian, a 48MW scheme which was commissioned and started full operation in March 2009. Planning permission was also granted in December 2009 for Millour Hill Community Windfarm, a six turbine (18MW) extension to the existing Dairy Community Windfarm. Construction on this third windfarm is due to commence January 2011.

## **2. Brief Project Description**

### **2.1 Site Details**

The proposed Davidstow Community Windfarm lies within the existing Davidstow Woods and the open farmland to the south, approximately 3km to the south east of Davidstow and 3km to the east of Camelford. The centre of the development site is approximately SX 141 844. A previous windfarm planning application, at the same site, was made by Community Windpower in June 2008. This was originally approved in October 2009, subject to two conditions, which were not fulfilled and was therefore refused by Cornwall Council in July 2010. However further review; assessment of the site and technical advancements, the scheme has undergone review.

Figure 1 provides the geographical context of the site and Figure 2 provides details of the windfarm site boundary.

Figure 1: Geographical location of the proposed Davidstow Community Windfarm.

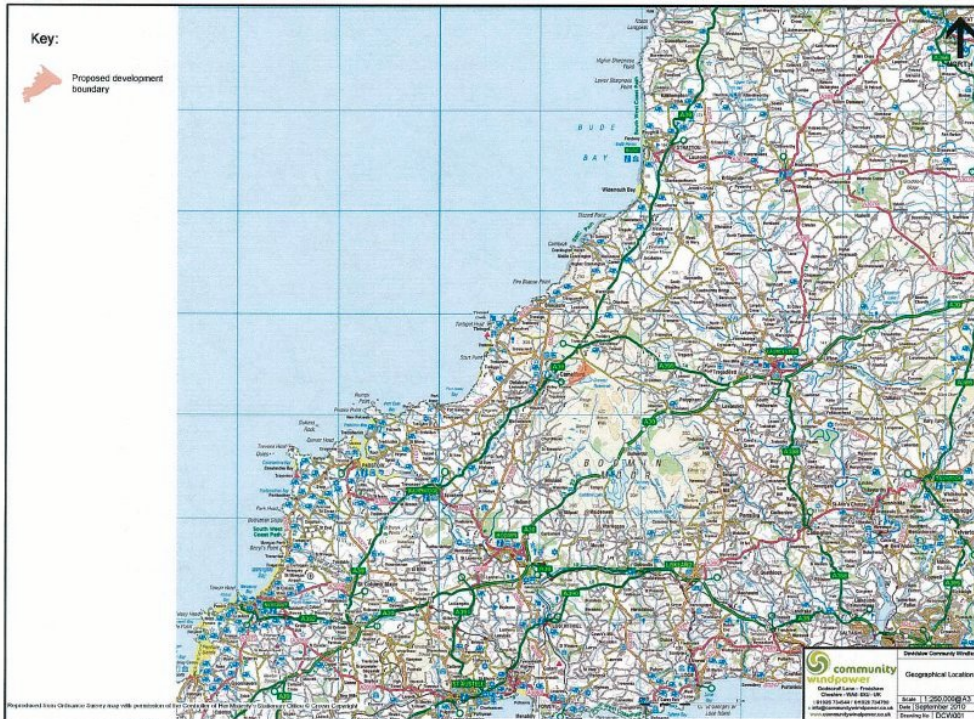


Figure 2: Site boundary of the proposed Davidstow Community Windfarm



## **2.2 Land Use**

The site boundary covers an area of approximately 200ha and lies between 260 to 295m ACD. Some of the turbines are proposed to be located within woodland, which is a commercial plantation, planted in the 1950's and is predominately composed of Sitka Spruce. This covers the majority of the abandoned WW2 airfield, which has remaining runways, taxiways and holding aprons still in place. The land to the south is pastoral agricultural land and used for rough pasture of cattle, sheep and ponies. Crowdy Reservoir lies adjacent to the eastern site boundary and the large Dairy Crest Cheese Factory is less than 1km from the northern boundary of the site.

The proposal is located within the National Landscape Character Area 153 'Bodmin Moor' and in terms of Local Landscape Character, it falls across two classifications; 17 'Bodmin Moor' and 25c 'Hendraburnick Downs', with the majority in the former. It is also located within the local authority designated Area of Great Historic Value (AGHV) and Area of Great Scientific Value (AGSV); however PPS22 advises that local landscape designations should not be used themselves to refuse planning consent for renewable energy projects.

## **2.3 Project Description**

In brief, the proposed development would comprise the following:

- An installation of up to 16 wind turbines and 1 community wind turbine generator with a total maximum capacity of 50MW;
- Construction of ancillary infrastructure including access tracks, crane hardstandings, a substation/control building and compound, underground cabling and a meteorological mast;
- Creation of a temporary construction compound;
- Borrow pits.

## **2.4 Individual Components of the Windfarm proposal**

Figure 3 provides an indicative layout of the turbines on the proposed windfarm development site, which has been designed to capture the energy of the wind efficiently, whilst simultaneously minimising visual and environmental effects.

The layout of the turbines is designed to appear sensitive and rhythmic to the shape of the existing landscape.

The windfarm design will evolve through an iterative process during the scoping, CIA and design process, taking in to account environmental constraints identified through baseline studies and consultations. The final proposal will be described in full detail in the ES submitted with the planning application.

### **Turbines**

The exact model of turbine to be used will be selected following the completion of the baseline environmental studies, ongoing transport access studies and turbine availability from suppliers. The turbines will be three bladed horizontal axis machines. The finish and colour of the turbines and blades is likely to be semi matt and pale grey in colour.

### **Transformers**

Small transformer boxes will either be located within the towers or the nacelle of the turbines. Inter turbine cabling will be underground.

### **Substation and Control Room**

An on site substation will house switchgear and metering and will connect the windfarm to the grid. The substation will be located in a discrete part of the site, which will border the existing concrete taxiway within the woodland area. The design of the substation and control room buildings are relatively flexible and will be constructed using a containerised system of units made from powder-coated steel, which would be temporary and more sustainable. The typical

dimensions of a substation for a windfarm are approximately 15m by 10m with a height of around 15m. Opportunities usually exist to provide native tree or shrub screening around the substation.

### **Anemometer Mast**

An anemometer mast will be located on site to monitor and record wind conditions (i.e. speed, direction). The exact height of the mast is unknown at this moment but is likely to have a maximum height of 80 metres.

### **Access Tracks**

Access tracks will be required to link the various turbines to the site access point. The final route of the tracks will be determined once the exact locations of the turbines are fixed, however an initial indication of how the access tracks may appear are shown in Figure 3. They will utilise wherever possible the existing concrete runways, taxiways and holding areas within the woodland, which may require improving. Where this is not possible, for example on the grassland to the south of the site, new stone access tracks will have to be constructed, which would be made of locally won compacted stone and have a typical surface width of approximately 5m. The access tracks will be designed to avoid any sensitive environmental receptors to ensure minimal disruption.

Access to the community turbine will utilise the same access route required for Davidstow Community Windfarm; however a very short stretch of access track will be constructed in the field to connect the community turbine to the public road. This new track will be approximately 100m long and 3.5m wide to accommodate the delivery vehicles. Locally sourced stone from the borrow pits will be used to build the access track.

### **Turbine Foundations**

The turbines would be constructed on foundations comprising of steel reinforced concrete. These are typically octagonal concrete bases, typically measure approximately 18m x 18m (across flats).

The top of the foundations are back-filled up to the turbine base with topsoil and seeded to encourage re-vegetation.

### **Crane Pads**

Each wind turbine requires an area of hard standing to be built adjacent to the turbine which provides a stable base for the cranes that are necessary to erect the structures. The crane hard standing areas would be retained after construction for the use by similar plant if repairs are required during the operation phase of the development and in preparation for decommissioning.

### **Temporary Construction Compound**

During construction, a secure compound would be required. This would typically be removed following the completion of the construction phase and the land restored to its original condition.

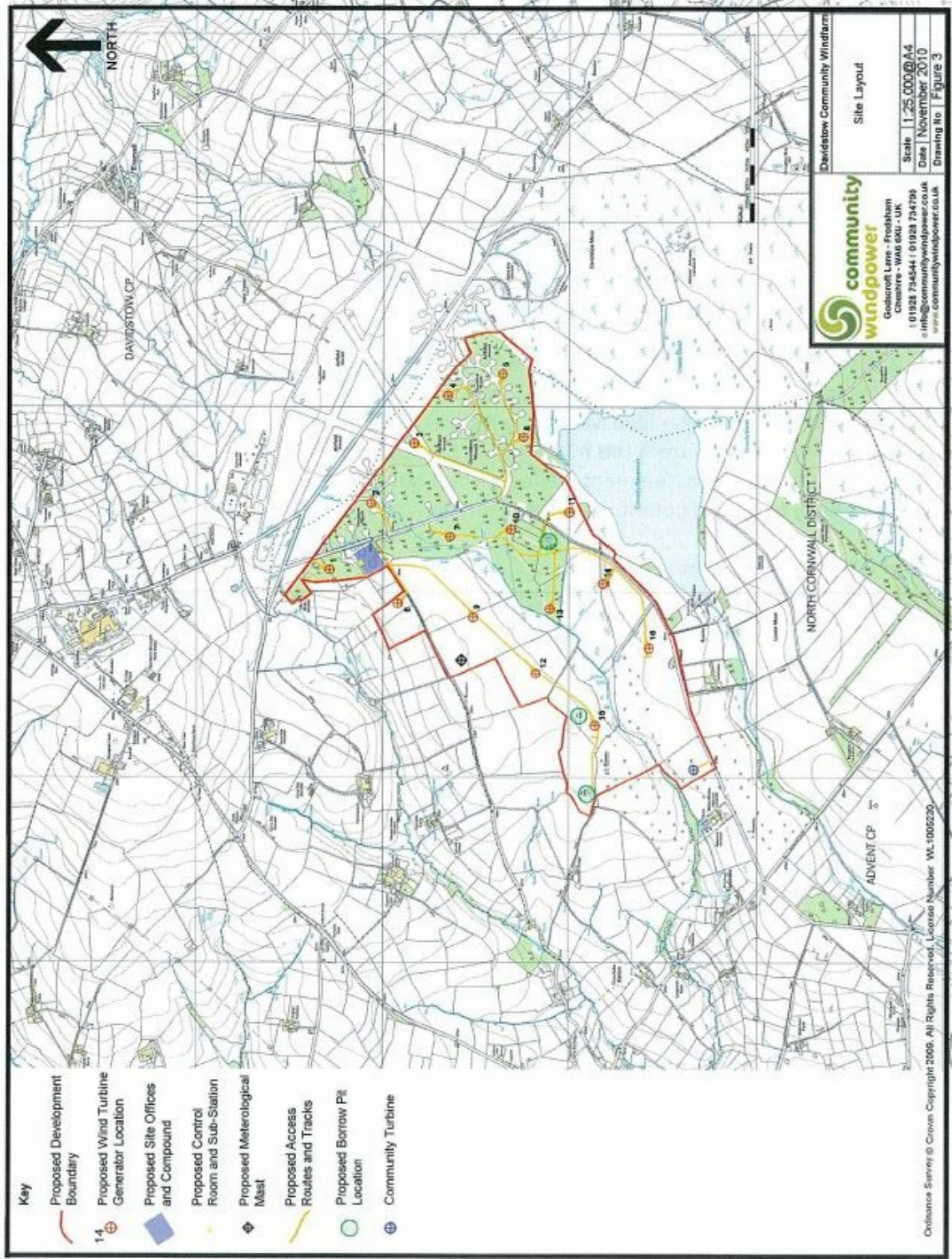
### **Route to site**

It is proposed that deliveries will enter the site from the North via the unclassified road leading from Moor Road and running along the abandoned airfield taxiway through the woodland. It is anticipated that abnormal load vehicles with the turbine components will travel down the A39 directly or via the A395 from the A30 to avoid passing by the entrance to the cheese factory. An abnormal loads traffic assessment will be carried out at the same time as the EIA to investigate the feasibility of several potential routes to the site.

### **Grid Connection Options**

Separate on-going studies are being carried out to establish grid connection options and routes from the site to connect in to the Western Power local distribution network. However it is understood that an underground connection would be made to the existing 132kV line some 2km to the west of the site.

Figure 3: Indicative layout of turbines on the proposed site.



### **3. Environmental Impact Assessment (EIA) Process**

The Environmental Impact Assessment (EIA) will be conducted in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, commonly referred to as the EIA Regulations.

The EIA will also be undertaken in line with published best practice guidelines including: The Guidelines for Environmental Impact Assessment, Institute of Environmental Management and Assessment (IEMA), 2004 as well as best practice guidance for the assessment of windfarms.

This section of the report provides a broad overview of the EIA process and specifically how CWL will approach the EIA of the proposed Davidstow Community Windfarm. The EIA process for the proposal can be considered as having the following stages:

- Initial site selection and feasibility studies;
- Sopping;
- Baseline studies;
- Design iteration and identification of mitigation measures;
- Assessment of environmental effects and evaluation of significance;
- Production of the Environmental statement;
- Public Consultation.

#### **3.1 Initial site selection and feasibility studies**

The initial site selection stage is a crucial part of wind energy development. CWL only pursues sites where wind turbine development is technically feasible. Therefore, after considering many potential sites across the United Kingdom, CWL only develops those which appear to be both technically feasible, environmentally acceptable and which offer a high wind resource to maximise green energy production.

The technical requirements of a windfarm site are as follows:

- An appropriate wind resource, minimum of 7.5 metres per second;
- Close proximity to the local distribution network or National Grid;
- Suitable foundation conditions;
- Maximum possible separation distances between the site and local residential properties (i.e. minimum a distance of 750m);
- Road access to the site;
- Agreements with the landowner(s);
- No interference on telecommunication links and;
- No interference on MoD/CAA radars and aviation interests.

Initial studies have demonstrated that the Davidstow Community Windfarm proposal meets all of these technical requirements. The site is located within an Area of Great Historic Value (AGHV) and an Area of Great Scientific Value (AGSV), however it is worth noting that PPS22 advises that local landscape designations should not be used themselves to refuse planning permission. The area to the north of the site and the woodland section of the proposed site are areas of Open Access land under the CROW Act 2000. However, due to the excellent technical credentials of the site, CWL considered that the site warranted further investigation as a potential windfarm site.

## **3.2 Scoping**

This Scoping Report will start the formal scoping exercise, in which feedback from the statutory and non-statutory consultees will influence the EIA process. It invites consultees to comment on the EIA approach, to specify issues that need to be addressed, to supply information pertinent to the site and to recommend technical assessment methodologies where appropriate. CWL would welcome suggestions regarding any further organisations or individuals that may have an interest in providing input into the EIA.

The intention of this scoping exercise is to gain agreement from all key parties on how the EIA should be undertaken, including the scope of issues to be addressed and the method of assessment to be used.

### **3.3 Baseline Studies**

The existing (baseline) conditions of the site will be established by means of:

- Consultations;
- A desk-based assessment of existing available data; and
- Site specific surveys.

The process will identify sensitive receptors, particularly those that are the subject of statutory or local designations. Constraints will be identified and used to inform the development of the turbine and infrastructure layout.

### **3.4 Design Iteration and identification of mitigation measures**

In the EIA process, mitigation can be defined as measures proposed to prevent, reduce or remedy any significant adverse effects on the environment.

In the case of wind energy developments, most mitigation measures are embedded within the overall design strategy, rather than 'add-on' measures to ameliorate significant environmental effects.

An iterative design approach will be adopted through the EIA process to determine a final layout for the turbines and associated infrastructure. Baseline environmental studies and consultation responses will inform iterations to the design of the site. Where appropriate and feasible, other mitigation proposals may be considered to reduce environmental impacts (e.g. vegetation screening around the substation).

### **3.5 Assessment of Environmental Effects and Evaluation of Significance**

The EIA Regulations require that the ES identifies likely significant environmental effects arising from the development. It is recognised in the EIA Regulations that not all environmental effects of a development are significant. However, those which are considered to be significant may constitute a material consideration in determination of the planning application.

The evaluation and determination of significant effects will be carried out using specific criteria defined in the technical chapters of the ES. Published standards and guidelines will be used as the basis for the significance criteria, where available.

The proposed methodologies for individual environmental topics are discussed in Section 4. However, the basic approach is the same for all environmental topics and follows four basic steps.

- The sensitivity of the receiving environmental receptor is evaluated using defined criteria.
- The sensitivity of a particular receptor is a product of its rarity, vulnerability, value or protection under legislation.

- The nature of the impact is established in terms of its duration, extent, frequency, likelihood of occurrence, reversibility, and compliance with recognised standards;
- The magnitude of the impact is determined. The magnitude of change is a consideration of how much the impact alters the baseline condition.
- The significance of the effect is determined by cross referencing the sensitivity of the receptor with the magnitude of change on the receptor.

It should be noted that environmental effects may be positive or negative and where relevant this will be noted in the ES.

### **3.6 Environmental Statement**

The output of the EIA process will be an Environmental Statement (ES). This will describe the CIA process and set out the assessment and findings. The contents of the ES will include:

- Non-technical summary;
- Project description;
- Need for the project;
- Alternatives considered;
- Review of national energy policy and national and local planning policy and regional policy where appropriate;
- Technical assessments of individual environmental topics (i.e. archaeology, hydrology, ecology, noise);
- Landscape and Visual Impact Assessment (LVIA); and
- Accompanying figures.

The ES will be produced as a hard copy and put on deposit for public inspection at locations to be agreed with Cornwall Council. Digital copies will also be made available on CD.

### **3.7 Public Consultation**

CWL is committed to consulting and working with the local community from an early stage and pride themselves on their open and transparent approach with local people. CWL aim to ensure that local communities are kept well informed and up to date as the proposal develops. This is done by providing information at public exhibitions in local village venues, in newsletters, by providing information on the dedicated Davidstow Community Windfarm Website ([www.davidstowcommunitywindfarm.co.uk](http://www.davidstowcommunitywindfarm.co.uk)) and by speaking to the local press. There will also be a permanent presence in the BeGreen shop in Camelford, where information will be available to all Monday-Friday.

CWL will be in regular contact with local councillors and Parish Councils to provide them with information which they can relay to their neighbours and residents. Suggestions from local communities and stakeholders for alternative consultation methods are always welcome so that CWL can continue to improve and maintain consultation.

Although a proposal for a windfarm development within Davidstow woods has been in the public domain since 2006, CWL will undertake numerous activities in order to make local communities aware of the revised proposal. Public exhibitions will be held, which will provide an opportunity to inform the local communities of CWL, the windfarm proposal and site boundary we are currently working on for the revised Davidstow scheme and the community benefits we offer.

The next round of public consultation will be held once details are closer to being finalised with regards to the number, size and exact locations of wind turbines as part of the windfarm proposal. In addition, by this stage CWL will also have photomontages and wireframes which can be shown to the local community to provide them with a visualisation of how the windfarm

may appear.

#### **4. Technical Assessments**

Technical assessments for a number of potential environmental effects will be undertaken as part of the EIA process. Each of the technical assessments to be undertaken is outlined below. Information gathering to support technical assessments has already commenced.

##### **4.1 Planning Policy**

It is not the role of the Environmental Statement to analyse planning policy but instead to identify all the relevant policy against which the Environmental Assessments will be addressed and evaluated against.

Guidance on planning policy in England and Wales is set out in a series of Planning Policy Guidelines (PPGs) and Planning Policy Statements (PPSs). These set out the policy framework within which local planning authorities are required to draw up their local development frameworks and take decisions on individual applications to secure these objectives.

Government guidance on renewable energy developments is set out in PPS22: Renewable Energy and outlines the targets for 10% of electricity from renewables by 2010, rising to 20% by 2020. PPS22 states how developments should be capable of being accommodated throughout England, "where the technology is viable and environmental, economic and social impacts can be addressed satisfactorily" and that "positive planning which facilitates renewable energy developments, can contribute to all four elements of the Government's sustainable development strategy" as detailed in PPS1: Delivering Sustainable Development.

PPS 1 is in place to ensure Government requirements for regional and local development plans to promote environmental, economic and social objectives which contribute to global sustainability by incorporating "policies which reduce energy use, reduce emissions, promote the development of renewable energy resources and take climate change impacts into account".

The supplement to PP51, Planning and Climate Change identifies how "tackling climate change is a key Government priority for the planning system" and states clearly that "climate change is happening and the fact that man-made emissions are its main cause is strong and indisputable".

PPS22 sets out the national targets for electricity generation from renewable energy, however these have been made even greater due to the introduction of the UK Renewable Energy Strategy (RES) which was published as a result of the UK signing up to the EU Renewable Energy Directive, hence the need for renewable energy projects in the UK. It sets out how more than 30% of our electricity could be generated from renewables, in comparison to 5.5% today, and how the majority of this electricity will be from wind power, both on and offshore.

Guidance and relevant policies applicable to the technical assessments set within the Cornwall Structure Plan and the North Cornwall Local Plan will also be addressed.

##### **4.2 Landscape and Visual**

###### **Guidance**

As part of the EIA, a Landscape and Visual Impact Assessment (LVIA) will be prepared and undertaken for CWL by Pegasus Environmental (part of the Pegasus Planning Group) who are chartered members of the Landscape Institute and who have extensive wind energy experience.

The LVIA will be undertaken in accordance with all current best practice outlined in published guidance:

- Guidelines for Landscape and Visual Impact Assessment, 2nd Edition (2002) Landscape Institute and the Institute for Environmental Management and Assessment.
- The Guidelines for Environmental Impact Assessment (2004) Institute for Environmental Management and Assessment.
- The Guidelines for Landscape Character Assessment, (2002) Countryside Agency.
- Making space for renewable energy: assessing on-shore wind energy development (2010), Natural England.

There are also a number of emerging best practice guidelines specifically for the assessment of windfarms. The following documents will be taken into consideration:

- Visual Analysis Representation of Windforms, — Good Practice Guidance (Consultation Draft) (2006), H+M and Envision for Scottish Natural Heritage, The Scottish Renewal Forum and the Scottish Society of Directors of Planning
- Guidelines on the Environmental Impacts of Windforms and Small Scale Hydroelectric Schemes, (2001) Scottish Natural Heritage
- Visual Assessment of Wind Forms — Best Practice, (2002) University of Newcastle, Scottish Natural Heritage commissioned report F01AA303A
- Guidance on Cumulative Effects of Windforms (2'd Version) (revised 13.05.05) Scottish Natural Heritage
- PPS 22 — Renewable Energy, (2004) ODPM  
Planning for Renewable Energy: A Companion Guide to PPS 22, (2004) ODPM
- Visualisation Standards for Wind Energy Developments (2010) Highland Council.

#### **Distinction between Landscape and Visual Effects**

In accordance with published guidance, landscape and visual effects will be assessed separately although the procedure for assessing each of these is closely linked. A clear distinction will be drawn between landscape and visual effects as described below:

- Landscape effects relate to the effects of the proposals on the physical and other characteristics of the landscape and its resulting character and quality.
- Visual effects relate to the effects on views experienced by visual receptors (e.g. residents, footpath users, tourists etc) and on the visual amenity experienced by those people.

#### **Types of Effect Assessed**

The LVIA will assess both the permanent effects relating to the operational lifetime of the windfarm and also the short-term effects associated with the construction of the windfarm. It will also consider any residual effects once the windfarm has been decommissioned.

The LVIA will consider direct and indirect effects. Thus, it will not only assess the effects associated with the turbines but also any related effects resulting from the substation, underground cabling, site access tracks and site entrance. Effects associated with the grid connection will be subject to a separate application and will not be covered in the ES.

The cumulative effect of other windfarms within 30km of Davidstow which are either operational, under construction, consented or the subject of a full planning application will also be assessed. Best practice guidelines identify three main types of cumulative visual

effects:

- Simultaneous (or combined) visibility — where two or more sites are visible from a fixed viewpoint in the same arc of view.
- Successive visibility — where two or more sites are visible from a fixed viewpoint, but the observer is required to turn to see the different sites.
- Sequential visibility — where two or more sites are not visible at one location, but would be seen as the observer moves along a linear route. This is commonly experienced when travelling along a linear route, for example, a road or public right of way.

### **Study Area for Landscape and Visual Assessment**

The study area for the LVIA will be taken to be a 35km radius from the site in all directions unless otherwise agreed with the local planning authority during the consultation process. However, research suggests that beyond 30km from a windfarm site, the limit of the human eye's ability to identify turbines is being reached.

### **Methodology**

The LVIA will be undertaken in 6 stages:

- Baseline data collection and analysis;
- Description of the baseline landscape and visual amenity (including landscape classification and identification of baseline landscape and visual sensitivity);
- Development of mitigation measures;
- Identification of potential residual effects on the landscape and views;
- Evaluation of the significance of effects on landscape and visual amenity; and
- Presentation of findings in the ES

The LVIA will follow an established procedure for determining effect significance. The sensitivity of the baseline landscape resource and visual amenity will be determined and cross-referenced against the magnitude of change caused by the development.

### **Landscape Assessment Methodology**

Baseline information on the landscape will be gathered through a combination of desk studies, consultation and field surveys.

The following documents will be reviewed:

- Relevant Development plans;
- The Management Plan for the Cornwall Area of Outstanding Natural Beauty (2004 2009);
- Revision 2020 Final report (June 2005);
- Any other national, regional and local landscape character assessments covering the area identified during the scoping exercise.

Aerial photographs and OS maps at 1:250,000, 1:50,000, 1:25,000 and 1:10,000 scales will be reviewed and information about the following will be analysed:

- Local geology and soils;
- Topography;

- Current & historical land use;
- Climate;
- Public Rights of Way locations, Common land and open access land;
- Listed buildings and Scheduled Ancient Monuments (SAMS);
- Historic Parks and Designed Landscapes;
- Battlefields;
- Conservation Areas;
- National, regional and local landscape designations.

Consultations on landscape and visual issues will be held with relevant local authorities and Natural England. Valued/designated landscapes and visual resources will be identified and confirmed at the national, regional and local levels.

A series of field surveys will be carried out to gain a better understanding of the landscape, to determine its character and condition and identify visual receptors and visual barriers. The surveys will establish the landscape resources that combine to give the landscape a distinct sense of place.

The baseline studies will identify the landscape resources and character of the surrounding area. The assessment will identify how the development will affect individual features and the wider landscape character.

#### **Visual Assessment Methodology**

Through the production and review of the Zone of Theoretical Visibility (ZTV), the geographical extent of visibility will be established at hub and blade tip heights. This will help to identify sensitive visual receptors in the surrounding area.

Due to the likely extent of the ZTV, it would be impossible to assess the visual effect on every individual visual receptor within the ZTV of the scheme. A series of representative viewpoints will therefore be agreed with the appropriate local authorities, statutory consultees and other relevant stakeholders. These viewpoints will represent different visual receptor types (e.g. observers from residential properties, footpaths, roads, cycle routes, tourist attractions etc.) and also at different distances and directions from the scheme.

The exact number of viewpoints that will be used will not be determined until further baseline studies are undertaken. However, it is anticipated that approximately 18 of the viewpoints will be illustrated in the Environmental Statement (subject to consultation with stakeholders). These illustrations will be in the form of wireframes and photomontages. The representative viewpoints will be used to assess the effects on the different range of views towards the site.

#### **Mitigation Measures**

The development of the windfarm proposals and the CIA is an iterative process. Baseline information regarding landscape features and sensitive visual receptors will be used to refine the final layout of the turbines on the site as appropriate.

Mitigation measures will be developed in tandem with the layout to minimise adverse effects. Options for screening various components of the scheme will be investigated and adopted as mitigation measures where appropriate.

#### **Potential Cumulative Effects**

Cumulative landscape and visual effects will be assessed where relevant. The assessment will consider proposals within 30km of the site which have formally entered the planning

system through submission of a full planning application, those sites which have been consented and those under construction or are operational.

In identifying potential cumulative effects, a similar technique will be adopted to that used in the visual assessment. In the first instance, ZTV analysis will be used to identify the degree of potential overlap between ZTV's of the individual developments. Photomontages may also be used to illustrate viewpoints where two or more windfarms are likely to be visible. The significance of cumulative effects will be established by cross-referencing the sensitivity of viewpoints where more than one site would be visible and the cumulative magnitude of effect on each particular view.

### **Significance of Effects**

It is anticipated from the outset that the proposed Davidstow Community Windfarm would give rise to some significant effects. This is almost inevitable with any commercial wind energy development in the UK due to the nature and height of the turbines. However, not all landscape and visual effects arising would be significant.

In the LVIA, significance will be assessed in terms of varying degree. Those effects identified as being of substantial and moderate significance may be regarded as likely to be equivalent to significant effects when discussed in terms of the 1999 EIA Regulations.

The conclusion that some effects are considered by the assessor to be significant must not be taken to imply that they are necessarily adverse or positive. Many people have a predisposition towards wind turbines. It is accepted that some people consider wind turbines to be unattractive but many people also enjoy the sight of them. The assessment, therefore, will not attempt to influence personal opinion about the aesthetic appearance of windfarms. It will, as far as is possible, provide a professional, objective judgement on the significance of landscape and visual effects and comment on the acceptability of the scheme in terms of fit with the existing landscape.

## **4.3 Ecology and Ornithology**

### **Guidance**

As part of the CIA, qualified ecologists will undertake an ecological impact assessment (EiA). All ecology personnel working on the project will be members of the Institute of Ecology and Environmental Management (IEEM) and have experience of similar wind energy projects. The ecology assessment will be undertaken in accordance with best practice outlined in the following published guidance:

- Guidelines for Ecological impact Assessment, IEEM, 2006
- Guidelines for baseline Ecological Assessment, Institute of Environmental Assessment, 1995
- Extended Phase 1 Habitat Survey: a Technique for Environmental Audit, Joint Nature Conservation Committee, 1993
- Wind Farm Development and Nature Conservation, English Nature, 2001
- Assessing Significance of Impacts from Onshore Windfarms on Birds Outwith Designated Areas, SNH, 2006
- Bird survey methods for use in assessing the impacts of onshore windforms on bird communities, SNH, 2005
- Windfarms & Birds: Calculating the theoretical collision risk assuming no avoidance action, SNH, 2000,

### **Ecology Methodology**

An initial Phase 1 Habitat survey of the site will be carried out, augmented by detailed target notes of any features of ecological importance. Any semi-natural communities assessed to be of significant nature conservation importance will be mapped to National Vegetation Classification (NVC) standard. The EclA will also take account of existing information relating to the ecological designations and protected species that may be found in the area, either year round or seasonally.

Following the results of the Phase 1 survey the need for additional surveys for protected or otherwise notable species will be evaluated. These additional surveys will be undertaken during appropriate times of the year using standard methodologies acceptable to Natural England.

The results of these baseline surveys will be used to inform a constraints plan. The principal mitigation measure adopted will be the use of buffer zones around sensitive areas of habitat, sensitive construction techniques and habitat management/restoration where appropriate. Significant impacts from the scheme will be identified using the recently published IEEM Guidelines.

### **Ornithology Methodology**

Monthly wintering bird surveys and breeding bird surveys have been carried out. The following methodologies for the survey and assessment have been used:

- Breeding Birds: Common Bird Census techniques involving registration and territory mapping as per Bibby *et al.* 2000;
- Species specific studies: Surveys using a specific methodology for certain species will be undertaken, as per Gilbert *et al.* 1998;
- Collision Risk Modelling: Band W., Madders M. & Whitfield D.P. (in press) Developing field and analytical methods to assess avian collision risk at windfarms. In de Lucas M., Janss G. & Ferrer M. (eds.) *Birds and Wind Power*. Lynx Editions, Barcelona;
- Survey methods for use in assessment of the impacts of proposed onshore windfarms on bird communities, as per Scottish Natural Heritage's (SNH) consultation draft v 6.5 (April 2005).

The assessment of effects on birds will be undertaken in accordance with: Methodology for Assessing the Effects of Wind Farms on Ornithological Interests (a paper agreed between RenewableUK (formerly BWEA) and SNH).

Contact with Natural England and RSPB will continue from Scolding throughout the duration of the EIA, in order to keep these key consultees informed of the progress of assessment work.

Data from these surveys will be used to inform a constraints plan which will be used in the design and layout of the development. The objective of this is to build-in mitigation of ornithological impacts into the layout of the windfarm. Additional mitigation for birds may include measures such as habitat management. Residual impacts will be predicted and where possible quantified using information from a review of the scientific literature and collision risk modelling.

This information will allow an accurate and standardised assessment of the impacts of the development on ornithological interests.

## **4.4 Noise**

### **Guidance**

An assessment of noise from the operation of the windfarm will be undertaken in line with

ETSUR-97 'The Assessment and Rating of Noise from Wind Farms, and in agreement with the Environmental Health Department of Cornwall Council.

### **Assessment Methodology**

As part of the EIA, an assessment of noise impacts will be undertaken by ACIA who are members of the Institute of Acoustics and who have extensive experience of wind energy projects. The assessment will include the following:

- Identification of nearest noise sensitive receptors;
- Survey of background noise levels, in parallel with wind speed measurement at each receptor;
- Agreement of noise limits for each property with Environmental Health Departments
- Prediction of noise levels received at each receptor;
- Comparison of predicted levels with agreed noise limits; and
- Identification of mitigation measures where necessary.

All baseline noise measurements will be correlated with simultaneous wind speed measurements at the proposed site, in order that a comparison can be made between actual operating noise levels from the turbines and the noise levels that would otherwise be experienced at dwellings.

If it is predicted that the noise from the windfarm may potentially exceed agreed noise criteria at sensitive receptors during the construction, operation or decommissioning phases of the project, a range of mitigation measures will be considered and evaluated.

Potential mitigation for construction and decommissioning periods include limitation of construction hours, modification of construction techniques, etc. Measures to mitigate the impact of operational noise include the modification of the layout design and modification of the turbine type.

## **4.5 Archaeology & Cultural Heritage**

### **Guidance**

The archaeological assessment will be conducted in accordance with, and taking account of the following legislation, policies, standards and guidance (amongst others):

- Code of Conduct, 2001 Institute of Field Archaeologists
- Standards and Guidance for Archaeological Desk Based Assessment, 2001 Institute of Field Archaeologists;
- Ancient Monuments and Archaeological Areas Act 1979;
- Planning (Listed Buildings and Conservation Areas) Act 1990;
- PPS 5: Planning for the Historic Environment
- Hedgerow Regulations (1997 as amended).

### **Assessment Methodology**

For the purposes of this assessment, Cultural Heritage interests will be deemed to include both above ground (the built heritage) and below ground remains. The assessment will consider both direct and indirect (largely visual) effects upon the following Cultural Heritage

interests:

- Archaeology - above and below ground, designated or not. Consideration will be given to the potential for currently unknown (buried) archaeological remains to exist within the site; and
- Listed Buildings, Conservation Areas, Historic Parks and Gardens, Registered Battlefields, and hedgerows that may qualify as historically important under the Hedgerow Regulations.

The potential for direct effects from construction, operation and decommissioning will be assessed, and appropriate mitigation recommended. The aim would be to avoid any direct impacts through the early identification of archaeological interests on the site and iterations to the site layout.

Indirect effects will also be assessed. Any indirect effects are likely to consist of changes to the setting of historic features. The assessment will be against a theoretical Zone of Visual Influence produced as part of the Landscape and Visual Impact Assessment.

### **Desk Based Study**

Data will be gathered from the following sources:

- Cornwall Council Historic Environment Service;
- Appropriate aerial and cartographic information on pre-recent land uses;
- National Monuments Record;
- English Heritage;
- County Record Office; and
- Local Studies libraries and other archives as appropriate.

### **Walkover Survey**

Depending on the results of the desk-based study, a walkover survey will be carried out if deemed necessary due to the archaeological resource of the site. If required, this fieldwork will be conducted to:

- Assess and validate documentary data collected;
- Identify the extent and condition of any visible archaeological monuments;
- Determine whether previously unrecorded historic features are visible; and
- Provide an indication of the suitability of any further survey techniques.

Written descriptions and photographic records will be made of all sites located within the study area. Data from the desk based studies and field surveys will identify the need for any site evaluation work.

The results of the surveys will inform a constraints plan which will be used in the design and layout of the development. The objective of this is to build-in mitigation of archaeological impacts into the layout of the windfarm.

### **Impact Assessment and Mitigation**

The assessment will be supported by presentation of the data in assessment tables, with a

gazetteer and location plan. The assessment will detail direct and indirect impacts within the site and search area. The detailed data gathering and walkover survey results will be provided in the Environmental Statement. Any cultural heritage receptors identified on site would be taken into account in the iterative layout design process.

#### **4.6 Access and Traffic**

##### **Guidance**

The Traffic assessment will be conducted in accordance with and taking account of, the following policies and guidance (amongst others):

- PPG 13: Transport
- Guidelines for the Environmental Assessment of Road Traffic 1993, Institute of Environmental Assessment

##### **Methodology**

An assessment will be undertaken of the potential increase in local road traffic as a result of the construction, operation and de-commissioning of the proposed development.

The assessment will consider:

- The selection of suitable routes for construction traffic accessing the site;
- The requirements for modifications to the existing public road infrastructure in order to accommodate the delivery of turbine components;
- The number of vehicle movements arising as a result of the proposal;
- The potential environmental effects which may arise as a result of construction traffic passing through local towns and villages; and
- Potential conflicts between construction traffic and the interests of other users of the local public road network.

Abnormal load studies will be undertaken to determine the least disruptive route to site for the delivery of turbine components. Potential pinch-points identified will be investigated further by means of swept path analysis. This will enable the extent of any necessary geometric modification to be identified. Information will be sought from the relevant Council departments and other appropriate authorities regarding weight and other restrictions along the proposed route.

The assessment will consider the significance of the projected traffic increases in the light of recognised thresholds of significance.

Options for access routes within the site will be investigated and developed through an iterative process, depending on the proposed site layout, taking into account environmental issues at the site.

#### **4.7 Hydrogeology and Hydrology**

##### **Guidance**

The Hydrogeology and Hydrology assessment will be conducted in accordance with, and taking account of the following legislation, policies, standards and guidance (amongst others):

- Water Framework Directive (2000/60/EC)
- Environmental Protection Act (1990)

- Water Resources Act (1991)
- Land Drainage Act (1991 and 1994 amendments)
- Groundwater Regulations (1999)
- PPS 23: Planning and Pollution Control
- PPS 25: Development and Flood Risk
- CIRIA Environmental Good Practice on Site (C502) (1999)
- CIRIA Control of Water Pollution from Construction Sites (C532) (2001)
- Environment Agency Pollution Prevention Guidelines

### **Methodology**

The Environment Agency, South West Water and the relevant Council departments will be consulted to obtain surface and groundwater information. This will include river flow and water quality data; details of any surface or groundwater abstractions; discharges; and rainfall data. Site visits will be carried out to verify this information and to gain a good understanding of the hydrological and hydrogeological conditions on site. During this first phase, CWL will identify:

- water features across the site including: wetlands areas, natural springs and seepages;
- any water supply sources (either springs, borcholes and wells) including private water supplies;
- historical land use and potential sites of land contamination; canal flow and surface
- water quality data;
- discharge consents;
- flooding and flood risk information; and
- Rainfall data.

Surface water catchments will be mapped and an assessment of the potential impact the works could have on surface and ground water quality and flows made. An assessment will be made for the construction, operation and decommissioning phases and mitigation recommendations made.

If necessary, a Flood Risk Assessment (FRA) will be undertaken. During this second phase, CWT will:

- Seek confirmation of modelled flood level for the site for the 1 in 100 and 1 in 1000 year flow events using data from FA, including potential impacts of climate change;
- Compare flood levels against topographic levels over the site and surrounds;
- Identify any hydrological constraints to the proposed development of the site;
- Assess the existing surface-water runoff regime at the site, and determine the potential impacts of the development on peak runoff rates and flow directions;
- Develop a conceptual mitigation strategy for the proposed development, including an outline for an appropriate surface-water management system.

Mitigation recommendations will be made with an emphasis on protection of the catchment, the watercourses, their tributaries and any private water supplies. The protection of the hydrological and hydrogeological resources and pollution prevention will be a key consideration, particularly during site preparation and construction. Reference will be made to the EA's Pollution Prevention Guidelines where appropriate.

#### **4.8 Telecommunications and Aviation**

##### **Guidance**

The following guidance documents will be taken into account in this assessment:

- Office of the Deputy Prime Minister (2001) Planning Policy Guidance 8 (PPG8): Telecommunications;
- Department of Trade and Industry (2002) Wind Energy and Aviation Interests: Interim Guidelines; and
- BBC, Ofcom (2001) The Impact of Large Buildings and Structures (including windfarms) on Terrestrial Television Reception.

##### **Methodology**

In order to ensure the windfarm does not interfere with civil aviation communications systems, extensive consultation with the Civil Aviation Authority (CAA), the Ministry of Defence (MOD), National Air Traffic Services (NATS) and local airports will be conducted.

If inappropriately sited, wind turbines have the potential to interfere with local telecommunications. To ensure the windfarm does not cause problems with these networks, consultations with all television, radio and mobile phone operators will be carried out. Initial consultations have already taken place with all of the above consultees and this will continue during the EIA process.

#### **4.9 Geology**

In order to provide a thorough understanding of the site conditions with respect to the geology and soils, all readily available information pertaining to the site will be obtained.

This includes:

- Geology;
- Geomorphology;
- Mining conditions;
- Physical stability and natural geo-hazards;
- Confirmation of the actual soil conditions on site where any site specific investigation information may exist;
- Review of the historical use of the site to identify any potential sources of soil contamination and allied conditions.

This stage of the work will essentially be a desk-based research and will involve a thorough review of data which is obtained from the public domain and other relevant and readily accessible sources such as the Local Authorities and the Environment Agency. A walk over survey will also be undertaken to confirm the findings and obtain a physical appreciation of the site. The geological assessment will be carried out in accordance with the relevant regulations and current best-practice. Mitigation measures will be identified where this is deemed necessary.

#### **4.10 Socio-economic, Recreation and Land Use Impacts**

An assessment of the socio-economic impacts of the proposals will be carried out, primarily related to job creation and financial investment in to the local economy. The impact of the proposed windfarm will be assessed and steps taken to minimise perceived negative impacts and promote the benefits and positive impacts.

The assessment will consider the proximity of the site to areas of recreational use, including public rights of way. Current land use within the site will be reviewed and an assessment of the impacts on agricultural land use will be carried out.

#### **4.11 Shadow Flicker**

The phenomenon known as 'Shadow flicker' only occurs in very specific circumstances, for instance when the sun passes behind the rotors of a wind turbine and casts a shadow over neighbouring properties. As the blades rotate the shadow flickers on and off. The effect occurs inside buildings where the flicker appears through a narrow window opening. The likelihood and duration of the effect depends upon:

- Direction of the property relative to the turbine(s) - In the UK only properties within 130 degrees either side of north (relative to the turbines) can be affected as turbines do not cast long shadows on their southern side. Properties also need to have narrow windows facing in the direction of the turbines;
- Distance from turbine(s) — The further the observer is from the turbine the less pronounced the effect would be. Flicker effects have been proven to only occur within tenrotor diameters of a turbine;
- Turbine height and rotor diameter;
- Time of year and day; and
- Weather conditions (i.e. cloudy days reduce the likelihood of shadow flicker occurring).
- Wind Speed and wind direction — The wind speed at each turbine would need to be greater than 4m/s in order for the blades to rotate. In addition the shape of the shadow will be determined by the position of the sun relative to the blades (which will be rotated to face into the wind).

There is no guidance or set limits in the UK for exposure to shadow flicker, however an assessment will be carried out of the potential for the proposed turbines to cause shadow flicker.

#### **4.12 Conclusion**

Davidstow Community Windfarm has the potential to make a significant contribution to renewable energy targets set for Cornwall and the South West region, almost contributing all the remaining 50% required to meet the 2010 target in one development.

All the likely issues of the proposed Davidstow Community Windfarm, which have been outlined within this scoping report, will be fully identified and assessed during the Environmental Impact Assessment. CWL would welcome feedback you may have in this respect.