

# RENEWABLE ENERGY AT SHEEPDROVE ORGANIC FARM

Developing Best Practice in the North Wessex Downs AONB

Final Report  
June 2006



ALISON  
MILLWARD  
ASSOCIATES



SHEEPDROVE ORGANIC FARM



From AEA Technology

LDADESIGN

## **Renewable Energy at Sheepdrove Organic Farm**

Developing Best Practice in the North Wessex  
Downs AONB

06 June 2006

**Issuing office Oxford**

T: 01865 887050

F: 01865 887055

E [info@lda-design.co.uk](mailto:info@lda-design.co.uk)

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### Version history

VERSION	DATE	COMMENT
1 (final)	06 June 2006	Final report

This document has been prepared and checked in accordance with ISO 9001 : 2000

## 1.0 Executive Summary

Sheepdrove Organic Farm is an award winning food producer and an innovative farm business that is continually striving to improve the sustainability of its operations. To date the farm has carried out work on energy efficiency, clean fuels and has installed solar electricity and solar heating.

The farm has commissioned a range of studies into its sustainability including waste management, energy usage and renewable energy. Small scale wind turbine development, the focus of this study, is one of a number of options in the renewable energy mix. However, it is acknowledged that the wind energy option has the highest potential for negative impacts on landscape character and visual amenity.

The farm is located in the North Wessex Downs Area of Outstanding Natural Beauty, an area of elevated chalk landscape, designated for the high quality of the rural landscape and notable for areas of remote open downland, dramatic skyline escarpments, areas of wooded downland and intimate small scale valleys (refer to Appendix 1: Map of Sheepdrove Organic Farm).

In response to this, and acknowledging the valuable contribution that wind energy can have to counter reliance on fossil fuels, the North Wessex Downs AONB Council of Partners commissioned LUC to produce an assessment<sup>1</sup> (North Wessex Downs AONB Wind Study) to consider the sensitivity of the AONB landscape and to set out the constraints to turbines for each landscape type. At the time the study was being undertaken this report was in draft form. In March 2006 this document was adopted by the North Wessex Downs AONB Council of Partners.

Published in 2005, the study found that all landscapes within the North Wessex Downs AONB are constrained by turbine development to a degree. The landscapes that are characteristic of Sheepdrove Organic Farm were assessed as being highly constrained to turbine development.

In addition to assessing the sensitivity of the landscape to turbines above 25m, commentary within the report states that the open downland landscape is likely to also be similarly constrained by developments below 25m unless these are of a small scale and integrated with existing built structures. It states that an individual site investigation to assess specific sensitivities and constraints would be needed on a case by case basis, and any such investigation should also pay particular note to the cumulative impacts of such structures.

In the light of the North Wessex Downs AONB Wind Study findings, but with a commitment to explore the possibilities of wind turbines within the AONB, Sheepdrove Organic Farm, with the support of the North Wessex Downs AONB, commissioned this best practice case study to assess the opportunities for the use of wind energy at the farm as part of ongoing efforts to become more sustainable in terms of energy procurement and use.

This new study has, for the sake of exploring sensitivities and constraints at the site and as a necessity of the electricity demand projected by the farm, looked at turbines above the 25m threshold. It roots the assessment in a consultation process, and as such utilises best practice guidance on the engagement process for wind turbine developments.

This report describes the approach taken and the findings of the study, including a review of the site and local landscape character, visual character, details of the consultation process and technical details that have helped steer the farm regarding the range of turbine types technically appropriate for the specific needs of the farm, their physical location and integration into the local electricity grid. It has been prepared to help inform the AONB community and has the potential

to be used as the basis of best practice guidance about the provision of small scale wind turbine developments in the North Wessex Downs AONB that might be developed in the future.

The overall purpose of the study is to bring together community, landscape and business needs, as well as technical considerations as part of a best practice case study. The study is not in any way related to a specific Planning Application, and is more akin to a feasibility study or pre application consultation exercise. As such, whilst impacts are considered, the process was not an Environmental Impact Assessment in that a specific proposal, which could be tested, does not exist at this stage. The case study did however assess many site-specific considerations and examined the issues through dialogue with stakeholders and consultation with experts.

## 2.0 Introduction and Brief

### 2.1 Introduction

LDA Design was appointed as lead consultant by Sheepdrove Organic Farm (the farm) in December 2005 to develop guidance on how it might install small wind energy generation solutions at the farm, which lies in the North Wessex Downs Area of Outstanding Natural Beauty (the AONB). Sheepdrove Organic Farm and the North Wessex Downs AONB funded the study, although the client and all reporting was directly to the Farm.

This report describes the approach taken and the findings of the study, including a review of the site and local landscape character, visual character, details of the consultation process and technical details that have helped specify the types of turbines appropriate for the specific needs of the farm, their physical location and integration into the local electricity grid. It has been prepared to help inform the AONB community and has the potential to be used as the basis of best practice guidance about the provision of small scale wind turbine developments in the North Wessex Downs AONB that might be developed in the future.

The farm is continually seeking to improve the sustainability of its practices and has commissioned a range of studies into sustainability, including energy. Small scale wind turbine development, the focus of this study, is one of a number of options in a renewable energy mix being considered by the farm. However, it is acknowledged that this option has the highest potential for negative impacts on landscape character and visual amenity. The North Wessex Downs AONB commissioned the North Wessex Downs AONB Wind Study in response to this, as well as in recognition of the valuable contribution wind energy can have to reliance on fossil fuels.

This case study brings the exploration of these issues to a real context, alongside other renewable solutions, aiming to balance the needs a business and its working community with the need to conserve the local landscape character, along with other issues such as economics, biodiversity, archaeology and stakeholder interests.

### 2.2 Overall Aims and Purpose

The overall aim of the study is to bring together community, landscape and business needs, as well as technical considerations as part of a best practice case study. Detailed aims are as follows:

- Provide guidance and a documented process demonstrating how to work towards low impact renewable energy within the North Wessex Downs AONB;
- Increase people's awareness and understanding of the potential for renewable energy at this scale, and how to protect the AONB as part of a sustainable energy development; and
- Produce a case study to inform future renewable energy development at Sheepdrove Organic Farm which is of relevance to the wider AONB community.

The study is not in any way related to a specific Planning Application, and is more akin to a feasibility study or pre application consultation exercise. As such, whilst impacts are considered, the process was not an Environmental Impact Assessment in that a specific proposal, which could be tested, does not exist at this stage. The case study did however assess many site-specific considerations and examined the issues through dialogue with stakeholders and consultation with experts.

### 2.3 Objectives

Further to the aims and purpose previously stated, the project had a number of clearly defined objectives as set out below. These objectives have been met, albeit some were refined during the course of the study.

- Produce a case study report to document the project processes and findings, covering aspects of local consultation, impact and feasibility assessment;

A range of constraints and sensitivities were explored alongside wind energy potential and financial factors however this study focussed on assessing landscape and visual impact. Thus it relates well to the 2005 North Wessex Downs AONB Wind Study scope but also goes beyond it.

- Develop guidance and recommendations for the AONB community to use in future;
- Within the report, set wind energy within the context of Sheepdrove Organic Farm's broad approach to developing renewable energy and sustainability as a whole; and
- Evaluate a range of different wind turbine locations, numbers, type and scale, (all under 25m hub) around the farm and allocate a score for each of: i) wind power potential; ii) environmental impact; iii) costs; iv) sensitivity to landscape character and community.

Whilst turbines under the 25m threshold formed part of the assessment, it was also regarded as important to consider and assess larger turbines, given the electricity needs of the farm and the advantage that a smaller number of larger turbines would have in terms of cost effectiveness and the potential to reduce disturbance to archaeology, biodiversity and recreational access.

Scoring turbine options was not deemed appropriate, as the exercise was to consult stakeholders on the positive and negative aspects of given scenarios, rather than to articulate responses in terms that were relative to each other.

- Obtain specialist technical evidence for: the wind power potential; what associated infrastructure will be necessary; installation and running costs;
- Produce findings in line with the standard Environmental Impact Assessment steps;

The brief and budget necessitated an initial focus on landscape and visual issues. Best practice and the views of the consultees led to the environmental factors being expanded, albeit in a limited way, to include other selected environmental constraints.

- Carry out consultation with the local community, stakeholders and the AONB team;
- Identify and evaluate solutions to minimise environmental impact by the windmills and any associated infrastructure, while balancing the need for viable installations; and
- Establish how Sheepdrove can meet its electricity needs with renewable energy sources.

The project focused primarily upon wind energy solutions to meet electricity demands at the farm. Stakeholders also expressed a desire to compare the capacity and cost effectiveness of photovoltaics, and as a consequence technical details were provided at Workshop 2.

The farm has, and continues to explore other technologies, and presentations were made about achievements to date. Other renewable energy options were not reviewed in detail as part of this study. However, the farm is now able to put wind energy into context with other renewable energy solutions. The Farm can draw on this study and the information from the Forum for the Future study that coincided with this project, to inform the overall perspective about energy at the farm.

- Establish the potential for a Community Renewables Initiative (CRI) project.

The possible development of wind energy at the farm represents a potential CRI. The farm is a community in itself. The aim would be to connect wind turbines to the local electricity grid. All power produced would reduce the farm's demand on local supply and any surplus power would add to the existing supply.

There is also a broader potential for CRI, such as with neighbouring farms and villages in a cooperative project, perhaps using various forms of renewable energy, designed to be mutually beneficial to both local business and the wider community.

Some stakeholder feedback did alluded to turbines at the farm being of benefit to the farm alone, whereas the impacts on landscape character and visual amenity would be shared by the whole community with no benefit to it. This point is noted, however any contribution to the local electricity grid helps to stabilise supply and can therefore be regarded as of wider benefit.

## **2.4 Consultant Team**

The study brief focused on three main areas (community consultation, landscape and visual impact, and technical feasibility) and as such the consultant team was drawn together from experts in these particular disciplines.

- Landscape and Visual Impact Assessment, Project Management and Lead Consultant: LDA Design.
- Stakeholder Consultation and Facilitation: Alison Millward Associates.
- Technical Energy Studies: Future Energy Systems (FES).

## **2.5 Structure of Report**

The report is designed to illustrate the project stages and key outputs of the study, as well as the findings of the assessment and the lessons that can be drawn.

Appendices present detailed findings with regard to landscape character and visual analysis and the principal outputs that emerged during the project.

## **2.6 Acknowledgements**

The project benefited from close collaboration between the farm and the consultant team. Thanks are extended to the farm for their time and input and in particular to Jason Ball (Manager of Biodiversity and Alternative Energy) and staff at the Kindersley Centre who hosted the two consultation events.

### 3.0 Background

#### 3.1 Sheepdrove Organic Farm

The farm is located immediately to the north east of the village of Lambourn, and 4km to the south of the town of Wantage and lies at the heart of the North Wessex Downs AONB. The farm occupies elevated, undulating land which forms part of a dip slope extending from the Ridgeway to the north of the farm towards the River Lambourn to the south. It comprises over 2,000 acres of agricultural land which is divided into two separate land holdings. The main portion of land lies approximately 1.3km south of the Ridgeway national trail, 3km north of the River Lambourn, 1km east of the B4001 Farringdon Road Down and 3km west of the A338. The second, smaller parcel of land lies south west of the main farm and straddles the local road extending from Lambourn toward the farm. The southern boundary of this smaller parcel of land bounds the northwest outskirts of Lambourn.

The farm is well known as an award winning food producer and as an innovative farming business. In addition to its achievements in organic agriculture it is also striving to be more sustainable as a whole.

In addition to being a productive land holding Sheepdrove Organic Farm is a thriving community, consisting of workers' accommodation, offices, a conference centre, an on-site processing unit for its produce and the private residence of the Kindersley family, the farm owners.

The photographs below illustrate the character of the farm landscape, and the landscape setting of the main complex of farm buildings and the Kindersley Centre.



View west towards the Kindersley Centre and Warren Farm from the public right of way extending northwards along an elevated ridgeline.



View to north east from the public byway extending to north of Nutwood illustrating the open downland character of the farm and its wider landscape setting.

### 3.2 Energy Objectives

As part of broader sustainability objectives, the farm's aim is to become more self-sufficient in energy and in particular for the main uses which are heat, transport and electricity. In so doing, the farm will reduce its carbon footprint and the amount of greenhouse gases created by farm activities.

By way of a target, the farm has expressed the intention of meeting 25% of its total energy needs through the exploitation of renewable energy sources.

### 3.3 Building on Previous Achievements

To date the farm has successfully installed solar heating, solar electricity and heat exchangers to the Kindersley Centre. However, the farm is looking to expand on these achievements in order to meet its energy targets.

The farm has previously worked with Forum for the Future (a leading sustainable development charity in the UK) on assessing the farm's energy use and renewable energy options. Their latest research coincided with the initiation of this case study so this work helped the farm to prioritise solutions such as waste digesters, bio-fuels, heat exchangers, Sterling engines, solar electricity and small-scale wind power.

This study looks in detail at the potential for small wind energy solutions at the farm. Having already established the intention of meeting 25% of its total energy demands through renewable sources, the farm initially looked at what would be necessary to meet 100% of its electricity consumption from small scale wind turbines. As the study evolved, however, and in recognition of community consultation, constraints identified, and after considering the implications of a 100% target for electricity from wind power, this target was scaled down to 25% of total electricity needs (approximately 6%-7% of total energy).

## 4.0 Outline of the Stages of the Study

### 4.1 Funding and support from North Wessex Downs AONB

The North Wessex Downs AONB is a nationally important landscape, and was designated in 1972 on account of the quality of the upland chalk landscapes that characterise the area. The AONB Council of Partners recognises that wind energy is one of a number of viable sources of renewable energy that is technically feasible in the area. However, wind turbines, by virtue of their siting and scale have the greatest potential for having a negative impact on landscape character and visual amenity.

The North Wessex Downs AONB Wind Study concluded that all landscapes within the North Wessex Downs are constrained with regard to turbine development. Four landscape types were considered to be highly constrained.

Sheepdrove Organic Farm is located within the Open Downland landscape type. The section describing sensitivity and constraints for the Open Downland landscape concludes that this landscape is highly constrained for each of the three turbine height classes (HC) assessed as part of the study (HC1 25-40m to blade tip, HC2 40-80m to blade tip and HC3 80m to blade tip). It also states that, given the constraints identified and the very high sensitivity of the Open Downland landscape, the landscape is likely to be similarly constrained in relation to developments below the HC1 threshold (i.e. below 25m to blade tip) unless these are of a small scale and integrated with existing built structures. The study therefore recommended that an individual site investigation should be carried out to assess specific sensitivities and constraints to this scale of development on a case-by-case basis and that such an investigation should also pay particular note to the cumulative impact of such structures.

Given Sheepdrove Organic Farm's interest in exploring wind energy options as part of an holistic review of renewable energy opportunities, the North Wessex Downs AONB agreed to fund this case study in order to test the findings of the earlier North Wessex Downs AONB Wind Study and identify mechanisms for exploring the scope of small scale wind production in the AONB. In this respect, whilst the findings will be an important source of information to Sheepdrove Organic Farm in their review of renewable energy options, it also represents a best practice case study to inform the AONB officers on the mechanisms that could be used to assess the appropriateness of small wind turbine developments on a case by case basis within the AONB.

In addition to funding the study, the North Wessex Downs AONB has been a source of support and information, with both workshop events being attended by a senior member of the AONB office, namely Huw Williams, North Wessex Downs AONB Planning Policy Advisor.

### 4.2 Brief developed and consultants appointed

The approach to the study was informed by the project brief and follows published guidance on landscape character assessment<sup>2</sup>, landscape and visual impact assessment<sup>3</sup> and community consultation in relation to wind energy projects<sup>4</sup>.

The initial brief formed a sound basis for the approach to the project to be developed in consultation with the client. Following commission, the project approach was tailored to meet the specific needs of stakeholders during the lifespan of the project. For example, the scope of the assessment was widened to assess biodiversity, archaeological and access sensitivities and constraints in addition to landscape and visual sensitivity, as stakeholders highlighted that these were important considerations at the farm and in the local landscape more generally.

The initial brief required that the assessment of final target scenarios should deal specifically with turbines below the 25m height threshold. However, the scope of work was initially much wider, looking at wind turbine options that were above 25m in height. This was a direct result of

specialist consultant advice and formulating realistic scenarios that met the electricity demands of the farm, whilst still being of a self-sufficiency remit rather than a commercial nature. In reviewing turbine options above 25m, the project team was able to engage consultees on a wider spectrum of wind energy options and discuss issues relating to output and cost efficiencies of single turbines and size versus number.

### 4.3 Project Stages

The study consisted of a number of discrete but interrelated stages, requiring close collaboration between the project team and client. LDA Design acted as lead consultant and coordinated the scope and outputs of two specialist consultants that dealt with technical issues relating to wind energy and public consultation. LDA Design also provided expert advice on issues related to landscape and visual impact and also coordinated the gathering and presentation of information on other constraints and sensitivities.

- The project approach necessitated different working methods. By way of summary these comprised:
  - Desk Study: A review of documents, plans and other material relevant to the assessment.
  - Field Survey: By qualified landscape architects to assess landscape and visual characteristics, potential impacts and from public rights of way and other accessible land and by technical experts to assess practicalities of siting turbines with relation to grid connections and other constraints such as the proximity of buildings. Additional survey work was required to locate appropriate scenarios and take photographs for the development of photomontages to illustrate the hypothetical scenarios used in the second workshop.
  - Public Consultation: Designed and run by an independent facilitator to present information and gather thoughts on the sensitivities and constraints of the landscape and to test hypothetical scenarios. The consultation was designed to follow as closely as possible the public engagement protocol, although adjustments were required as a result of the study being a pre application case study, and the additional constraints imposed by a short time and tight budget. The farm chose to use the current North Wessex Downs AONB Council of Partners as the basis for its core stakeholder group. This was because it was already established as a representative group. In addition neighbours and residents from the local area were invited to consultation events in order to obtain the views of a wide range of interested parties.
  - Analysis and interpretation of the desk based review, consultation findings and site survey information leading to report production. Interim reporting was also necessary as part of presenting information at the two workshops and also to report back the findings of consultation exercises to the client and workshop delegates.

The study was based around the need for a well defined and systematic method of working. This was achieved by identifying a number of key stages. These are described below and highlight project inception, the two consultation events and site visit as key milestones in the process, providing opportunities to refine the approach and identify additional areas of research and reporting.

#### 4.3.1 Project Inception and Analysis Leading to Workshop 1 Stage 1: Project Inception and Review of Approach

Upon commencement of the project, a strategy was developed to meet the requirements of the brief. Given the short timescales and available budget, this was largely achieved through telephone consultation between the client and the project team. This initial stage also presented an opportunity for the exchange of technical information regarding electricity consumption and projected electricity demand for the farm.

### Stage 2: Technical Studies

This aspect of the work was led by Future Energy Solutions (FES), and focused on assessing the feasibility of developing wind energy options at Sheepdrove Organic Farm. In addition to undertaking technical research and the presentation of these findings, specific attention was given to providing relevant information to delegates in a format suitable for public consultation.

The first task was to plot the wind energy potential of the farm by cross referring available wind data (data was available for a limited number of years from a low level monitoring station on the farm) with land contour information, and factoring in major tree blocks and other topographic factors. This resulted in the preparation of a Wind Resources Map (Appendix 4) indicating areas of high wind speeds, and thus areas with the greatest potential for siting turbines. This was found to be adequate for the purposes of the study, however more detailed wind data would be needed in the future.

The wind resource map presented at Workshop 1 illustrated the boundary of the farm, and graded colours to illustrate variations in the wind resource. Areas of high wind speed were highlighted and 400m buffers around residential properties on or neighbouring the farm were illustrated to 'strike out' specific areas of the farm as unsuitable for turbines. This was refined following Workshop 1 to illustrate other constraints, and buffers were added to reflect other constraints (biodiversity, archaeology, residential buildings and Public Rights of Way). Cross markings illustrating the location of areas of high wind speed were also removed as some stakeholders mis-interpreted these as possible locations for turbines.

The wind resource information and buffer analysis would later assist in determining the likely output energy from the hypothetical scenarios.

The second task was to assess energy consumption at the farm, and assess the amount of electricity that wind turbines would need to generate to meet demand. This information was later cross referred with the available wind resource at the farm and the types of turbines commercially available to identify the number of specific turbine types that would be required in a given location, thus providing realistic hypothetical scenarios for testing at the second workshop.

The third task was to identify a range of turbine options that would be appropriate for the site. Given the multitude of turbines available, and the electricity demands of the farm, a suite of five turbine types was identified. These ranged in height from 50m to 13m (hub height)/ 66.5m to 18.5m (tip height). Whilst turbines under the 25m threshold formed part of the assessment, it was also regarded as important to consider and assess larger turbines, given the electricity needs of the farm and the advantage that a smaller number of larger turbines would have in terms of cost effectiveness and the potential to reduce disturbance to archaeology, biodiversity and recreational access.

Four options are above 25m height and as such fall into HC1 or HC2 in the North Wessex Downs AONB Wind Study. However, it was agreed that it was important to provide details of a range of turbine heights in order to explore the implications posed if the farm were to generate 100% of its own electricity through wind power and also to provide delegates with realistic information.

In reality it is likely that many proposed schemes, especially more commercial projects will consist of turbines above 25m as these are more productive and cost-efficient for purchase, installation and maintenance when set against electricity output. For example to generate 100% of the electricity for the farm the assessment identified that a single Enercon E33 (50m hub height and 66.5m total height) would be required. Alternatively a similar output could be generated by between 16 and 18 Gazelle turbines (13m hub height, 18.5m total height). Briefing notes and

presentations for workshop 1 showed how many of these different turbines, ranging from the 20kW Gazelle to the 330kW Enercon, would be required to meet the electricity demands of the farm.

In addition to these tasks, FES also prepared simple illustrations to demonstrate how turbines work, how output is measured and what the component parts of turbines are called. This was regarded as an important step as technical terms such as 'hub height', 'blade length' and 'capacity' would be used throughout the consultation process.

In addition to a formal presentation at Workshop 1, the findings of initial technical research were presented in a short Briefing Paper (Appendix 6) which was tabled at the workshop and sent out in advance to the majority of stakeholders.

### **Stage 3: Landscape and Visual Assessment**

This aspect of the work was led by LDA Design, and focused on assessing two specific areas, namely the planning policy context for any wind energy scheme at Sheepdrove Organic Farm and the landscape and visual considerations that would help inform the most appropriate siting of turbines in the landscape. Whilst this project does not comprise a planning application, the approach adopted by LDA Design closely followed best practice when undertaking a landscape and visual impact assessment as part of an Environmental Impact Assessment (EIA).

The first task was to prepare a policy overview. This is presented in Section 5 and highlights important background information and specific relevant policies from a national to local scale.

The second task was to undertake a thorough assessment of local landscape and visual issues in order to understand the intrinsic character of the local landscape, and to highlight visual considerations and constraints such as potential visual receptors that might be affected by the erection of wind turbines at Sheepdrove Organic Farm.

A summary of the findings was presented at Workshop 1. The full assessment findings are presented in Appendix 2: Landscape Character and Appendix 3: Visual Analysis.

In addition to presenting these findings, Workshop 1 also offered an opportunity to introduce delegates to the process of landscape and visual impact assessment and the methodologies used by professionals to assess the impacts of new development. In addition to this, the concept of mitigation by design was discussed and how traditional mitigation measures are not necessarily appropriate for wind turbine projects due to the scale of turbines, and also that mitigation measures such as screen planting should be appropriate for context and as such would be difficult to justify in the open landscapes characteristic of the farm. Similar to the introduction of delegates to technical terms relating to turbines, the team ensured delegates were comfortable with technical terms employed during assessments of this nature.

In addition to a formal presentation at Workshop 1, the findings of initial policy context, landscape and visual research were presented in the Briefing Paper.

### **Stage 4: Community Engagement**

Prior to the first public workshop, Sheepdrove Organic Farm consulted its working community. All staff were invited to a meeting on 14th February to raise awareness, introduce the case study and discuss the idea of possible wind energy developments in the future. Staff were invited to join the Community Engagement workshops, and were kept informed as the case study developed through notice boards, email and verbal communications. Notes summarising the staff feedback is in section 6.

Community Engagement was led by Alison Millward Associates, and focused on designing a programme of consultation events, and mechanisms for reporting back workshop findings to attendees and other interested parties.

The farm chose to use the current North Wessex Downs AONB Council of Partners as the basis for its stakeholder group. This was because it was already established as a representative group. In addition neighbours and residents from the local area were invited to consultation events in order to obtain the views of a wide range of interested parties.

In addition to formal engagement via the events, the farm also initiated a dedicated area on its website with the aim of engaging the local community, disseminating information and raising awareness about renewable energy in the North Wessex Downs AONB. (<http://www.sheepdrove.com> and follow the Energy link from the Conservation section). Amongst other things, the Energy pages contain a summary of this project and other information about renewable energy initiatives at the farm.

The first task was to agree a programme with the team and to draw up the Engagement Plan (Appendix 5) that sought to outline who should be engaged in the consultation process, over what issues and for what purpose. The Engagement Plan also includes commentary on the methods used, over what period, and with what resources. A section of the plan deals with communication and the measures taken to ensure feedback was sent to stakeholders on the outcomes of their involvement.

The approach adopted for the engagement process builds upon the approach set out in the South West Public Engagement Protocol and Guidance for Wind Energy (2004). The protocol is designed to be adopted by local authorities and developers who, under the new planning system, need to engage the public at the very earliest stage in a planning application process that might lead to the installation of a wind energy installation. This case study is designed to replicate the early stages of the engagement process and therefore covers the topics outlined in the Protocol for the site identification and pre-planning application phases. Whilst it is acknowledged that Sheepdrove Organic Farm may, in the future, lodge a planning application, this is not a possibility or an intention in the short term.

The second task was to prepare a Facilitators Briefing Note. This was in addition to the Engagement Plan, and was prepared in advance of the first workshop with the purpose of setting out the objectives of the workshop, the approach to be taken to consultation, a list of the relevant background papers, tips for facilitators on appropriate and effective methods of engagement, a schedule of equipment and a detailed programme for the project team and client body. The Briefing Note was an important focus in advance of the first workshop and assisted the team to draw together information and necessary equipment well in advance of the workshop event.

The third task was to formulate an evaluation form for delegates to complete at the close of Workshop 1.

The fourth task was to run and facilitate the first stakeholder workshop. This opened with a tour of the farm for those not already familiar with the local landscape. Following the tour, the workshop commenced with an introduction from the lead facilitator Alison Millward, outlining the aims of the case study, the purpose of the day, the format of the workshop and how comments would be recorded and fed back to delegates.

The PowerPoint Presentations from Workshop 1 are presented in Appendix 7.

Following on from presentations by FES and LDA Design, there was an introductory presentation by Sheepdrove Organic Farm on wider issues relating to renewable energy and other sustainable

initiatives on the farm. Alison Millward of Alison Millward Associates chaired a question and answer session with all speakers on the floor to answer questions from delegates.

Following on from this, a facilitated discussion session was held. This was structured to enable workshop delegates to discuss, consider and provide answers to three questions:

1. What are the potential benefits of installing wind energy technology at Sheepdrove Organic Farm?
2. What are your concerns regarding the possible impacts of wind energy installation at Sheepdrove Organic Farm?
3. What kinds of mitigation measures might be considered to reduce the impacts?

Delegates were asked to work at tables in groups of about eight people, and discuss the questions. Each group was assisted by a facilitator drawn from the project team or the client organisation. The facilitators' task was to ensure all questions were tackled, and that all delegates had an opportunity to share their opinions and views. In addition, facilitators were tasked with recording delegates' feedback to the questions in a fair and transparent way on blank forms.

Following on from the group discussions, initial feedback was recorded directly into the PowerPoint presentation, enabling all delegates to see how other groups responded to the questions and that their comments were recorded and shared which was an important part of the process.

In the closing session, Alison Millward made reference to forthcoming events as part of the process, namely the site visit to view existing turbines in close proximity to the farm, and the second workshop. Delegates were asked to complete the evaluation form and to specifically raise any issues that should be tackled at Workshop 2.

Following the close of the workshop, the client and project team held a short de-briefing session to discuss the workshop findings, areas of success or weakness and agree actions in advance of the site visit and second workshop.

The fifth task was to provide immediate feedback after the event to delegates by issuing the PowerPoint slides that summarised responses to the questions. Following on from this, more detailed feedback was prepared by Alison Millward Associates in the form of a Workshop 1 Report (Appendix 8). In addition a summary of the evaluation forms was prepared. The summary, workshop feedback and evaluation forms were issued to delegates by email or post.

A summary of the evaluation feedback from Workshop 1 is presented in Appendix 14.

### **4.3.2 Site Visit and Analysis Leading to Workshop 2**

#### **Stage 1: Site Visit**

In advance of the site visit, a schedule was issued with instructions on programme and meeting points. The visit was designed to provide delegates with the opportunity to visit two local wind installations located in close proximity to the farm. The visit was held during lunchtime on a weekday, offering as many people as possible with the opportunity to attend. A landscape architect from LDA Design and a representative from the farm attended and were on hand to answer questions and record comments. Both had been briefed in advance by FES with regard to the technical specification of each of the turbines visited.

Following on from the meeting, LDA Design compiled a brief Site Visit Report (Appendix 9) listing issues and comments arising from each of the two visits.

The evaluation forms from workshop 2 subsequently revealed that an unspecified number of stakeholders had also made the effort to visit the two turbines in their own time.

### **Stage 2: Technical Studies and Preparation of Constraints Map, Fact Sheet and Hypothetical Scenarios**

This aspect of the work was led by FES and LDA Design, and focused on preparing a series of hypothetical scenarios, for delegates to make comments on the positive and negative aspects of their location and design. The use of constraints mapping was an important tool in the preparation of the hypothetical scenarios.

The first task was to undertake additional technical research directly as a result of feedback arising from Workshop 1 and specifically related to providing delegates with costs for various turbine options, details of whether solar energy was viable at the farm and also to include details of building mounted turbines.

Detailed schedules were prepared for presentation to delegates that illustrated a range of turbine types, their size, capacity (kW) and capital cost for purchase and installation. This illustrated that larger turbines are more cost effective to install than smaller turbines, as a greater number of smaller turbines are required to produce the same energy as a single larger turbine.

A similar range of information was prepared to illustrate the business case for photovoltaics at the farm. It was clear from these findings that the capital cost of meeting energy demand through the installation of solar panels was not viable and that pay-back time was significantly longer than the life expectancy of the panels.

In addition, delegates reinforced the need for biodiversity, cultural heritage and access issues to be addressed as part of the identification of suitable turbine locations. In response to this, the wind energy potential map was used as the basis for a Constraints Map (Appendix 11).

The second task was to prepare the constraints map. This has proven to be an important tool in drawing together a number of constraints and other considerations into a single, simple diagram that highlights a number of the core issues affecting the siting of wind turbines within the farm. By plotting the available wind resource, the map highlights the most favourable locations for wind turbines as being on more elevated areas (hills and ridgelines). However, by plotting other environmental constraints and considerations, it was possible to strike out particular areas within the farm boundary, due to the proximity of archaeological, ecological, recreational or residential considerations.

The project team, in consultation with the farm, plotted the location of all significant archaeological sites and in particular all Scheduled Ancient Monuments on or adjacent to the farm. Significant biodiversity considerations were also plotted; these concentrated on areas of the farm that were known to attract birds which are particularly sensitive to wind turbine developments. It is acknowledged that future assessments would need to cover other considerations e.g. bats.

Bridleways within the farm boundary were also plotted. This was in specific response to comments about the effect of turbines on horses, and their potential to startle horses not accustomed to the noise and movement generated by them. In accordance with British Horse Society guidance<sup>5</sup>, bridleways were buffered by 200m. The BHS has been consulting in order to update its advisory note, in recognition of advancements of turbine technology and turbine size since its publication in 1995. The British Wind Energy Association is also looking to revise best practice guidelines for wind energy development and has been in consultation with the BHS with respect to potential impacts on horses.

400 metre buffers were retained around all residences on or neighbouring the farm in order to secure locations for turbines that met minimum safety standards. (400m buffering was assumed to be appropriate based on available information and in accordance with Noise Working Group Guidelines).

In addition to this information, the constraints map illustrated the location of the Electricity Grid, in order that possible locations for turbines could be selected for proximity to the local electricity supply grid, therefore reducing the need for extensive cabling and infrastructure.

The third task was to design and prepare four Hypothetical Scenarios (Appendix 12). These were specifically to present delegates with illustrative and factual material through which the team could record positive and negative responses to different scenarios for wind energy at Sheepdrove Organic Farm.

Four turbine types were chosen that represented the broadest possible range of viable commercial turbines that would be appropriate for the site and meet projected energy demands (i.e. 100% of the farm's electricity). These ranged from the Fuhrlander FL250 turbine, of which only one turbine would be required to meet the bulk of electricity demand according to FES calculations, to building mounted turbines. The latter types were incorporated in the options due to comments from the first workshop requesting that these be considered, and details provided about their efficacy.

The scenarios were chosen to provide realistic opportunities that were both viable and possible at the farm. Therefore, working upon the basis of supplying 100% of electricity requirements, and by assessing the available wind resource and cross referring this to turbine capacity, it was possible to determine the number of each turbine type required, provide details of the business case for each scenario and also illustrate the visual appearance of turbines within the landscape.

In regard to this, site locations were chosen that responded to comments from the first workshop, with turbines located off the most elevated and exposed areas on mid-slopes or in close association with farm buildings. This element of the work necessitated close collaboration between the technical experts taking the photographs and preparing the photomontages, and the landscape architects, who advised on locations that were suitable in terms of the constraints mapping, and which also were most appropriate in landscape and visual impact terms.

Where more turbines were required than could be illustrated in one or two viewpoints, details were provided of the total number of turbines required to meet electricity demand. All figures relating to the scenarios were set out in a table.

### **Stage 3: Consultation at Workshop 2**

The fourth task was to run and facilitate the second workshop. This opened with an introduction by the lead facilitator, reaffirming the aims of the case study, the hypothetical nature of the study, the purpose of the evening, the format of the workshop and how comments would be recorded and fed back to delegates.

The PowerPoint Presentations from Workshop 2 are presented in Appendix 10.

Following on from presentations by Sheepdrove Organic Farm and FES, LDA Design summarised the findings of Stage 1 and Stage 2. Alison Millward then chaired a question and answer session with all speakers on the floor to answer questions from delegates.

A facilitated discussion session was then held. This was structured to enable workshop delegates to discuss, consider and provide answers to two questions for each of the four hypothetical scenarios presented and a third general question.

1. What are the positive aspects of this hypothetical scenario?
2. What are the negative aspects of this hypothetical scenario?
3. How could the farm use a mix of turbine types to suite different locations appropriately?

The third question was designed to assist the team to consolidate the thoughts of the delegates and to determine, from the information presented, if a favourable solution could be arrived at.

Delegates were asked to work in groups of about eight around tables, and discuss the questions. Each group was assisted by a facilitator drawn from the project team or the client organisation. The facilitators' task was to ensure all questions were tackled, and that all delegates had an opportunity to share their opinions and views. In addition, facilitators were tasked with recording delegates' feedback to the questions in a fair and transparent way on blank forms.

The scenarios and figures related to the original hypothetical target of meeting 100% of electricity need from wind power. During the presentation and within a fact sheet issued to delegates the farm confirmed a reduced target of 25% (5% of total energy) which caused some confusion for delegates at workshop 2.

Following on from the discussion session, initial feedback was recorded directly into the PowerPoint presentation, enabling delegates to see how other groups had responded to the questions.

In the closing session, Alison Millward made reference to anticipated programme for reporting back the findings of the workshop, and the project as a whole. Thanks were also expressed to delegates from the farm and professional team for their time and valuable input to the project.

Delegates were asked to complete an evaluation form at the end of the workshop, which covered Workshop 2 and the consultation process as a whole.

Following the close of the workshop, the client and project team held a short de-briefing session to discuss the workshop findings, areas of success or weakness and agree actions in advance of preparing the final report.

The fifth task was to provide feedback prepared by Alison Millward in the form of a detailed Workshop 2 Report (Appendix 13). In addition a summary of the evaluation forms was prepared. The summary, workshop feedback and evaluation forms were issued to delegates by email or post.

A summary of the evaluation feedback from Workshop 2 is presented in Appendix 15.

### 4.3.3 Project Reporting

Following the closure of the second workshop, the lead consultant, in close collaboration with Sheepdrove Organic Farm and the project team summarised the findings of the project into this report.

This report has the dual task of presenting a useful summary of the process involved in coordinating and running the project, and also a summary of the findings that can be used by the farm to consider the most appropriate way forward in the consideration of wind energy options at the farm. The report is also relevant to the wider AONB community, helping to raise awareness of issues around renewable energy.

## 5.0 Planning Policy Context

### 5.1 Introduction

The work undertaken at the farm to explore renewable energy options, and more particularly small wind solutions, is set within a wider national and international framework that seeks to set targets to reduce greenhouse gas emissions and increase the contribution that renewable energy sources make to meet energy needs. Planning Policy, from national to local level has been designed to provide a framework to explore renewable energy solutions. Additional policy exists to prevent developments such as wind turbines having a detrimental impact upon landscape character and visual amenity. Relevant policy is presented below.

### 5.2 The Kyoto Protocol

The Kyoto Protocol set the UK the target of reducing greenhouse gas emissions by 12.5% by 2008-2012, in addition to which the Government has stated an intention to reach a voluntary target of reducing emissions 20% below 1990 levels by 2010. The Government has also set a target to increase the contribution of renewable energy sources to UK electricity to 10% by 2010 with an ambition to see 20% by 2020. Wind energy has been identified by the Government and others as a key part of delivering part of this target, with the provision that any impacts on the countryside are at acceptable levels.

In response to the targets set by the Kyoto Protocol, the UK government has introduced a number of planning policies promoting sustainable development and supporting the sensitive exploitation of renewable energy resources. The renewable energy targets and sustainable development objectives set by the government at the national level are reflected in planning policies adopted at the regional and local level. It is this policy framework that allows local planning authorities to assess the merits of proposed renewable energy schemes within a broader context of sustainable development objectives at the local, regional and national level.

It is important to again stress that this study is not part of a formal planning application, and as such, national and local policy is presented only to provide background information.

### 5.3 National Planning Policy

#### 5.3.1 Planning Policy Statement (PPS) 7: Sustainable Development in Rural Areas

PPS 7 outlines the Government's national policies on the sustainable development of the countryside. PPS 7 seeks to ensure the protection of the wider, largely undeveloped countryside for the benefit of all whilst encouraging local planning authorities to provide for the sensitive exploitation of renewable energy sources in accordance with the policies set out in PPS22: Renewable Energy. PPS 7 also identifies the need for sustainable economic growth and diversification.

#### 5.3.2 Planning Policy Statement (PPS) 22: Renewable Energy

The national policy for renewable energy is set out in PPS 22, published in August 2004. PPS 22 calls for planning policies at regional and local levels to provide a positive framework, encouraging and promoting the use of the full range of available renewable energy resources. However, PPS 22 acknowledges that wider environmental issues must also be taken into account when considering the merits of renewable energy:

*'No form of energy creation is without environmental implications and every effort should be made to ameliorate adverse effects.'* (para 34).

With reference to protected landscapes, PPS 22 states that:

*'Particular care should be taken, in assessing proposals for developing renewable energy projects, in National Parks, AONBs, the Broads and Sites of Special Scientific Interest.'* (para 28) and that:

*'planning permission for renewable energy projects should only be granted where it can be demonstrated that the objectives of designation of the area will not be compromised by the development, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits.'* (para 11)

PPS 22 goes on to describe how renewable energy developments can be sensitively accommodated within protected landscapes and states that:

*'...Care should be taken to identify the scale of renewable energy development that may be acceptable in particular areas. Small-scale developments should be permitted within areas such as [AONBs] provided that there is no significant environmental detriment to the area concerned.'* (para 12).

#### 5.4 Regional Planning Guidance

The South East Regional Assembly has a number of Core Regional Policies in the Draft South East Plan Part 1 (July 2005) to ensure the conservation and enhancement of the region's AONBs whilst also encouraging the development of renewable energy in order to achieve regional and sub-regional targets in the south east. In particular, Policy EN5: Location of Renewable Energy Development states that within AONBs:

*'...development should generally be of a small scale or community-based, with location and design informed by landscape character assessments.'*

Further details on recommended criteria for developing renewable energy schemes within the region are outlined in Policy EN6: Development Criteria which states that local authorities should support, in principle, the development of renewable energy by considering the following issues:

*'i Undertaking more detailed assessments of local potential*

*ii Encouraging small scale community based schemes.....*

*iv Raising awareness, ownership and understanding of renewable energy.'*

#### 5.5 Structure Plan Policy

Berkshire Structure Plan 2001-2016 is supportive, in principle, of exploiting renewable energy resources in the county with due regard to certain provisions; Policy EN8: Renewable Energy and Energy Conservation states:

*'Generation of energy from renewable resources should be considered and implemented wherever feasible...provided that adverse impacts on landscape, biodiversity and local amenity area are avoided.'*

The Structure Plan makes clear provision for conserving the natural beauty of the North Wessex Downs AONB and development within the AONB is guided by Policy EN1: Landscape which states that:

*'Development which affects the AONB will only be permitted where it would support the conservation or enhancement of the AONB or would foster the economic and social well being of the area, provided also that such development is compatible with the primary aim of the AONB.'*

## 5.6 Local Plan Policy

West Berkshire Council is currently guided by the policies of West Berkshire Local Plan 1991-2006. Policy OVS.9 outlines the criteria which renewable energy schemes must fulfil if they are to be permitted. These criteria include:

- 'a) the scheme does not seriously harm or impact upon the special landscape qualities of West Berkshire or intrude into open countryside; and*
- e) will not harm the use or enjoyment of public footpaths and other rights of way; and*
- f) there is no material loss of amenity for local residents or other occupiers in the locality.'*

Policy ENV.2 of West Berkshire Local Plan promotes the conservation of the natural beauty of the landscape, the visual quality and the amenity of the North Wessex Downs AONB. This policy states that:

- '... No major development or development which would materially harm the landscape character, be unduly prominent or detract from the important views of the AONB will be approved.'*

## 5.7 AONB Management Plan Policy

In September 2002, The National Association for AONBs issued a position statement on Wind Energy Developments in AONBs. This statement highlights that the 'top-down' planning framework for renewable energy is likely to create conflicts of interest in protected areas. Instead, it encourages 'a different approach to planning and decision making, where people and interest groups are involved in formulating and influencing proposals from an early stage.' The position statement goes on to affirm that:

- '...the character of the countryside in some parts of an AONB or its surroundings may mean that small scale commercial wind energy schemes could be accommodated where they do not compromise the objectives of the designation and they respect the local countryside's character'*

North Wessex Downs Management Plan (January 2004) reflects many of the issues set out in the National Association for AONBs' Position Statement. These issues are reflected in a set of 'Themes' that have been outlined in the Management Plan which then inform a suite of management objectives underlying each 'Theme'. The 'Themes' for the North Wessex Downs AONB include:

Theme 1 - Conserving and enhancing landscape character and diversity;

Theme 3 - Conserving remoteness and tranquillity;

Theme 7 - Supporting a low carbon economy; and

Theme 14 – Maintaining productive partnerships.

The suite of objectives operating under the umbrella of Theme 1 includes:

Objective 1: To maintain and enhance the fundamental differences in the landscape character of the North Wessex Downs and celebrate the strong sense of place of individual localities.....

Objective 4: To influence land management and resource usage to bring about enhancement of the wider landscape

The suite of objectives operating under the umbrella of Theme 3 includes:

Objective 8: To resist intrusive and unsympathetic development and practices within key views to and from the AONB and within the AONB where these threaten the sense of remoteness.

Objective 9: To maintain and enhance the open and remote character of the North Wessex Downs

Objective 10: To retain and enhance the profound sense of isolation and tranquillity that characterise large areas of the North Wessex Downs.

The suite of objectives operating under the umbrella of Theme 7 includes:

Objective 27: To focus on community-led bottom-up renewable energy initiatives serving the needs of the locality first

Objective 28: To maximise the production of sustainable energy from land uses traditional to the North Wessex Downs (e.g. management of the existing woodland resource) in preference to uncharacteristic land uses.

The suite of objectives operating under the umbrella of Theme 14 includes:

Objective 51: To co-ordinate and integrate delivery of national regional and local policies to ensure that within the North Wessex Downs all are geared to achieving the objectives for the North Wessex Downs.

Objective 52: To encourage local communities to participate actively in decisions affecting the future of the North Wessex Downs.

## **5.8 North Wessex Downs AONB A Study of Landscape Sensitivities and Constraints to Wind Turbine Development**

The North Wessex Downs AONB Wind Study builds on the North Wessex Downs landscape character assessment which identifies eight landscape character types within the AONB. It identifies the particular sensitivities and constraints of the landscape to wind turbines.

The study is intended to aid consistent and coordinated policies and decision making across the AONB, and amongst other functions, will be used in the development control process and will be a material planning consideration in the determination of planning applications and appeals.

Significant consultation has been undertaken on the draft North Wessex Downs AONB Wind Study, and amendments and modifications have been made in accordance with feedback. In March 2006 the North Wessex Downs Council of Partners agreed to adopt the study for use in particular by local planning authorities in the North Wessex Downs AONB in policy formulation for local development documents (LDDs) and supplementary planning documents (SPDs) and in the development control process.

The study reveals that all landscapes within the North Wessex Downs are constrained to turbine development to a degree, with specific sensitivities and values that would be adversely affected by such forms of development. Four landscape types are considered to be highly constrained to turbine development. These are the landscapes where sensitivities to this form of development are high and where any wind turbine is likely to have adverse impacts.

Sheepdrove Organic Farm is located in the Open Downland landscape type within the Lambourn Downs landscape character area. The Open Downland landscape type is highly valued for its remote and open character and sense of peacefulness. The study also states that these qualities are enjoyed from a large number of viewpoints, where the open, expansive landscape and absence of built interruptions is particularly valued.

Visual sensitivity is assessed as being **High**, on account of the *'essentially open landscape and long distance uninterrupted views, within which any form of vertical development would be highly visible. Of particular high sensitivity is the smooth open skyline and receding skyline ridges which are one of the key features of the North Wessex Downs. The downland ridges are highly visible from adjacent landscape types and in views to the AONB'*.

Landscape sensitivity is assessed as being **High** on account of the majority of the Open Downland characteristics being *'sensitive to the introduction of turbines and associated infrastructure. The fundamental sensitivity relates to the importance of the Open Downland as an essentially 'empty' remote and tranquil landscape, combined with the open expansive views. Further intrinsically sensitive characteristics include the chalk grassland and the setting of historic monuments'*.

The study, therefore, classifies the Open Downland landscape type as being **'Highly Constrained'** for wind turbine development.

In detail the Open Downland landscape type is judged to be highly constrained in relation to a Height Class 1 (HC1) development which covers single turbines of 25-40m in height. In addition the study also notes that the Open Downland landscape is highly constrained to the location of any HC2 (40-80m) or HC 3 (80m) single turbine or groups.

Additional notes state that *'Given the constraints [listed in the document] and the very high sensitivity of the Open Downland landscape; it is likely to be similarly constrained in relation to developments below the HC1 threshold (i.e. <25m) unless these are of a small scale and integrated with existing built structures. An individual site investigation to assess specific sensitivities and constraints to this scale of development would need to be made on a case-by-case basis. Such investigation should also pay particular note to the cumulative impact of such structures'*.

The study also states that:

*'It should be noted that this study only considers general visual sensitivity of the landscape and impact on general views – it is not intended to provide a full visual impact assessment – it does not therefore consider key receptors or viewers of visual effects or identify representative viewpoints'*.

In summary one can conclude that the North Wessex Downs AONB Wind Study that the landscape and visual characteristics of the farm landscape and its wider context contribute to the landscape being highly constrained to the installation of wind turbines.

In recognition of this, and the recommendation to undertake individual site investigation to assess the specific sensitivities and constraints on a case by case basis, this study sought to investigate on a site and location specific basis, the landscape, visual and other environmental constraints and to test these with stakeholders through constraints mapping and hypothetical scenarios.

## 5.9 Summary

Landscape and renewable energy policy guidance, at both national and local levels, aims to ensure that renewable energy projects will only be granted planning permission where it can be demonstrated that the objectives of designation of the area will not be compromised by the development. Regional planning guidance issued by the South East Regional Assembly outlines the way forward for integrating the UK government's renewable energy objectives within more environmentally sensitive contexts, such as AONBs. For example, regional planning guidance for the South East encourages more detailed assessment of local potential for renewable energy development as well as promoting small-scale, community-based schemes.

The Structure Plan and Local Plan policies applying to Sheepdrove Organic Farm and the surrounding area prioritise the conservation of the existing visual qualities and landscape amenity of the North Wessex Downs AONB. However, North Wessex Downs Management Plan also allows that *'...small scale commercial wind energy schemes could be accommodated where they do not compromise the objectives of the designation...'* Moreover, *Objective 27 of the Management Plan also encourages 'community-led bottom-up renewable energy initiatives serving the needs of the locality first'*.

A study to assess the sensitivity of the North Wessex Downs AONB landscape to wind turbine development and to set out constraints has been recently undertaken on behalf of the North Wessex Downs AONB. This has subsequently been adopted and as such is a material planning consideration in the determination of planning applications and appeals.

The findings of this study categorise the landscape within and around Sheepdrove Organic Farm as being highly constrained in respect of wind energy developments.

The North Wessex Downs AONB Wind Study encourages the consideration of site characteristics on a case-by-case basis when assessing the specific sensitivities and constraints of individual sites for wind turbine developments of a particular size and number. This case study at Sheepdrove Organic Farm seeks to assess local and site specific considerations and utilise these to test hypothetical scenarios through community consultation.

## 6.0 Summary of Findings

This section provides a summary of the assessment, technical work and analysis of the Workshop findings.

### 6.1 Engagement Plan

The Engagement Plan represents a critical initial output as it provided an important focus for the team throughout the project. Based on the South West Public Engagement Protocol, the plan utilised the most up-to-date and relevant guidance for consultation exercises of this nature. The case study is designed to replicate the early stages of the engagement process and therefore the Engagement Plan is designed to cover the topics outlined in the Protocol for the site identification and pre-application phases.

The Engagement Plan states the intention of the consultation element of the project, which in essence is to provide an opportunity for a range of interested parties or stakeholders to explore the potential for positive benefits and impacts of the proposals for small scale renewable energy installations in an AONB, and to provide a forum to share other relevant matters that are of concern.

The plan clearly states that the aim of the engagement process is:

*'To deliver effective public engagement which will be:*

- *Of value to the client and stakeholders;*
- *Inclusive, transparent and accessible to all who may wish to participate; and*
- *Accountable to participants providing two way flows of information through all stages.'*

The plan also identifies the stakeholders that the farm wished to invite to get involved in the project, ranging from representatives of the county and district councils, North Wessex Downs AONB, local parish councils, the voluntary and community sector, statutory agencies and local residents.

In addition, the plan sets out a clear programme of tasks with timings and who, within the project team, is the lead on each element. The plan also usefully established the form of communication attributed to each task.

The obvious benefits of the plan were that the team were all conversant with the broad framework of tasks and responsibilities, as well as timescales and critical deadlines. This was particularly important given the limited budget and timescale for project delivery.

### 6.2 Technical Studies, including wind power potential and costs

Technical studies throughout the life of the study were important to ensure that all material considered and presented to the farm and consultees was relevant to the site and the aspirations of the farm with regard to their energy demands and economic aspirations.

The studies ranged from preparing wind resource mapping, to technical specifications and simple business case data for a range of wind turbine options based on a sound understanding of the site and the wind resource available. The technical team were also able to provide information on the capacity and cost effectiveness of photovoltaics as a consequence of stakeholder requests. The findings of a number of the technical studies are presented in Workshop 1 and Workshop 2 PowerPoint Presentations (Appendix 7 and Appendix 10).

### 6.3 Landscape, Visual and other environmental constraints

Led by the brief, the landscape and visual considerations were the primary concern of the project team in the consultation process. Workshops were effective in engaging delegates to consider various turbine options and how the landscape could accommodate them.

Analysis through the constraints mapping exercise identified that many considerations and constraints with regard to landscape character and visibility coincided with other themes. For example, the higher, more visibly exposed and open elevated land were regarded as inappropriate locations for siting turbines, despite these areas having the highest wind energy potential. This was as a result of turbines in these locations having the most dramatic impact on landscape character and being visible across wider areas. Rights of way and their buffers illustrated on the constraints map tend to occupy elevated ridgelines, and as such these areas were regarded as constrained for more than one reason.

In addition to the professional teams' judgement, and following on from a farm tour and a description of the landscape during Workshop 1, delegates were able to make clear representation regarding the most appropriate landscape and visual measures to consider when locating turbines within the landscape. Essentially, this can be summarised into three main suggestions:

- On buildings;
- Close to existing buildings; and
- On mid-slopes, away from visually prominent hills and ridgelines.

The professional judgement of the team was that given the wind resource available and the sensitivity of visual and landscape receptors, these measures were appropriate for the site.

The process of assessing the landscape character and visual characteristics of the site, and engaging with stakeholders to ascertain their views has allowed the team to directly respond to the recommendations of the North Wessex Downs AONB Wind Study, which advised that individual site investigation should be undertaken to assess specific sensitivities and constraints on a case-by-case basis. In addition, and with the suggestions of stakeholders, it has been possible for the professional team to provide a summary of possible measures that seek to minimise adverse impact on the most sensitive considerations highlighted in the North Wessex Downs AONB Wind Study for the Open Downland landscape.

#### Landscape Sensitivity (from North Wessex Downs AONB Wind Study)

Landform. The landform of smooth flowing ridges and scarps is reinforced by the uniform cover of close cropped grass or arable crops; it forms a consistent and strong feature. The disruption caused by the location of a vertical structure turbine and associated infrastructure such as pylon lines would be pronounced. Ridgelines, summits, steep scarps of this classic chalk landform are particularly sensitive.

#### Possible Measures to Minimise Adverse Impact

Locate turbines away from prominent hills and ridges, on mid slopes or in lower lying areas.

Site turbines carefully in groupings that make the most prudent use of sloping landform and emphasise rather than detract from landform features and characteristics.

Land Cover Pattern. Although the arable farmland itself is not inherently sensitive, this is a smooth uninterrupted landscape with the absence of trees and woodland cover enhancing visibility. The introduction of any vertical feature would be particularly prominent; the creation of screening cover would not be appropriate in the fundamentally open landscape. For these reasons the land cover is considered to be sensitive. The remnant chalk grassland and areas for potential for habitat creation are also highly sensitive.

Site turbines away from chalk grassland habitat or areas of potential habitat creation.

Avoid mitigation screen planting in areas where this would damage local landscape character.

Utilise the screening effects of existing vegetation and land form.

Settlement. The Open Downland is characterised by its remote character, sparse population and general absence of settlement and built structures. Turbine development would add a dominant built element within the landscape, which is perceived as largely as 'undeveloped'. For these reasons it is considered to be highly sensitive.

Locate turbines in close physical and visual and proximity to existing structures, and ideally the main hub of farm activities. Conceptually the Kindersley Centre is perceived as modern and forward looking and associations with this would be beneficial.

Landmarks/ Important landscape Features. The barrows and hillforts have a strong physical and visual expression in the Open Downland landscape with clear relationships between individual sites on the skylines and ridges. Not only are such features intrinsically sensitive to development, their setting and the relationship between features could also be interrupted and disrupted by turbine development.

Locate turbines away from known, anticipated and discovered archaeology.

Avoid prominent hill, ridges, and skylines and avoid locating turbines in positions that would interrupt visual connectivity of monuments and their setting.

Prominent Built Structures. The location of a vertical structure would result in the introduction of a modern built vertical element into a landscape largely devoid of such intrusions. Although this would allow a turbine to form a focal point in its own right without visual confusion with existing structures, it is considered more important to conserve the uninterrupted 'empty' character of the open downland landscape which is one of the defining features of the AONB.

Locate turbines away from prominent hills and ridges, on mid slopes or in lower lying areas.

Site turbines in locations that do not interrupt wide panoramic views and impact on the uninterrupted empty character of the landscape.

Skyline. The smooth open skyline and receding horizon ridges are one of the key features of the landscape type. A vertical structure could interrupt the

Locate turbines away from prominent hills and ridges, on mid slopes or in lower lying areas.

Site turbines in locations that do not interrupt wide

skyline. The open character of the landscape enhances visibility, allowing views to distant skylines. The skylines are therefore highly sensitive.

panoramic views, and views to, from and between distant skylines.

Internal Views. The elevated open character of this landscape type makes its ridgelines particularly visible from adjacent landscapes, notably the River Valleys, Downs Plain and Scarp and Downland with Woodland. The Open Downland is the essence of the AONB landscape and views to the downland ridges are therefore highly sensitive. Views from the high points in this landscape out across the adjacent landscapes are also sensitive to intrusive structures which could impact on the perception of remoteness and tranquillity.

Locate turbines away from prominent hills and ridges, on mid slopes or in lower lying areas.

Site turbines in locations that do not interrupt views from adjacent landscapes, and consider the impacts of turbine locations on perceptions of tranquillity and remoteness.

Further to landscape and visual considerations, additional concerns, constraints and sensitivities were raised at Workshop 1 which helped to steer the focus of Workshop 2. Specifically, requests were made to ensure that these were factored into site selection. These constraints were as follows:

- Archaeology and cultural heritage;
- Biodiversity (especially birds)
- Rights of way; and
- Distance from existing electricity lines and infrastructure (to minimise the need for additional cabling/ infrastructure)

With specific regard to the biodiversity constraints, the focus was upon plotting the location of areas within the farm where birds represent a key consideration, as this was a specific issue raised at Workshop 1. The study benefited from the client team having ecological expertise and an intimate knowledge of birds within the farm. Jason Ball carried out a generalised assessment, however specific impact could not be evaluated without having chosen locations. Zones thought to be the most vulnerable for birds were added to the constraints map before Workshop 2.

Ancient woodland, chalk grassland habitat and restored chalk grassland habitat were not mapped. Their geographic location coincided with other technical, landscape, visual or environmental considerations, and as a result the biodiversity interests on the Constraints Map relates only to birds, and more specifically:

- flocks around the compost field
- birds of prey around the poultry agroforestry system (Red Kite and Buzzard)
- waterfowl flying to or from the lake (e.g. swans)

If a planning application had been under consideration the full range of environmental impacts would have been considered and assessed by specialists.

As a result of this delegate feedback the team were able to produce an enhanced Constraints Map (Appendix 11). This was used to identify potentially suitable locations and, crucially, to begin excluding other locations based on constraints. The buffering of constraints illustrated areas with no potential to locate wind turbines. Areas of high wind resource outside these buffers, and meeting the above listed criteria, were then taken forward to the next stage of site selection for the hypothetical scenarios.

In addition to the desk based review of these constraints and opportunities and earlier site work findings, observing landscape and visual characteristics in particular, a landscape architect with experience of landscape and visual impact assessment visited the site with the photographer from FES to agree appropriate locations for turbines and the hypothetical scenarios.

This was also an important opportunity to ensure that the photomontages generated were a fair representation based on orientation, aspect and distance from the turbines, and would not show the turbines in an overly adverse or positive light.

#### **6.4 Hypothetical Scenarios**

The scenarios presented at Workshop 2 were an opportunity for delegates to see how the farm and professional team had responded to their comments at Workshop 1, in relation to siting and consideration of a broader palette of constraints and economics. They also represented a valuable opportunity allowing delegates to observe how wind turbines of various sizes would appear in the context of the farm landscape, and therefore appreciate their potential impact on landscape character and visual amenity.

The benefit of responding to delegates comments, which identified the most appropriate mitigation measures for wind turbines as having them building-mounted, being close to buildings or on mid slopes, allowed the team to present options that were more acceptable and as such, a more intricate level of debate was possible regarding positive and negative impacts of each scenario.

Technical data on the cost implications and capacity of each of the turbine scenarios was also important as additional considerations could be factored into delegate's responses. For example, whilst building mounted turbines were, on the whole, regarded as having a less significant impact on landscape character and visual amenity, the number required to meet projected energy demand, and the associated cost of purchase and installation, could be seen and judgements made about whether this was a realistic option.

The scenarios were also an opportunity to take forward the recommendation in the North Wessex Downs AONB Wind Study to assess specific sensitivities and constraints to wind turbine developments on a case by case basis.

#### **6.5 The Consultation Process**

An initial workshop for the Sheepdrove Organic Farm working community consisted of an informal staff meeting on 14th Feb led by Jason Ball. Over 25 staff attended and discussed the idea of wind energy as part of a mix of renewable energy solutions for the farm's self-sufficiency and with the aim of reducing its carbon footprint.

At the end of the meeting the vast majority voted that they felt positive about the idea of wind energy at the farm, but people expressed three main concerns that the farm needed to consider:

1. biodiversity (especially birds)
2. landscape and views (avoid negative impact on landscape character and views)
3. reactions of horses on the byways and bridleways

Staff also suggested ideas for mitigation, alternatives to wind energy on site and technologies to complement wind energy as part of a mix of renewables. These were: off-site wind powered generation, proximity to buildings and buying electricity from 'green' providers. Other renewable energy sources suggested included:

1. bio-fuels (biodiesel, short-rotation coppice, etc.) for heat and power
2. solar heating for the staff housing

Community consultation at this early, pre-application/feasibility stage was a valuable opportunity to engage the local community and other stakeholders with the concept of potential non-commercial scale wind energy development within the AONB landscape. In the absence of a formal planning application, the community was able to be engaged at the earliest possible opportunity and as such the potential for objective views to be shared was greater than if the consultation had been leading directly to a planning application.

Whilst both community consultation events were well attended (29 attendees Workshop 1, 56 attendees Workshop 2) a wider range of stakeholders would have perhaps provided an opportunity to gain a more full and rounded range of opinions. This would have been achieved through a greater number of workshop events over a longer period of time, with a much wider range of interest groups invited.

In addition, and whilst both events were attended by representatives of the relevant Local Authorities and Parish Councils, the thoughts and opinions of a greater number of officers involved in policy and development planning would have been beneficial. The hypothetical nature of the scenarios were utilised to ensure that comments would be shared without prejudice, as reactions and opinions were not requested on a proposal or planning application. Despite this, planning officers in particular may have found it difficult to comment in a professional capacity.

The hypothetical or academic nature of the case study was treated with some degree of suspicion, however, and a significant number of delegates used the workshops as an opportunity to assert their view that no turbines of any size were appropriate in the landscape.

This was unfortunate, as to some degree the second workshop was not as productive as it might have been, if stakeholders had been more trusting of the hypothetical nature of the case study and less suspicious of the farm's intent.

A number of the feedback comments received illustrate, however, that many objective and sophisticated statements were made about the positive and negative aspects of each of the hypothetical scenarios presented, as well as meaningful comments about issues of cost effectiveness. A number of delegates were also keen to stress that the farm and AONB were brave to tackle this issue, as it is one of the more emotive forms of development in the rural landscape, and subject to polarised and entrenched opinion, both for and against.

The timescale and budget made available for the project were significant constraints on consultation although given the limitations that these imposed, the project team and client were satisfied that the aims and objectives had been met. Given a longer project period, a greater number of events would have been possible allowing a wider group of delegates to be introduced to the project more slowly, reducing the potential for misunderstandings and adverse responses.

## **6.6 Consultation Materials and Feedback**

Throughout the project, the team sought to make all materials clear and concise for stakeholders in order to inform their understanding of the project, its aims and objectives and what they were

being asked to contribute. In addition to this, the professional team were keen to explain the precise meaning of specific technical terms and avoid misunderstandings.

The farm also initiated a dedicated area on its website with the aim of engaging the local community, disseminating information and raising awareness about renewable energy in the North Wessex Downs AONB. (<http://www.sheepdrove.com> and follow the Energy link from the Conservation section).

All materials presented to delegates were available as hard copy and utilised clear and concise non-technical language.

All comments arising from the workshop discussion sessions, as well as questions and requests for additional information were recorded in a transparent manner. Immediate feedback was provided following discussion sessions in order to ensure delegates could see the breadth of views expressed.

Full workshop reports were prepared and circulated following each workshop event. These summarised the event and provided a full schedule of the comments recorded by facilitators from each group.

In addition, workshop evaluation forms were summarised and issued to delegates in order that the full range of responses could be appreciated.

Such measures were important for ensuring that the entire process was fair and transparent and that workshop delegates could be reassured about the impartiality of the workshop organiser and the facilitators during the discussion sessions.

### **6.7 Publicity**

Soon after the first workshop a local newspaper, the Newbury Weekly News (NWN) contacted the farm after reading Parish Council notes that mentioned the case study. Therefore despite the fact that the farm had not planned any media releases, it was in a position where it had to respond to a media interest, in order to ensure that the purpose of the project was accurately portrayed. The farm consulted with the North Wessex Downs AONB before making a short press release.

It was clear that the media in general might misinterpret the case study as being part of a Planning Application and that the press found it difficult to deal with a situation where there was community engagement and yet no chosen location, no numbers of turbines nor a defined scale was under discussion. Sheepdrove Organic Farm therefore sought to ensure that people would not be led into thinking that there were proposals or an application in place.

Also soon after the first workshop the strength of feeling amongst some local residents was galvanised in the formation of an action group (FOLD – Friends of Lambourn Downs). The group was specifically against wind turbines in the Lambourn Downs and organised press releases and a friendly demonstration at the farm to share this message and their concerns.

Unfortunately the first article in NWN prompted statements from FOLD in the following week's edition expressing their views. However statements were made that were inaccurate or contrary to the information provided to the AONB stakeholders and the farm website which had recently expanded to include pages exploring renewable energy issues.

The farm sought to clarify its position via the press and through the renewable energy section on the Sheepdrove Organic Farm website (<http://www.sheepdrove.com>) which had already opened

the debate to the public. They clearly set out the aims and objectives of the farm with regard to renewable energy and explained more specifically the purpose of the case study.

The professional team was not involved in the drafting of press releases and as such were able to operate objectively and with impartiality at the workshop events.

The impact that parallel press interest had on the second workshop, cannot be underestimated. Despite the reiteration of the academic nature of the exercise, and that the farm were not planning a formal planning application, press reports did contain emotive statements that contradicted information provided to AONB stakeholders. This raised concerns, caused confusion and suspicion, and polarised opinion, thus it reduced the efficacy of the second workshop in particular.

## 6.8 Consultation Process Summary of Findings

The consultation process employed in the study highlighted a number of strategies and techniques that were successful, as well as others that were less effective. A summary is presented below:

### Effective Consultation Methods and Techniques

- Implementation of an Engagement plan provided the team with clear roles and responsibilities and a timetable for delivery.
- Presentation of technical studies (using non technical language and illustrations) relating to wind resource mapping, technical turbine specifications and business case data was important to ensure delegates were well informed. Additional data regarding photovoltaics and payback time was able to be generated and presented to meet additional requests from delegates. This illustrated a willingness on behalf of the farm and professional team to respond to delegate queries and requests.
- A summary of landscape and visual impacts, assessment methods and issues pertaining to the farm landscape empowered delegates to have a more rounded understanding of the issues and to articulate their own comments.
- A farm tour and optional visit to existing turbines provided delegates with an opportunity to appreciate for themselves the physical landscape of the farm, views and character, as well as see turbines in a local landscape context. This was particularly important for delegates to consider impacts of turbines during the assessment of hypothetical scenarios.
- Constraints mapping, provided an opportunity to illustrate, in a simple and accessible way, the methods employed in identifying suitable and unsuitable locations for wind turbines within the farm. By factoring in additional constraints such as Public Rights of Way, archaeology and biodiversity the team were able to respond to specific delegates requests for additional information with regard to these constraints.
- Hypothetical Scenarios represented an opportunity for delegates to observe how turbines of various sizes and physical configurations would appear in the context of the farm landscape.
- Facilitated question and answer sessions in small groups provided an effective means by which delegates could share their opinions. Clear and transparent methods of recording delegates' feedback were important to ensure delegates were happy that their comments had been recorded.
- Feedback via email and mail of delegate feedback slides and workshop reports, illustrated that delegate comments had been fully recorded and shared. Constant dialogue also provided an opportunity for delegates to feel fully involved in the project from inception to close.

### Less Effective Consultation Methods and Techniques

- Misunderstandings or suspicion amongst delegates regarding the nature and purpose of the study did mean that fully objective commentary on the positive and negative aspects of wind turbines in the context of the AONB landscape was difficult.
- The hypothetical scenarios were presented in paper format on each table, and delegates were able therefore to compare the scenarios with each other, and articulate their opinions on this basis, rather than objective analysis of the positive and negative aspects of each on its own merits.
- The hypothetical scenarios, whilst sited within the farm to respond to wind potential and respond to a range of constraints, were designed to be representative and not site specific. Delegates with an intimate knowledge of the landscape were however able to identify locations and therefore some comments were of a detailed rather than general nature.
- Technical information and a summary of landscape and visual issues was prepared in advance of the workshop for delegates to be fully briefed (Workshop 1 Briefing Paper). However, this was not issued as far ahead in advance of the workshops as was the intention, and as such some delegates were asked to absorb a significant amount of information 'cold'.
- The presentation of hypothetical scenarios required some scenarios not to be illustrated in full. Where this occurred, the scenarios and supporting text sought to explain that additional turbines would be required to meet electricity demand, and that what was presented was illustrative. However, by not illustrating the impact of all turbines in a particular scenario made it difficult for some delegates to appreciate and comment on the full impact on landscape and visual receptors.
- In addition to the above comment, the amount of technical data presented for each scenario caused confusion amongst some delegates. Confusion was further compounded by varying the targets that wind energy on the farm was to meet from 100% to 25% of total electricity needs. This change occurred in recognition of community consultation, constraints identified, and after considering the implications of a 100% target for electricity from wind power.
- Photomontages were prepared to illustrate the appearance of various turbines and configurations within the landscape. However, as a consequence of the available time and project fee available, it was not possible to produce visualisations that illustrated the infrastructure associated with the turbines (tracks, cabling, and ancillary structures).
- The farm tour and site visit was conducted in advance of Workshop 2. Therefore delegates attending Workshop 2 that had not attended Workshop 1 were less aware of the issues under discussion, which potentially limited their capacity to comment.
- The site visit was poorly attended, and whilst representing an important opportunity to view turbines in a local landscape setting, it is possible that a number of delegates were not free to attend at the time organised. Other methods of illustrating local turbines might have been more appropriate such as presenting annotated photographs at the workshops.

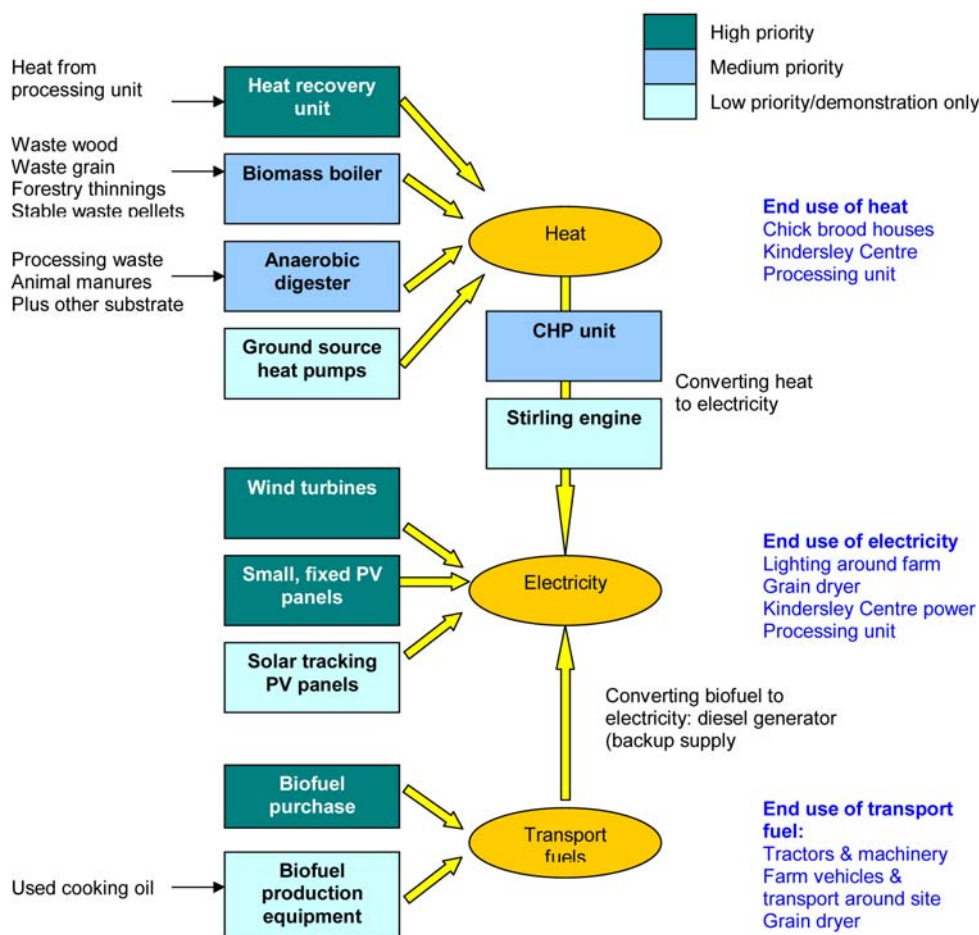
## 7.0 Lessons

This section outlines a number of the lessons that can be drawn from the case study, both in respect of the capacity of the farm to accommodate wind turbines to meet projected demand and how consultation exercises of this nature might be funded, structured and delivered in the future.

### 7.1 Renewable Energy at Sheepdrove Organic Farm

Earlier research and investigations at Sheepdrove Organic Farm<sup>6</sup> have identified opportunities for reducing energy use and have prioritised a number of renewable energy solutions that are appropriate for the farm. The following diagram summarises the renewable energy sources and ranks the priority of each as either High Medium or Low. Wind energy is allocated a high priority.

Renewable energy sources at Sheepdrove with prioritisation



Source: Sheepdrove Organic Farm: Reducing Energy Use & Maximising Renewable Energy Production. Report on Investigations During 2005. December 2005, Forum for the Future.

It is clear that a range of solutions will assist the farm meet its renewable energy targets. Indeed it is good practice to match a range of renewable energy investments to meet the various types of energy demand, for example bio-diesel for transport, wind energy for electricity, methane for heating. However, each of the renewable energy sources will have the potential to have an

adverse impact on landscape character and the visual resource. A brief summary is presented below for all renewable energy sources other than wind turbines identified as appropriate and prioritised by Forum for the Future. Wind Energy has been described in more detail elsewhere in this study:

Renewable Energy Source	Potential Sources of Landscape/Visual Impact
Heat Recovery Unit	Addition of new housing/structures Infrastructure (roads/cabling)
Biomass Boiler	Addition of new housing/ structures Infrastructure (roads/cabling) Storage compound for fuel (waste wood, waste grain, forestry thinnings, pellets) Regular vehicle movements (fuel delivery)
Anaerobic Digester	Addition of new housing/structures Infrastructure (roads/cabling) Storage compound for fuel (processing waste, animal manures and other substrate) Regular vehicle movements (fuel delivery)
Ground Source Heat Pumps	Short term impact on stripping land and reinstatement of vegetation
Small, fixed PV panels	Panels, fixings and associated infrastructure
Solar Tracking PV panels	Panels, fixings and associated infrastructure
Biofuel purchase	Regular vehicle movements (fuel delivery)
Biofuel Production Equipment	Addition of new housing/ structures Regular vehicle movements (fuel delivery)

The majority of the options prioritised by the farm would necessitate only small structures which are likely to be smaller than farm buildings currently on site. As a consequence, new additions are unlikely to have a significant adverse impact, dependent on these being sited in close proximity to existing structures at the core of activity around the Kindersley Centre.

However, it is important to note the effects of **cumulative impact**, whereby small incremental and perhaps seemingly innocuous changes over a period of time amount to a more significant adverse impact in totality.

In addition, the impact of vehicle movements should not be underestimated. Regular lorry visits to deliver various fuels could have adverse impacts on perceived and experienced tranquillity and/or remoteness. The vehicles in themselves could also be regarded as negative elements within views across the landscape if these are perhaps of a particular size or regularity. Again, the incremental effect of increased vehicle movements should be considered in their totality.

Obviously, the exact impacts of each option can only be measured when details of size, location, materials etc. are available. Notwithstanding this however, it is possible to highlight the findings for photovoltaics as a possible source of significant impact;

Solar Energy was assessed and a business case presented as part of this study, directly responding to delegates requests. This revealed that to meet 100% of electricity demand, (665,000 kWh/pa) the capital cost alone made it untenable. In addition the simple payback time was approximately three times longer than a photovoltaic panels useful life expectancy and the surface area required for solar panel coverage would total some 6,827 m<sup>2</sup>. (Equivalent to approximately 1.7 acres or 0.68 hectares.)

To make any significant contribution to meeting renewable energy demand, a significant area of photovoltaic panels would need to be installed. There is clearly potential to minimise adverse impact by installing these on roofs, however, in order to make a significant contribution, panels would potentially need to be installed on frames within the open landscape, thus increasing the adverse impact on landscape and visual character and receptors.

Capacity mapping has been proven as an effective way of assessing appropriate sites in regard to a range of constraints and considerations. The use of constraints mapping could be applied to other renewable energy sources, to rapidly secure potentially appropriate sites for these. It might also be possible to further enhance the process by assessing the cumulative impact of a range of proposals.

## 7.2 Wind Capacity and Consideration of Significant Constraints

Technically, a wide range of wind turbines can be located within the farm boundary and operate to sufficient operational effectiveness to be viable.

Wind capacity models clearly illustrated that significant areas within the farm boundary have sufficient wind resource to enable turbines to function within their operational range.

Working on the original basis of securing a wind turbine configuration that would meet 100% of electricity demand (projected as 665,000 kWh per annum), this could be met by the following options:

- 1 no. Fuhrlander FL250
- 6 no. Entegry Wind EW15
- 16 no. Gazelle Wind Turbines
- 266 no. Building Mounted Turbines

However, the Fuhrlander and the other 100% combinations would only be able to meet total demand if located in areas of sufficiently high wind energy potential. Constraints mapping and the subsequent development of the hypothetical scenarios necessitated turbines to be located away from the very windiest and exposed locations, thus affecting the projected output performance. By way of an example the Fuhrlander illustrated in the scenario was projected as contributing 78% rather than 100% of the electricity demand, as a consequence of its location away from the more elevated areas of the farm landscape.

A business case was prepared for each option, indicating that cost efficiencies exist in the installation of a single larger turbine, with the added benefit of a shorter payback time.

The building mounted option can be discounted. Whilst technically feasible, the capital outlay required, simple payback time and the number of turbines required to meet demand were regarded as unrealistic.

In response to delegates at Workshop 1, constraints other than landscape and visual constraints were identified and requests were made to ensure that these were factored into any assessment of site selection and consideration of the landscapes capacity to accommodate wind turbines.

Whilst the project team did not consist of ecologists, archaeologists or access professionals, some degree of analysis was undertaken in order to plot and consider these additional constraints albeit not comprehensively, or to the standards required in an EIA. By plotting these constraints and their buffers where necessary, it was possible to demonstrate that there are significant areas of land within the farm that lie in areas of wind energy capacity but outside of areas where Public Rights of Way, ecological, archaeological and residential considerations preclude turbines.

It should be stressed that the constraints mapping was illustrative only, and that significant additional research would be required in advance of any planning application to obtain a much more detailed picture of individual constraints and opportunities with regard to these and many other factors.

### 7.3 Landscape and Visual Impact

The project necessitated a thorough understanding of landscape character and visual amenity, in order that the professional team were made aware of considerations with regard to these factors. A summary of the main considerations was given at both workshop events and formed a significant component of the Workshop 1 briefing paper.

Landscape and visual analysis was undertaken to current best practice guidelines and utilised desk based research, use of existing character assessments and field evaluation. However, as no formal wind turbine proposal or application was under consideration, analysis and reporting stopped short of a formal landscape and visual impact assessment. Instead, a short description was provided on the following key issues and considerations, which were subsequently used to assist in site selection for the hypothetical scenarios:

- Landscape Sensitivity/ Considerations
- Visual Receptor Sensitivity/ Considerations
- Landscape Change (Direct and Indirect)
- Mitigation and the Character Led Approach

Workshop feedback provided commentary on the issues that would need to be considered with regard to landscape and visual impact. This was important information and helped in the location of turbines in the hypothetical scenarios. Essentially delegates were keen to ensure turbines were located off elevated landform, hills and ridges. Preferred turbine locations would exploit areas of low visibility such as in valleys, although in recognition of reduced wind efficiency, delegates identified mid slopes as a potentially effective way of acceptable reducing impact. Delegates also identified that turbines might be acceptable in close proximity to buildings, and in particular the Kindersley Centre. This area of the farm is relatively well contained visually, and already has a visual context of innovation, contemporary design and progress.

The four hypothetical scenarios were tested with delegates to record positive and negative responses at the second workshop. There was some disapproval for all scenarios, and indeed the notion of any wind turbines at the farm was unacceptable to some delegates at Workshop 1 and Workshop 2. However, once delegates had ensured that these opinions were recorded, some interesting comments emerged concerning turbine locations, configuration, visibility, impact on character and relationship to buildings and landform.

A detailed summary of the discussion session responses recorded at both workshop events is contained within each of the workshop reports (refer to appendices 8 and 13).

## 7.4 Summary of Findings

At this stage no firm conclusions are able to be drawn from the consultees regarding the siting or scale of turbines appropriate for the farm from the consultation exercises. However, the feedback obtained from delegates and the professional opinions of the consultant team do raise a number of interesting issues that would need to be considered in taking forward any application for wind turbines at the farm. A summary of these follows:

- Installation of a smaller number of larger turbines will maximise electricity output and cost efficiency for installation and maintenance, however this should be reconciled with considerations of landscape and visual impact.
- Turbines should be located in close association with existing grid connections and accessible roads/ tracks to reduce installation costs, new access route construction and associated disturbance, visual intrusion and impact on landscape character.
- Avoid procuring turbines from more than one manufacturer in order to maximise cost efficiencies of purchase, installation and maintenance.
- Accurate wind resource mapping should be referenced to secure turbine locations that offer high wind energy potential. Cross referencing wind data with landscape, visual and other considerations and constraints will secure the most effective and appropriate turbine locations to take forward to a planning application.
- Turbine sites should be assessed in recognition of a range of considerations and constraints relating to the physical environment, landform, visibility, Public Rights of Way, archaeology, residences and biodiversity in accordance with best practice guidance.
- Turbines are generally more acceptable close to buildings, on buildings or on mid slopes, and ideally mid slopes close to buildings. Ridge and hill tops and open countryside are least acceptable as turbine locations.
- Effective community consultation is essential in taking forward a planning application for wind turbine development at the farm and pre application discussions should seek to agree approximate turbine locations. Numbers and sizes are likely to be driven by technical requirements and issues regarding available capital, although early consultation similar to that already undertaken in this study will enable the farm to consult on draft scenarios, rather than hypothetical scenarios.
- It should be stressed that in advance of taking a scheme forward to a planning application, a full and thorough feasibility study should be undertaken that covers the full range of appropriate technical and other considerations.
- A Scoping opinion from the local planning authority at the outset of the Environmental Statement linked with a specific development proposal will assist in identifying the range of topics that need to be considered.

## 7.5 Public Engagement

### 7.5.1 The South West Public Engagement Protocol and Guidance for Wind energy

Public engagement according to the South West Public Engagement Protocol and Guidance for Wind Energy (2004) refers to the dialogue undertaken by stakeholders during the development of onshore wind energy projects. The protocol was specifically designed to outline responsibilities of local planning authorities and wind energy developers for promoting more effective public engagement and to provide the means to reduce the potential for confusion, misunderstanding and a loss of trust between stakeholders.

The propensity for controversy is a significant factor when issues such as wind energy are considered. This is especially the case in landscapes designated for their intrinsic quality such as is the case with the North Wessex Downs AONB. As a result, the approach to public engagement during the life of the case study was guided by the protocol and guidance document and benefited from following the four principles for effective public engagement:

- Demonstrating support for the process of public engagement – to emphasise the importance placed on public engagement by key stakeholders;
- Demonstrating an inclusive approach to public engagement – to ensure that anyone who is interested has the opportunity to contribute;
- Demonstrating a transparent and accessible approach to public engagement – to ensure that the process will be understandable, open and easy to get involved with; and
- Demonstrating an accountable approach to public engagement – to ensure that there is an appropriate flow of information amongst all stakeholders regarding the progress and outcomes of the process.

In summary the protocol and guidance was valuable because it provided:

- a list of the topics that stakeholders would find most important to discuss and therefore that the consultation should focus on.
- a set of principles for the organisation, running and reporting back of events to be based on.

What it did not provide was any warning of the need to anticipate and prepare a response to adverse publicity arising from the initiation of the consultation process. If the study timescale had allowed it, we would with hindsight have allowed a much longer gap between Workshop 1 and 2 to have allowed existing and new stakeholders to have become more familiar with the purpose and hypothetical nature of the case study, and allowed the farm a longer period in which to respond to the feedback from Workshop 1. The adverse publicity brought a large and fresh audience into Workshop 2 who had had no opportunity to familiarise themselves with the true nature of the study, were deeply suspicious of the farm's intent and not surprisingly railed against facilitators who they felt were forcing them to respond positively and with undue haste to a range of 'real', rather than hypothetical scenarios which in any case seemed to over-specify what might be needed to meet a lower electricity target than had originally been suggested.

#### 7.5.2 The Value of the Expert Facilitator

The case study was a clear demonstration of the need for expert facilitation by an impartial organisation with relevant experience of coordinating facilitation on similar projects elsewhere. By way of a summary, the case study benefited from expert facilitation in the following ways:

- The facilitator was able to interpret the protocol and guidance and design and formulate an effective Engagement Plan which was a focus for the project team during the life of the case study.
- The impartiality and skills of the facilitator were of paramount importance, given the strength of feeling generated by projects of this nature. It was also important in respect of delegates trusting the facilitator to report back the workshop findings fairly.
- The facilitator was able to coach the client and project team on the methods of ensuring full transparency during workshop events and in particular in the way that delegate opinions and comments were recorded and reported.

A significant benefit of an independent facilitator and wider professional team was that issues of previous contention between the farm and local community could be acknowledged and placed to one side, where these were of no relevance to the subject of the case study.

The farm will continue to have an ongoing dialogue with local communities covering a range of issues. Whilst a number of issues were raised during the course of consultation, the professional team was able to detach themselves from such wider discussions and ensure that the consultation event remained focussed on the task in hand. It will be important for the farm to address these matters if it is to overcome some of the mis-trust felt by the community, such that it does not undermine future attempts to win community support for its further development.

### 7.5.3 The Efficacy of Consultation Methods

The Engagement Plan stipulates the aim of providing a proportionate approach to consultation. Given the fee and time available to complete the case study, two half day workshops were programmed along with a visit to local wind turbine installations, in order that delegates that were not accustomed with wind turbines could have some appreciation of their scale and judge impacts more accurately. This was regarded as appropriate although a larger fee and longer timescale would have enabled more effective consultation.

The first workshop was designed to present basic information on wind turbine technology and the issues that are considered in siting turbines to maximise efficiency. Landscape and visual impact issues were also presented, these being regarded as the impacts that will have most resonance with AONB stakeholders and residents in particular.

Building upon the knowledge and understanding gained from the first workshop and site visit, the second workshop was designed as an opportunity to test the selection of evaluation criteria for judging the location options of potential wind energy installations on the farm.

The methods and tools utilised (PowerPoint presentation, workshop reports, fact sheets, illustrations and talks), were all appropriate to provide the relevant and appropriate level of information to empower delegates to participate in workshop discussion sessions.

The second workshop utilised hypothetical scenarios to illustrate various wind energy configurations that would be required to meet 100% of the farm's electricity demand. These were a valuable tool for delegates to visualise how different turbine sizes and configurations would appear in the landscape of the North Wessex Downs, and more specifically within the farm land holding. Overall they helped to indicate the implications of a 100% target.

However, the intention to obtain objective commentary from delegates on positive and negative aspects of each scenario was difficult. This was partially as a result of some delegates being wholly opposed to any form of wind turbine development at the farm. Subjectivity was also a factor, with individuals, and in particular some people from the area immediately surrounding the farm, expressing their concerns and opinions as if the scenarios were part of a planning application.

A further issue relating to the use of hypothetical scenarios was that some delegates found it easier to articulate opinions by comparing scenarios with each other.

The scenarios, whilst based on actual sites, were designed to be representative, in order that delegates could comment on general issues relating to location, visibility and impact on character. As part of this approach, maps were not circulated illustrating where each turbine scenario was located. Given the sensitivity of the issue and also previous misunderstandings as to the nature of the case study, this was felt to be an appropriate action. Some stakeholders also felt that the turbines should not have been set against cloudy skies, and the views for all of them should have been at the same distance, to enable them to compare like with like.

Subsequent to the second workshop, the professional team has discussed whether the scenarios and photomontages might have benefited from being more abstract, and perhaps located in landscapes outside the farm and AONB. Whilst this would have potentially allowed a more objective review of the visual and landscape impact of wind turbines based on size and number, delegates would perhaps have found it difficult to transpose this theoretical understanding of impact onto the landscape of the farm, where a particular combination of factors define local character and visual issues.

It would therefore be advisable to perhaps test the efficacy of other approaches in future case studies to determine if alternative approaches to testing scenarios would indeed be more successful. However, given the suspicion with which the information was received at Sheepdrove Organic Farm, any attempt to present non location specific information could not be presented by a potential developer, only by the AONB.

The photomontages were also limited in what they could demonstrate to delegates. For example, ancillary structure, tracks and other direct changes to the landscape or visual environment were not illustrated, and as such delegates were not able to judge the full impact of each scenario.

Delegates also commented that the effects of movement could not be illustrated in the turbine montages, and no feeling for the noise generated by each scenario was able to be gauged. Time and budget constraints limited the efficacy of the montages in this regard. However good animation techniques are now available and could be used subject to appropriate budgets being made available for projects of this nature in the future.

The approach taken to splitting delegates into groups was the most effective way of approaching consultation, as by working together, delegates could discuss and share opinions. The use of a facilitator on each table ensured in principal that all delegates would have their say and their opinions noted in a fair and transparent way. However, it was clear that in some groups some delegates had particularly entrenched opinions and found it difficult to entertain an alternative view or opinion. At workshop two, this was the case for delegates both for and against turbines at the farm. Full and frank debate is a valuable tool, however, with the strength of feeling surrounding such an emotive issue it was clear that conflicting opinions undoubtedly had an adverse impact on some delegates and perhaps hindered their ability to share their views.

The hypothetical scenarios benefited from being presented as photomontages with technical information limited to the minimum required to form an overall impression of the proposal. However, the montages were not able to illustrate the full impact of all turbines within a particular scheme or the impacts of associated infrastructure. As a consequence, delegates found it difficult to assess the full impact of each scenario. In addition, the decision to reduce the overall electricity target to 25% from 100% (which is what the scenarios were designed to meet) further contributed to confusion. It is clear that delegates would have benefited from more time to be led through the process of assessing the impacts of the scenarios and perhaps clearer explanation of the limitations of the material presented.

#### **7.5.4 Feedback from Stakeholders**

Delegates to Workshop 1 had all been specifically invited and from a broad range of interests (including many local residents), which had been appreciated. They were pleased that the Workshop had allowed them the time to identify all their concerns and raise questions, although some were concerned that the team did not have all the answers at their finger tips such as about the business case for different types of turbines and the farm's true intentions about its energy targets and aim for self-sufficiency only. Subsequent comments made to the lead facilitator by delegates to Workshop 1 stated that they felt the workshop report had given a very fair picture of the views expressed.

The feedback from Workshop 2 was more mixed. Whilst a number of delegates continued to be pleased that the farm were taking this initiative to tackle a difficult and controversial topic, others felt that the event had been hi-jacked by FOLD and others strongly opposed to any form of turbine development, as a result of the press coverage. The meeting started late as twice as many people turned up and had to be dealt with as had been anticipated, reducing the amount of time available in the two hour session for feedback from Workshop 1, the presentations and

discussion of the evaluation criteria. Not surprisingly a number of stakeholders commented that the session felt rather rushed, and whilst the lead facilitator's attempts to keep the programme moving forward to time was appreciated by some, others felt that important issues were being deliberately side-stepped. The hypothetical nature of the case study was clearly not appreciated by the majority of those involved in either workshop, and more effort should have been dedicated to re-enforcing that message.

From the comments made about the consultation process as a whole, 24 out of 27 respondents felt that the sessions had been valuable (providing their views were taken consideration of) because they had raised awareness of the issues and the public's strength of feeling about them. Some felt it had been useful to have the opportunity to hear the range of views expressed and others felt they at least knew more about what they would be up against, should a planning application ultimately be submitted.

#### **7.5.5 Technical Details and the Scope of Information Presented**

The ability of people to absorb technical details was an important consideration, and as such the professional team was keen to keep the use of technical jargon to a minimum and where it was used, provide a full and detailed explanation. Indeed prior to the first workshop a delegate briefing paper was prepared. However, this was not issued as far ahead in advance of the workshops as was the intention, and as such some delegates were asked to absorb a significant amount of information 'cold'.

Delegates were required to absorb a significant amount of information pertaining to wind energy, and then apply this to commenting upon a number of scenarios. Given this and also the limited time in which to undertake both presentations and group work exercises the professional team were keen to keep the thrust of the presentations focused on the subject of wind energy. However, and as a direct result of the farm's extensive and expanding portfolio of initiatives, workshop presentations from the farm explored several aspects of sustainable energy management, which served to place the wind energy scenarios in a wider palette of renewable energy initiatives at the farm.

#### **7.5.6 Handling the media/publicity**

The issue of media interest is one that could have been identified as being a likely outcome of the case study, and mechanisms should have been in place to coordinate and react to press interest prior to commencement of the project.

The interventions of the farm in the form of press releases represented an important step in setting the record straight with regard to the exact scope of the case study and to clearly state that no formal planning application was planned or in the process of being planned. However, given the strength of feeling and misunderstandings still evident at Workshop 2, it is apparent that the project would have benefited from a more coordinated approach to press interest.

### **7.6 Conclusions**

It was clear that the farm is considering a range of renewable energy initiatives and energy management and energy efficiency initiatives. In this respect Sheepdrove Organic Farm is making important steps to achieve energy self-sufficiency, cost savings and reduction of its carbon footprint.

The project is part of an ongoing commitment to organic farming and the advancement of sustainable practices. The case study has necessitated the advancement of an energy strategy and this can now be progressed further in light of these findings and ongoing research into energy demand and consumption and consideration of a wide range of possible renewable energy options.

In looking at wind energy opportunities and issues, the farm is in accord with national and local policy and guidance on seeking opportunities for small scale renewable energy schemes.

In addition, by the case study specifically addressing landscape and visual issues and undertaking stakeholder and community consultation, it is in accordance with national and local policy and guidance which seeks to ensure new development does not compromise landscape character, and ensure that communities are engaged at the earliest opportunity.

The farm is not considering a commercial scale wind energy operation. However, some difficulties arose out of delegates feeling that whilst the benefits of any turbines would be directed to the farm, the perceived disbenefits of visual intrusion and changes to local landscape character would be of widespread detriment. As a consequence of such commentary, future consideration of wind energy at the farm might benefit from widening the scheme to form a community renewable energy initiative.

At Workshop 2 a representative of FOLD also expressed concern about any form of turbine development on the farm representing a precedent for further turbines to be installed in the future, or perhaps a commercial operation of some form either on the farm or within the North Wessex Downs. Whilst this is an obvious concern, it is unlikely that a small scale turbine development would lead to the establishment of a precedent and especially not for large scale wind energy or commercial wind-farm type developments. Local Planning Authorities are required to assess applications upon their merits, with information likely to be drawn from an Environmental Statement and widespread consultation. Issues of landscape capacity are also likely to be considered, through which the presence of a turbine or number of turbines might be regarded as all that a landscape can accommodate without adverse impact on the landscape.

The case study in itself might be regarded as a positive precedent, in that at the pre-feasibility and site selection phase of development, the community and stakeholders were engaged to ascertain their thoughts and aspirations, without the need to make formal responses to a planning authority within a short time scale. The farm now appreciates the nature and magnitude of the local community's concerns and also the extent of local and wider support for their initiative.

In addition this study can be seen as setting a positive precedent in the way that it presents a framework for how developers need to identify constraints in consultation with stakeholders. This case study identified a number of constraints that clearly show where some parts of the farm are not appropriate for locating turbines. In this regard this study demonstrates how to steer away from potentially harmful precedents at the earliest stages so that they do not become established.

In other words, by identifying constraints and properly considering the North Wessex Downs AONB setting, localised landscape context and stakeholder needs has been shown to help protect against harmful precedent by indicating clear limits to development.

## **7.7 Recommendations**

A number of recommendations can be made which will assist Sheepdrove Organic Farm take forward renewable energy options and in particular small wind energy solutions to meet electricity demand.

The case study has also provided an important opportunity to review the application of the South West Public Engagement Protocol and Guidance for Wind Energy to pre application/ academic case studies of this nature and more specifically the techniques utilised as part of this case study.

A number of recommendations can be made to ensure that the farm and future projects of this nature benefit from the experience of undertaking this case study:

#### General Recommendations

- Communities and businesses should prioritise low impact renewable energy options that suit their energy needs and that are appropriate for their location/ available resources.
- It is good practice to use a process of community engagement and analysis, along the lines of this case study. Sufficient time and resources should be made available for community engagement.
- Constraints mapping is a valuable tool in making a rapid assessment of environmental constraints and considerations. This should be applied wherever appropriate, and perhaps expanded to other issues (see following point).
- Gather consensus as to the scope of issues likely to arise in the study in advance of starting – what are the issues here? Ensure that the brief is of sufficient breadth to cover all the relevant issues adequately and sufficient time and budget are made available. This could reflect more closely the full scope of a typical EIA.
- Ensure that the available project budget and timescale is sufficient to enable an appropriate number of consultation events that lead delegates gradually through the process, and avoid misunderstanding about purpose or scope of the study.
- Undertake additional case studies, utilising the South West Public Engagement Protocol and Guidance for Wind Energy, but perhaps utilising alternative models for engaging responses from delegates.
- Consider a broader range of local consultees, drawn from a range of socio-economic groups, wider geographical location and wider age range, including children.
- Consider the findings of the AONB Wind Energy Sensitivities and Constraints Study, and ensure that a detailed review of visual and landscape sensitivities and constraints are assessed for any proposed development. Further studies should follow the recommendation that an individual site investigation should be carried out to assess specific sensitivities and constraints to this scale of development on a case-by-case basis and that such an investigation should also pay particular note to the cumulative impact of such structures.
- North Wessex Downs AONB to consider publishing a fact sheet or similar on this case study to provide guidance and assist others consider small scale community wind energy projects.

#### Specific Recommendations to Sheepdrove Organic Farm

The Farm will also take on board a number of the issues arising from the case study in their ongoing commitment to be at the forefront of organic and sustainable farming practices:

- Utilise the constraints mapping concept in assessing suitable locations for future renewable energy developments that minimise adverse environmental impact.
- Continue to develop and consult on the farm's energy strategy.
- Develop firm objectives for renewable energy expansion at the farm, specifying what will be achieved over a specific time period.
- Establish mechanisms to review and monitor progress at regular intervals
- Utilise the findings of character and landscape analysis in the planning and design of future initiatives at the farm.
- Continue to engage the local community and other stakeholders, and draw from the General Recommendations (above) to guide the consultative process.
- Sheepdrove Organic Farm should work to the South West Public Engagement Protocol and Guidance for Wind Energy (2004).
- Continue existing wind monitoring and consider undertaking detailed wind monitoring and resource mapping for appropriate locations in order to inform more detailed assessments.

## 8.0 References

1. Land Use Consultants (September 2005) A Study of Landscape Sensitivities and Constraints to Wind Turbine Development.
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3. The Landscape Institute and Institute of Environmental Management and Assessment (2002) Guidelines for Landscape and Visual Impact Assessment, Second Edition.
4. Peter Capener and Cheryl Cowlin (2004) South West Public engagement Protocol and Guidance for Wind Energy.
5. The British Horse Society, Advisory Statement No. 20 Wind Farms.
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