

**FLEETER WOOD WIND FARM
ENVIRONMENTAL STATEMENT**

NON TECHNICAL SUMMARY

DECEMBER 2007

This document has been printed by Hobs reprographics who only use paper from Finland Mills who have a replanting and forest friendly code. All paper used is chlorine free and they do not use recycled paper which is brown when produced and bleached to whiten. All paper is produced using processes confirming ISO14001 or ENAS – Environmental Management Systems

PREFACE

This Environmental Statement accompanies the application by Novera Energy Plc (Novera) to Allerdale Borough Council to construct and operate a wind farm on land near Fleeter Wood near Dearham, Maryport.

This Environmental Statement has been prepared by Arcus Renewable Energy Consulting Ltd on behalf of Novera and comprises the following:

1. Non-Technical Summary (available as a stand alone document and at Page iii of this volume)
2. Environmental Statement Volume 1 – main volume text, figures and visualisations (ES Volume 1)
3. Environmental Statement, Volume 2 Technical Reports - supplementing the findings of the Environmental Statement (ES Volume 2)

Copies of the Environmental Statement can be consulted at:

Allerdale Borough Council
Allerdale House
Workington
Cumbria
CA14 3YJ.

Copies of the Environmental Statement including the Non Technical Summary can also be obtained from Novera Energy at:

Novera Energy Plc
30 Bedford Street
London
WC2E 9ED.

The stand alone Non Technical Summary document can be obtained free of charge and the full Environmental Statement can be purchased for £200.00 per copy.

Alternatively full sets of the documents are available free of charge as adobe acrobat files on CD.

The Non Technical Summary can also be downloaded free of charge from Novera Energy's website:

<http://www.noveraenergy.com/>

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	FLEETER WOOD WIND FARM	2
3.	ENVIRONMENTAL IMPACT ASSESSMENT	2
4.	CONSULTATION AND SCOPING	2
5.	SITE SELECTION AND LAYOUT DESIGN.....	3
6.	THE PROPOSED DEVELOPMENT	3
7.	PLANNING POLICY	4
8.	LANDSCAPE AND VISUAL EFFECTS	5
9.	ECOLOGY	7
10.	ORNITHOLOGY	7
11.	HYDROLOGY	8
12.	ARCHAEOLOGY AND CULTURAL HERITAGE.....	8
13.	NOISE	9
14.	TOURISM, RECREATION AND SOCIO-ECONOMICS	10
15.	EXISTING INFRASTRUCTURE	10
16.	ACCESS AND TRAFFIC	11
17.	MISCELLANEOUS ISSUES.....	12

LIST OF FIGURES

Figure 1 Site Location

Figure 2 Indicative Site Layout

NON TECHNICAL SUMMARY

1. INTRODUCTION

This Non Technical Summary forms part of the Environmental Statement (ES) to accompany an application by Novera Energy Plc (Novera) for a 5 turbine wind farm of between approximately 10MW and 12.5MW at Fleeter Wood, approximately 1km from the village of Dearham, Maryport. The location of the development site is shown in Figure 1.

Novera Energy operates a portfolio of landfill gas, water and waste, hydro and wind assets across the UK, generating renewable power at 58 sites across the UK with a total installed capacity of 122MW. In addition, Novera is developing a portfolio of wind farms with a target capacity of 250MW by 2011. Through careful attention to design, planning and development and consultation with the local community, Novera has the proven ability to plan, build and operate wind farms in the UK. Novera is one of the largest generators of renewable energy in the UK and with over 140 members of staff is one of the largest employers in the UK renewables sector.

Energy underpins virtually every aspect of the economy and society. However, the use of fossil fuels such as gas and coal, which currently provide the bulk of our energy, releases greenhouse gases (such as carbon dioxide) into the atmosphere which directly affects our climate. To help lessen the effects of climate change, greenhouse gas emissions must be reduced. One way of helping to achieve this is by generating energy from sources that emit low or even zero levels of greenhouse gases, such as renewable sources.

In order to meet international obligations, the UK is committed to reducing greenhouse gas emissions in an attempt to reduce the effects of climate change. The UK Government has set a domestic target for reduction of CO₂ emissions to 20% below 1990 levels by 2010. Another main objective is to move towards obtaining 10% of the UK's electricity supply from renewable sources by 2010, with an extension of the target to 15% by 2015 and an aspirational target of 20% by 2020.

The North West Sustainable Energy Strategy sets out the regions objective of meeting the government targets set out above. It highlights that the North West has some of the best renewable energy sources in the UK and that wind energy has a potentially major role in the future of energy in the north west. The DTI predict that in order to meet the 2010 target, 80% of renewable energy generated will be from wind farms. The Strategy suggests that applying this national prediction to the North West suggests that the region will require in the region of 500MW of installed wind farm capacity. The strategy reports that the Region has only 70MW of operational onshore wind farms.

The installed capacity of Fleeter Wood Wind Farm will be between 10MW and 12.5MW, which would depending on the specification of the wind turbine used, provide enough energy for approximately 5591 - 6989 homes¹ and displace between 9,723 and 28,777 tonnes of CO₂ during each year of its 25 year operational life. This is based on the estimate that within different elements of the UK energy mix, 370g (Gas), 631g (Fossil Fuel) and 876g (Coal) of CO₂ are released per kilowatt-hour.

¹ Assuming average annual domestic consumption at 4700kwh/year and a capacity factory of 30%

2. FLEETER WOOD WIND FARM

The Fleeter Wood Wind Farm site was identified by Novera in 2006 as potentially suitable for wind farm development. The site was one of four identified in West Cumbria as part of a site search process based on a range of environmental and technical criteria, rather than a land availability approach.

Further detailed study of the Fleeter Wood site was initiated and Novera commissioned suitably qualified ecologists and ornithologists to begin surveys at the site. This was followed by a consultation exercise known as Scoping, where a wide range of consultees were asked to comment on the proposals. This confirmed the Novera's belief that Fleeter Wood is an appropriate site to be progressed to planning.

The Fleeter Wood site is, in summary, considered to be suitable for a wind farm based on the following criteria;

- Good wind resource
- Suitable site topography
- No international or national environmental or landscape designations on the site or in very close proximity likely to be affected significantly
- In an area identified as Moderate Landscape Capacity in Map 4 of the Cumbria County Council's Consultation Draft Wind Energy Supplementary Planning Document, the guidance available at the time of site selection
- Suitable point of entry and road access to site
- Ease of connection to the electricity network
- Few apparent environmental issues
- Reasonable separation distances from residential properties
- Existing agricultural land use of compatible with wind farm development.

3. ENVIRONMENTAL IMPACT ASSESSMENT

An application for planning permission is made under The Town and Country Planning Act 1990 to Allerdale Borough Council. The Environmental Statement (ES) has been prepared to accompany the planning application, in accordance with The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999.

Environmental Impact Assessment (EIA) is a process intended to ensure that development with potentially significant effects on the environment is granted permission only after full consideration of the likely significant environmental effects has been given and suitable mitigation or management measures identified.

4. CONSULTATION AND SCOPING

The aim of the Scoping process is to identify key environmental issues at an early stage, to determine which elements of the proposals are likely to result in significant effects on the environment and to establish the extent of survey and assessment required for the EIA. The process also serves to formulate and finalise the proposals and to incorporate suggestions and reflect responses gained through public and organisational consultation. This enables embedded mitigation and enhancement measures beneficial to ecological and recreational interests to become part of the proposed development.

A Scoping Report was prepared and submitted to Allerdale Borough Council and other bodies who were identified as potentially interested in the development. This list included bodies such as Parish Councils, Natural England and English Heritage. Responses to the report provided useful information to guide the wind farm design and assessment processes.

As part of the wider consultation process the Parish Councils were contacted and public exhibitions held in Dearham and Tallentire. This provided an opportunity for local people to examine the proposals, explore issues of potential concern and offer comments, feedback and suggestions.

At this stage of the process the project was known as Townhead Wind Farm. Following this consultation exercise, the name was changed to Fleeter Wood Wind Farm to better reflect the location of the proposed wind turbines.

5. SITE SELECTION AND LAYOUT DESIGN

As described above, the site was identified by Novera as being suitable for wind farm development. This was based on a range of selection criteria which included:

- Potentially suitable wind speed based
- Proximity to port of entry for turbine delivery
- Proximity to aviation interests based on published CAA safeguarding maps
- Number and density of existing wind farms
- High and local level planning policy
- National/Regional targets for renewable energy
- Presence of and proximity to International and National designations.

The wind farm was originally identified as being suitable for approximately 8 wind turbines. The consultation process described above highlighted a number of constraints to be taken into account when designing the wind farm. These were taken into account as the wind farm design evolved through an iterative process to ensure that it represented the "best fit" for the proposed site in terms of its appearance from many locations throughout Allerdale and beyond in terms of other environmental considerations.

The result has been a reduction in turbine numbers from 8 to 5. Details of the project are below.

6. THE PROPOSED DEVELOPMENT

The proposed development is to construct and operate a 10-12.5 MW wind farm comprising the following:

- 5 wind turbines and associated infrastructure including crane pads
- construction of site entrance
- construction of new access tracks
- Laying of underground cables
- construction of a temporary site compound
- construction of a new on-site substation including the control building and
- erection of one permanent wind monitoring mast.

Construction would be planned to take place over a 10 month period.

The proposed layout of the wind turbines is shown in Figure 2. The assessment is based on a candidate turbine with a maximum rotor diameter of 80m and the total height to blade tip would not exceed 105m, and for the purposes of assessment, a typical hub height of 65m has been assumed. The turbine towers would be of tapering tubular steel construction and the blades would be made from fibre-reinforced epoxy. The finish of the turbines would be semi-matt pale grey.

The turbines would generate electricity in wind speeds between 4 and 25 m/s. At wind speeds greater than 25m/s (56mph) the turbines would shut down for safety and self-protection. Such high wind conditions occur for a maximum of approximately 1% of the year.

The proposed wind farm will be connected to the national grid via a new electrical control building on site. The grid connection is the responsibility of the grid operator and the application for the grid connection between the site control building and the national grid will be the subject of a separate planning application.

Operation

Modern wind turbines have an expected operational availability of over 97%, including shutdowns due to routine maintenance. Each turbine has a computer controller that regulates every aspect of the turbine's performance. Routine site maintenance visits would take place approximately twice per week in a four-wheel drive vehicle to ensure that the turbines are operating at their maximum efficiency. The operation and maintenance of the wind farm would provide part time employment for at least one local engineer/fitter. Routine servicing would take place twice per year with a main service at twelve monthly intervals and a minor service at six months.

Decommissioning

At the end of the 25-year planned life of the wind farm, it will either be decommissioned and the site reinstated (by agreement with the landowner) or a new planning application may be submitted to retain or modify the existing development. Such an application will need to meet the planning and EIA requirements in force at the time. For the purposes of this ES it is assumed that the turbines will be dismantled and removed.

The decommissioning period for the wind farm is estimated at six months, and will involve the removal of all above-ground structures and the reinstatement to agricultural use of ground disturbed by the works.

Decommissioning will take account of the environmental legislation and technology available at the time of decommissioning. Notice will be given to the Local Authority in advance of the commencement of the decommissioning works with all necessary licenses or permits being acquired. Decommissioning will be timed to minimise its environmental impact.

7. PLANNING POLICY

The development site is located within the Borough of Allerdale. The Development Plan, which is used as the basis for making planning decisions, comprises:

- RSS 13 Regional Spatial Strategy for the North West (March 2003) (formerly RPG13)
- Cumbria and Lake District Joint Structure Plan (April 2006)
- Allerdale Local Plan (1999) and First Alteration (2006).

Documents are being produced, in accordance with new legislation, which will replace these documents in due course. These are

- The North West Plan, Submitted Draft Regional Spatial Strategy for the North West of England
- Allerdale Local Development Framework.

The planning policy framework that applies to the proposed Fleeter Wood Wind Farm is going through a process of change as described above. The current development plan documents each set out a positive framework for the development of renewable energy projects.

In respect of wind farms the policies promote their development as part of the drive to increase the amount of energy generated from renewable sources. Policies are generally supportive of wind farms subject to their careful siting and design and provided that full consideration of the environmental impacts of the proposal.

One of the main issues contained within renewable energy policies is the landscape and visual impact of proposals. Principally these policies are aimed at protecting important landscapes and other resources, particularly those that already have an international or national level of protection afforded to them. These policies primarily refer to the Lake District National Park, Solway Coast Area of Outstanding Natural Beauty and Hadrian's Wall World Heritage Site.

Fleeter Wood Wind Farm does not lie within any of these designations and no significant impacts are predicted upon them as a result of the development.

In addition to the existing policies, emerging policies, particularly the North West Plan referred to above, also actively seek to promote renewable energy development. The North West Plan indicates that the North West Region's renewable energy targets reflect those of the UK government

The North West Region currently has 16 onshore wind farms and this is intended to rise to 35-51 in 2010 and up to 62 schemes in 2015.

The subregional target which applies to Cumbria alone is to have 13-18 onshore wind farms by 2010 with a generating capacity of 210MW rising to 247.5MW by 2015. Currently there are 13 wind farms operating in Cumbria with a total of 86MW of generating capacity installed. The targets are minimum indicative targets.

Fleeter Wood Wind Farm will assist the North West Region in meeting these targets by contributing 10-12.5 MW of installed generating capacity, should planning permission be granted.

8. LANDSCAPE AND VISUAL EFFECTS

A landscape and visual assessment of the proposed wind farm at Fleeter Wood has been undertaken.

The broad objective in assessing the effects of the proposed development is to determine what the predicted significant effects of the wind farm on the landscape and visual resource will be. A significant effect will occur where the wind farm has a material effect on the landscape element, landscape character receptor or view, so that it becomes defined by the presence of the wind farm.

The landscape and visual assessment concentrates on a study area of 30km radius from the proposed wind turbines, which is in line with current best practice, and was agreed in discussions with Allerdale Borough Council prior to the assessment. A cumulative assessment has also been completed which examines the effect of adding Fleeter Wood Wind Farm to the existing and proposed wind farms in the area. The study has considered both the effect of Fleeter Wood Wind Farm alone and in combination with other existing and proposed wind farms on various sequential routes within the study area

Within the 30km study area, four different zones were identified for assessment purposes.

- Broad scale - outward to 30km radius
- Local scale - outward to 12km radius
- Immediate scale - outward to 2.4km radius
- The proposed development site

Different types of effects are likely within each of these zones.

The assessment considered the landscape and visual impact of the proposed wind farm from 43 different locations within the study area alongside a range of landscape receptors such as designated landscapes including the Lake District National Park and Solway Coast AONB.

Of the assessed 43 viewpoints the proposed Fleeter Wood Wind Farm is predicted to have a major or major to moderate effect on only four viewpoints. The remaining 39 viewpoints will experience effects of moderate or lesser which are not considered to be significant.

The assessment has significant effects will be limited to Local views; receptors such as houses and roads that gain clear, open and direct views of the wind farm from up to 2.4km from the nearest turbine and a short section of the Allerdale Ramble as it passes close to the site.

The furthest viewpoint from the proposed wind farm where a significant effect is predicted is at Tallentire Hill, approximately 2.5km from the closest proposed turbine.

There will be no significant effects on the designated areas within the study area, including the Lake District National Park and the Solway Coast AONB.

The landscape assessment has demonstrated that the significant effects of the proposed Fleeter Wood wind farm on landscape character and views will be localised, being contained within the close vicinity of the development site. While these significant effects will result in material alterations to the localised landscape and visual resource, the proposed development is considered to be acceptable in the broader context.

The cumulative assessment has highlighted that there is potential for cumulative effects to occur, however no significant cumulative effects are predicted on the landscape character of the study area, or designated landscapes as a result of the addition of the proposed Fleeter Wood Wind Farm to the existing and proposed wind farms in the area.

In the immediate surroundings of the site (up to 2.4km), there is potential for a significant cumulative effect as a result of the interaction between the proposed Fleeter Wood Wind Farm and the proposed wind farms at Tallentire Hill and Flimby. However, the distance between the existing and consented wind farms, the wind farms that have been submitted to planning and the proposed Fleeter Wood Wind Farm and intervening screening by landform and vegetation means that the cumulative effects would not be significant beyond 2.4km from the Fleeter Wood Wind Farm.

The assessment concludes that the proposed Fleeter Wood Wind Farm is considered acceptable in landscape and visual terms.

9. ECOLOGY

An assessment of the ecological impacts of the proposed wind farm has been carried out following best practice guidelines. The assessment excluded birds, which were considered separately. Desk and field studies were completed to identify the main flora and fauna within the study area. Desk studies included consultation with Natural England and Cumbria Wildlife Trust. Field surveys included:

- A habitat survey
- A protected species survey
- A bat survey.

No part of the study area lies within a designated site, although a tributary of the River Derwent and Bassenthwaite Lake SAC, the Carr Beck, drains the site. A Special Roadside Verge (designated by Cumbria County Council) is located on the boundary of the site at West House Farm. The majority of the site is grassland managed for grazing livestock and arable fields. A patchwork of woodlands and hedgerows covers most of the remainder of the study area (4%). Otter, bat and red squirrel activity was identified within the study area. Low levels of bat activity of three species were recorded and several small roosts were identified within woodlands. The wind farm has been designed to avoid areas identified as potentially sensitive due to the presence of these protected species.

No direct impacts on the River Derwent and Bassenthwaite Lake Special Area of Conservation (SAC) and its special features, or the Special Roadside Verge are predicted. No indirect impacts are expected following implementation of mitigation measures proposed in the Environmental Statement.

During construction, a small amount of temporary and permanent habitat loss of improved and arable grassland and species rich hedgerows will occur. Less than 1% of the species rich hedgerows, and less than 2% of the improved and arable grassland within the study area will be lost to components of the Wind Farm and this is not expected to result in any significant impacts on these habitats.

Some temporary disturbance to otters could occur during construction of the wind farm access track water crossings. However following implementation of proposed mitigation measures, no significant impacts on otters are expected. Some temporary disturbance to red squirrels could occur during construction of the wind farm access tracks. However following implementation of proposed mitigation measures, no significant impacts on red squirrel are expected. Several small bat roosts were identified within the woodlands on site, and commuting routes between woodlands along hedgerows and across the site were also identified. However following the design process and implementation of the proposed mitigation measures, no significant impacts on bat roosts, foraging areas and commuting routes are expected.

Overall, following implementation of the proposed mitigation measures, no significant impacts on the habitats or species identified in the study area are expected during construction, operation or decommissioning of the proposed wind farm.

10. ORNITHOLOGY

An assessment of the ornithological impacts of the proposed wind farm at Fleeter Wood was undertaken following best practice guidelines.

Consultation and field studies were completed to identify the main species of bird that could be potentially affected by the development. Field surveys were undertaken between October 2006 and October 2007 to establish which species were using the site and in what way.

No sensitive bird species were recorded during the ornithological surveys. No protected raptor species were observed in the study area. Breeding curlew and lapwing, which are amber listed birds of conservation concern, were identified within the development area and song thrush, tree sparrow and yellowhammer which are red listed birds of conservation concern were recorded breeding within the study area¹.

Mitigation measures proposed to minimise impacts on bird species, where practicable, include ensuring any vegetation clearance is completed out with the bird breeding season to avoid impacts on nesting birds.

No significant impacts on breeding waders, in particular curlew and lapwing, are predicted. Collision risk assessment showed that there would be no significant collision risk to curlew or lapwing, as no collisions are predicted during the 25 year lifespan of the wind farm development.

No significant impacts on any bird species are predicted during construction, operation or decommissioning of the wind development.

11. HYDROLOGY

likely significance of effects of the development on hydrology and hydrogeology have been assessed.

Various mitigation measures are proposed and include those which will be "embedded" into the design and those which will be implemented through best practice. Key embedded mitigation measures include the decision not to excavate borrow pits on site and instead Novera is proposing to import stone for foundations in order to minimise effects on local geology and hydrology, and proposing to implement a 50 metre minimum buffer zone between turbine positions and existing water courses. Best practice mitigation measures will be implemented through a Pollution Prevention Plan (PPP) which sets out measures to be employed to avoid or mitigate against potential adverse effects for all phases of the proposed development, including an Incident Plan should pollution occur and method statements for contractors and site workers.

Following adoption of the proposed mitigation measures Fleeter Wood Wind Farm is not predicted to have significant effects on hydrogeology or hydrology.

12. ARCHAEOLOGY AND CULTURAL HERITAGE

The cultural heritage assessment has considered potential effects directly upon archaeological and other features within the site boundary from construction, and has also considered the

¹ The red and amber listings refer to a list of birds of conservation concern prepared by leading governmental and nongovernmental UK conservation organizations. The population status of 247 bird species was assessed based on a range of criteria and the species were placed into red, amber and green list.

potential for the wind farm to cause indirect (visual) impacts upon the settings of archaeological and historic features beyond the site boundary.

In order to establish the baseline conditions a desk-based assessment was carried out, consisting of an examination of readily available documentary, cartographic and other resources. Data from Cumbria County Council's Historic Environment Record as well as datasets from English Heritage were obtained so that the historic features could be located over the Zone of Theoretical Visibility prepared for the Landscape and Visual Assessment Chapter in order to establish potential effects upon the settings of the historic features. A site walkover survey was undertaken and this was supplemented by a geophysical survey of the development footprint (1 ha areas centred on all turbine base co-ordinates, proposed access tracks and construction compound/substation locations). Mitigation is also proposed in the cultural heritage chapter.

The results indicate that no scheduled monuments, listed building or registered historic parks lie within the site in whole or in part. No previously recorded archaeological features will be damaged by the construction of the proposed wind farm. Some historically long-lived boundaries and tracks lie within the development area, but these will be avoided where possible, and a programme of recording is proposed by way of mitigation where this is not possible. A previously unrecorded area of ridge and furrow was recorded, in an area where the proposed meteorological mast is to be located. The mast will have only a minor physical impact on the extent of the ridge and furrow and archaeological recording is proposed as mitigation. It is considered that there is some potential for unknown buried archaeological remains of all periods to exist within the site, and a programme of archaeological works including a watching brief during construction is proposed by way of mitigation.

The assessment identified 9 Scheduled Ancient Monuments within 5km of the wind farm and 30 Listed Buildings (all Grade II) within 2km and lying within the predicted zone of theoretical visibility which might be predicted to receive an impact upon their settings. The assessment concludes that the wind farm will not cause any significant impact upon the settings of these historic features, and will not prevent an understanding of their form, function and development. Similarly the wind farm will not interrupt any significant designed lines of sight linking specific sites and monuments, nor will the wind farm jeopardise the basis on which such archaeological and historic features have been designated.

13. NOISE

An assessment of potential noise effects occurring during construction, operation and decommissioning of the proposed wind farm has been carried out in accordance with relevant guidelines and standards and in consultation with Allerdale Borough Council Environmental Health Department.

During construction, it is likely that the distance from areas of construction activity to the nearest properties will be sufficient to prevent significant noise effects. However, it is proposed to employ standard best practice techniques during construction to minimise the impact that construction noise will have on local residents. These would include limiting construction activities to times agreed with Allerdale Borough Council, community liaison and use of noise reduction equipment and night. It is likely that noise during decommissioning would be similar to construction, although of shorter duration, and similar measures would be employed to minimise its impacts.

Operational noise has been assessed in accordance with government guidelines. Existing levels of background noise have been measured at the nearest houses to the site and used to establish acceptable noise limits. Levels of wind farm noise have been predicted using recognised computer modelling techniques, and found to be well within the acceptable limits.

Cumulative noise limits from the operation of the proposed Fleeter Wood Wind Farm together with the proposed Tallentire Wind Farm (not yet submitted to Allerdale Borough Council at the time of writing) have also been assessed and found to be within acceptable limits.

14. TOURISM, RECREATION AND SOCIO-ECONOMICS

A desk based assessment of the potential socio economic effect of the wind farm has been carried out.

The capital cost of the Fleeter Wood Wind Farm is expected to be in the region of £12 million. Approximately 30% of this value will be available for tender by local and regional construction contractors.

There will be direct effects on the local economy through these tendering opportunities and the creation of construction jobs. Indirect effects on the local and regional economies could be through employment opportunities created down the supply chain by suppliers or materials to the site. Where practicable, Novera will strive to source local suppliers and labour.

The consideration of the effect of the development on land use has shown that the arable and pastoral use of the land will continue on those parts of the land not affected directly by the wind farm itself. Less than 2ha of the 129.5ha of land within the planning application boundary will be developed. The remaining land will be available for agricultural use during the lifespan of the wind farm.

Desk based research and field survey were undertaken as part of the assessment of the effect of the development on tourism and recreation.

The Allerdale Ramble passes 275m from the proposed wind turbine locations and this will not be affected during the construction, operation or decommissioning of the proposed wind farm.

Fleeter Wood Wind Farm will have no direct effect on tourists and visitors to the local area. Numerous studies have shown that the majority of respondents are supportive of renewable energy and wind energy development. This was supported by a small scale localised survey carried out on behalf of Novera in 2007.

Of the tourists and visitors surveyed, 94% indicated that Fleeter Wood Wind Farm would have no impact on their decision to return to the area in future.

15. EXISTING INFRASTRUCTURE

The Fleeter Wood Wind Farm is not predicted to have a significant effect on existing infrastructure including telecommunications and utilities. Although gas and electricity related utilities exist on the site, the layout has been designed in such a way as to not affect this infrastructure.

There may be an impact of minor significance on television reception, although any effects on television reception can be resolved through technical solutions including changing aerial heights, replacement and retuning of aerials or provision of satellite or cable services for affected properties. Any remedial measures would be carried out and funded by Novera.

The proposed wind farm will not affect aviation safety or operations at Carlisle Airport. Novera has commissioned National Air Traffic Services (NATS) to carry out a detailed assessment of the effects of the proposed wind farm on its radar operations. Without this study, it is difficult to accurately predict the effects of the proposed wind farm at this stage. However, initial studies indicate that the wind farm could potentially have an effect on the NATS En Route Plc (NERL) primary surveillance radar (PSR) at Lowther Hill by creating an area of clutter on radar screens. The wind farm could increase the already existing area of clutter created by the other wind farms in the area, creating a potentially significant cumulative effect. However, it is believed to be likely that this impact could be resolved through a range of possible technical mitigation measures, including radar blanking. Novera is currently in discussions with NATS to accurately determine the effect of the proposed development, and if necessary, arrive at a mitigation measure that suits both parties.

It is not anticipated that turbines will be required to be fitted with aviation marker lights. The Ministry of Defence (MoD) would be advised before construction commences of turbine coordinates and heights. Consultation with the MoD is on-going, however, given that the wind farm is approximately 20km from the closest low flying area (LFA) in the region, the wind farm is unlikely to have an impact on low flying operations.

The wind farm is within a line-of-site of the Deadwater Fell PSR and Berry Hill PSR at RAF Spadeadam. If the turbines are detectable by the radar, they are likely to appear as an area of clutter on radar screens. However, the number of existing wind farms in this region, it indicates that either: this is an area of very low significance to the MoD with respect to the Spadeadam facility; or that at such long ranges the wind turbines are not detected by the radars even though they are within their lines-of-sight.

16. ACCESS AND TRAFFIC

The proposed access point for the proposed Fleeter Wood Wind Farm is at the western boundary of the site, via a new track from the unclassified road to the north of the A594. This point was chosen following a detailed access study, after consideration of a number of potential access points. The site access has been designed to the standards outlined by the Department for Transport, and to the specifications initially requested by Cumbria County Council. To achieve the required visibility along the unclassified road, there will be some removal of hedgerow, which will be replaced outside the required visibility splays (the original hedgerow will be moved rather than removed if at all possible). The access will have a large over run area to aid the turbine delivery vehicles manoeuvring and allow them to leave the public highway as quickly and safely as possible. Suitable signage will be erected in the vicinity of the proposed site access along the unclassified road advising of the access to the wind farm.

The traffic assessment concludes that there will be a temporary increase in HGV traffic levels on the A594 at Dovenby and on the A595 near Papcastle and Blindcrake. This increase is associated with only the construction phase of Fleeter Wood Wind Farm and not the operational phase. The predicted increase is spread over the 10 month construction period with the greatest increase in month 4 of the construction programme.

In accordance with transport assessment guideline thresholds, the increase in overall volume is not considered to be significant in either sensitive or non-sensitive locations. However, over a short period, the HGV increase will exceed the threshold along the A594 at Dovenby.

In order to minimise any short term effects during construction due to the increase in the number of HGVs, various mitigation measures are proposed including a traffic management plan and road works construction plan which would be agreed in consultation with the Local Authority and the Police.

Traffic generated during the operation and maintenance of the wind farm would be minimal and would not result in any significant effects.

The levels of traffic associated with the decommissioning will be lower than those during construction and will be the subject of a further traffic management plan. Decommissioning traffic would therefore be not significant. An appropriate traffic assessment would be undertaken prior to the decommissioning of the wind farm.

17. MISCELLANEOUS ISSUES

Fleeter Wood Wind Farm will have a positive benefit of emission savings.

Electricity in the UK is currently generated from a range of sources including fossil fuels, nuclear fuel and renewable energy. The use of fossil fuel in the generation of electricity releases greenhouse gases, predominantly CO₂, as described above.

The Fleeter Wood Wind Farm has the potential to displace electricity generated from fossil fuels and consequently prevent CO₂ from being released. The actual amount of CO₂ released through electricity generation in the UK relates directly to the generating plant in use at any given time. This mix is constantly changing and as a consequence it is not possible to predict exactly how much CO₂ release the wind farm will prevent.

Recently published government figures indicate that when generating electricity from gas, 370g of CO₂ are released each kilowatt hour (kWh), this is increased to 876g/kWh when generation is from Coal. On this basis Fleeter Wood Wind Farm will prevent the release of between 9,723 and 28,777 tonnes of CO₂ during each year of its 25 year operational life (the range reflecting the range of 10-12.5MW generation capacity and the range of emissions savings from the various fossil fuel types).

Any health and safety risks will be addressed through mitigation measures and normal construction and operational procedures. All relevant legislation will be adhered to during all stages of development. The implementation of current best practice and technology will be used so as to minimise any health and safety risks that might be associated with the proposed development. The implementation of the construction design and management principles will result in a quality wind farm development, built, operated and maintained to the highest standards of safety.

Sensors and protection equipment will be fitted to turbines and operational procedures followed to mitigate any safety risks associated with extreme weather.

Shadow flicker is the term used to describe the effect that the shadow of a wind turbine blade passing a narrow opening (usually a window). The resultant effect can be a shadow appearing to quickly turn on and off as blades pass the opening in succession. There are limited atmospheric conditions in which shadow flicker can occur and occurrence relates to the position of the sun relative to the turbines and the opening. Government planning guidance advises that the distance over which this effect can occur is generally within ten times the rotor diameter of the proposed wind turbines. In the case of Fleeter Wood Wind Farm, this effect could occur within 800m of the proposed turbines. A computer based model has been used to predict the potential for shadow flicker effects on the three properties within this distance. The model has predicted the time of year and time of day that effects could potentially occur at each property. Turbine monitoring and control systems will automatically identify when the atmospheric

conditions and position of the sun are such that effects may occur and will temporarily shut down the turbines when the shadows would be cast on any of the properties within 800m.