# DESIGN & ACCESS STATEMENT

For the installation of an Endurance E-3120 (50kW) Wind Turbine at:

Triangle Farm,
Thorncliffe,
Leek,
Staffordshire,
ST13 8UW

Applicant: **K Burns**

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Tel: 01538 370131
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Ref: Burns/Triangle Farm/WT/DC

*This document supports a planning application submitted to SMDC via the online Planning Portal.*

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# SECTION A

# INTRODUCTION

## INSTRUCTIONS

Less-CO2 Ltd. have been instructed by Mr K Burns to prepare and submit a planning application for a proposed Endurance E-3120 (50kW) wind turbine on the land at Triangle Farm, Thorncliffe, Leek, Staffordshire, ST13 8UW.

This application is a resubmission of a previously refused planning application for an identical turbine [11/01019/FUL] on the land at Triangle Farm that was on slightly higher ground.
The reasons for refusal for the original planning application were:

1. Landscape Impact
2. Insufficient information in relation to protected species

These two reasons for refusal have now been thoroughly addressed by:

1. moving the turbine onto lower ground, commissioning a Landscape and Visual Impact Assessment from a suitably qualified Landscape Architect, and supporting the photomontages with professionally produced Digital Wireframes to evidence the scale and location;
2. undertaking a comprehensive suite of Ecological surveys for the site, including an Extended Phase 1 Habitat Survey, an Upland Breeding Bird Survey, and a full Vantage Point Bird Survey.

## THE APPLICANT

The applicant, Kevin Burns is the owner and occupier of Triangle Farm. The extent of the land covers some 5.76 acres, and the land is currently let out for grazing on a gentleman's agreement to a local farmer.

When the applicant purchased Triangle Farm, the holding was dilapidated virtually to the point of being uninhabitable. Over the past ten years the Burns family have renovated Triangle Farm to a high standard. As well as the farmhouse, they have also renovated one of the barns to a holiday let. The farmhouse and the holiday let is currently powered by oil fired boilers for heating and hot water which currently consume 3 tanks of oil @ 1500 Litres per tank = 4500 litres per annum.
The proposed turbine would meet all heating and hot water requirements for the house and holiday cottage, representing a saving over the 20 year design life of the turbine of 90,000 litres of oil.

Using the most up-to-date figures (2013) from the Carbon Trust[1] to calculate the Carbon Dioxide content of this heating oil: at 1,024 litres of oil to the tonne we get 87.89 tonnes of oil which has the equivalent Carbon Dioxide content of 284,124kg$C0_2e$
So the proposed turbine would save over 284 tonnes of Carbon Dioxide over the 20 year period by replacing this heating oil.

For reasons of increasing energy costs, oil as a finite resource, the concern of theft, and the carbon footprint of the site, the aim is to convert the premises over to "green energy" and to make the site completely sustainable in energy produced on site.

## PRE-APPLICATION CONSULTATION

An application was submitted to Staffordshire Moorlands District Council for an EIA screening request on 16th August 2011 for a single Endurance E-3120 wind turbine, with a 25m hub height and blade tip length of 9.6m to be installed on the land at Triangle Farm.

A response dated 7th October 2011 confirms that an EIA is not required for the proposal [ref:11/00771/GEN]

As this proposal is for a turbine identical to the previous application, it is assumed that an EIA is still not required. Nevertheless, due to the refusal of the original application a significant amount of additional information is now provided in support of the application, specifically addressing the Landscape impact of the proposal as well as the Ecological impact.

[1] http://www.carbontrust.com/media/18223/ctl153_conversion_factors.pdf

## SECTION B

## THE PROPOSAL

Mr Kevin Burns is proposing to install an Endurance E-3120 (50kW) wind turbine on the land to the east of Triangle Farm.

### THE PURPOSE

The aim of the development is to generate renewable electricity that will be fed to the farmhouse and the holiday cottage which is owned and run by the applicant's family. At times when the electric demand is low at Triangle Farm, the excess electricity will be exported to the national grid for the benefit of the wider community.

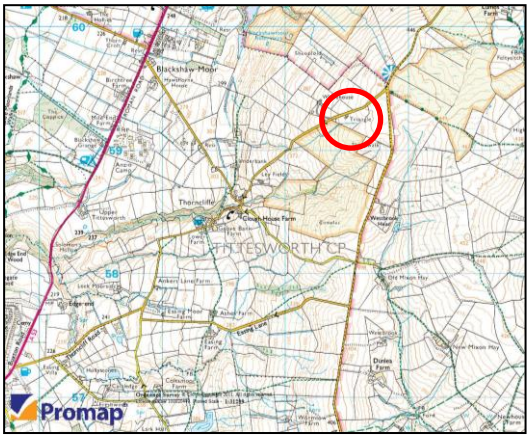
### THE TURBINE

Specification:

- Three blades – radius of 9.6m
- Hub height 24.6m
- Blade colour: off-white RAL 9003
- Tower colour: White RAL 9016

### LOCATION

The wind turbine will be located on the land at Triangle Farm, Thorncliffe, Leek, Staffordshire, to the East of the farm complex.




Grid reference:
**SK 02668 59297**
E:402668
N:359297

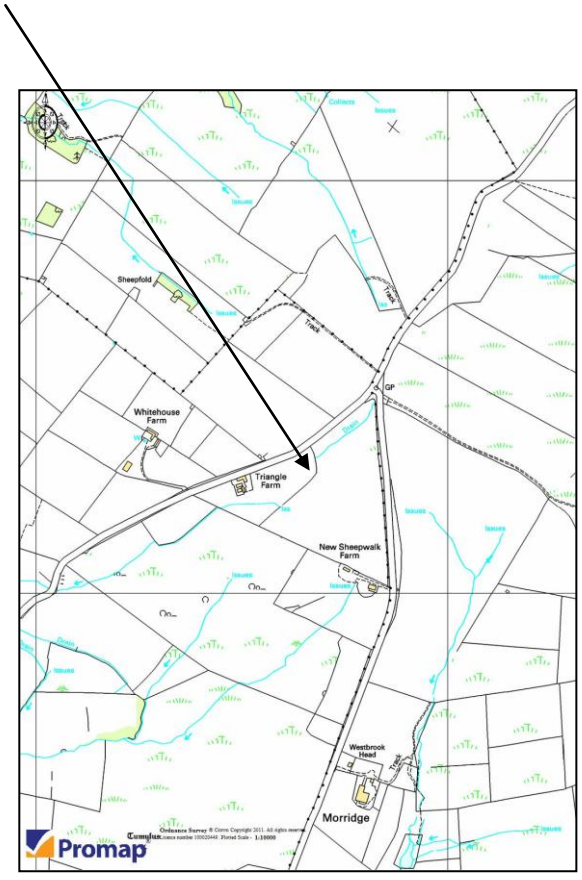
The proposed turbine is an Endurance E-3120 (50kW) wind turbine which will be installed on a 24.6m tall tower with 9.6 metre blades. The tower to be installed is a tapered self-supporting steel structure and is painted white (alternative tower colours are available and can be agreed by condition if required). The turbine nacelle and blades are through-coloured off-white GRP.

## SECTION C

## THE SITE

### THE SITE

The wind turbine will be located within this field.




Please see the location plan and site plan attached as supporting documents.

The surrounding landscape is fully described in the Landscape and Visual Impact Assessment submitted in support of this planning application.

The proposed site for the wind turbines has a ground level of 449m. The field is currently set as a grass ley, and is used for grazing sheep.

The field is prominent; the visual envelope opens up to the south west. There are no footpaths within the field[2]. There are prominent areas around the site and a full landscape and visual impact has been carried out to show the impact of the turbine on the surrounding area[3].

The wind turbine will be located in an agricultural field at Triangle Farm, to the north-east of the farmhouse and buildings.
The wind turbine will be located at grid reference:
**SK 02668 59297**

The location plan at a 1:10,000 scale shows the land owned by the applicant which surrounds the proposed site, including the location of the proposed turbine in relation to Triangle Farm and other local properties. It also shows the access route through an existing field gate from the highway.

This site/block plan at a 1:2,500 scale identifies the proposed position of the wind turbine in the location field and its boundaries, the indicative underground cable route back to the farm, and the recommended separation distance from hedgerows to avoid bat activity (Natural England). It also shows the access route via the existing field gate from the highway.

## DESIGNATIONS

The site itself is not within a designated area; however the majority of the land both to the north of the site and also to the east is within the Peak District National Park; which is clearly the major consideration in relation to the impact of the proposal.

## LANDSCAPE CHARACTER

All of the relevant considerations in relation to landscape character have been dealt with in the Landscape and Visual Impact Assessment that accompanies this planning application.

## ENVIRONMENTAL SUSTAINABILITY

The development is to generate renewable energy to replace oil-fired boilers for heating and hot water, as well as the existing mains electricity used on the site; the development has a net zero carbon footprint. Any excess renewable energy will be exported to the National Grid to help reduce the carbon intensity of mains electricity by replacing it with green renewable electricity produced from the wind turbine.

[2] See the section on Impacts: Public Rights of Way.

[3] The Landscape and Visual Impact Assessment is a supporting document to this application.

## SECTION D

## PLANNING POLICY

The relevant planning policies affecting this application are set out below for reference during the planning consideration process.

**NATIONAL**

On the 27th March 2012, the UK government published the National Planning Policy Framework (NPPF) which came into effect immediately. It revokes and replaces almost all of the existing Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) documents, including "PPS1: Delivering Sustainable Development", "PPS2: Planning and Climate Change – Supplement to PPS1", "PPS7: Sustainable Development in Rural Areas", "PPS9: Biodiversity and Geological Conservation", "PPS22: Renewable Energy", and "PPG 24: Planning and Noise".

The NPPF states that the purpose of the planning system is to contribute to the achievement of sustainable development. Under the heading "Achieving sustainable development" it gives a definition of sustainable development from the United Nations General Assembly as:
*"meeting the needs of the present without compromising the ability of future generations to meet their own needs"*

And also presents the five guiding principles of sustainable development taken from the UK Sustainable Development Strategy *Securing the Future:*

- Living within the planet's environmental limits;
- Ensuring a strong, healthy and just society;
- Achieving a sustainable economy;
- Promoting good governance; and
- Using sound science responsibly

One of the roles of the planning system is an environmental role – to use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

At the heart of the NPPF is a presumption in favour of sustainable development, which for decision-taking means that unless material considerations indicate otherwise, proposals that accord with the development plan should be approved without delay, and where a development plan is absent, silent, or relevant polices are out-of-date, permission should be granted unless:

- Any impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the polices in the NPPF taken as a whole; or
- Specific policies in the NPPF indicate that development should be restricted.

One of the core planning principles that should underpin decision-taking is to support the transition to a low-carbon future in a changing climate, and encourage the use of renewable resources (for example, through the development of renewable energy).

Chapter 10 covers "Meeting the challenge of climate change, flooding and coastal change", stating that planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development.

In assessing the likely impacts of potential wind energy development when determining planning applications for such development, planning authorities should follow the approach set out in the National Policy Statement for Renewable Energy Infrastructure (read with the relevant sections of the Overarching National Policy Statement for Energy Infrastructure, including that on aviation impacts).

In the section on "decision taking", the NPPF states that Local Planning Authorities should approach decision-taking in a positive way to foster the delivery of sustainable development, and that LPA's should look for solutions rather than problems, seeking to approve applications for sustainable development where possible.

The NPPF also makes it clear that in determining planning applications, planning law requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise. It states that "This framework is a material consideration in planning decisions."

Paragraph 197 also states clearly that "In assessing and determining development proposals, local planning authorities should apply the presumption in favour of sustainable development." It is clear that the spirit and intent of the changes to national policy are designed to streamline and simplify the system, with a presumption in favour of sustainable development, and where all other material considerations can be satisfactorily addressed, proposals should be approved.

**Planning Practice Guidance for Renewable and Low Carbon Energy (DCLG July 2013)**
Recently published by DCLG this document states that "Government planning practice guidance can be a material consideration in planning decisions and should generally be followed unless there are clear reasons not to." It also states that 'Planning for Renewable Energy: A Companion Guide to PPS22' is cancelled.

The guidance reiterates that increasing the amount of energy from renewable and low carbon technologies will help to make sure the UK has a secure energy supply, reduce greenhouse gas emissions to slow down climate change and stimulate investment in new jobs and businesses.

Paragraph 15 offers advice on the consideration of planning applications:

15. In shaping local criteria for inclusion in Local Plans and considering planning applications in the meantime, it is important to be clear that:
    - the need for renewable or low carbon energy does not automatically override environmental protections

- cumulative impacts require particular attention, especially the increasing impact that wind turbines and large scale solar farms can have on landscape and local amenity as the number of turbines and solar arrays in an area increases
- local topography is an important factor in assessing whether wind turbines and large scale solar farms could have a damaging effect on landscape and recognise that the impact can be as great in predominately flat landscapes as in hilly or mountainous areas
- great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting
- proposals in National Parks and Areas of Outstanding Natural Beauty, and in areas close to them where there could be an adverse impact on the protected area, will need careful consideration
- protecting local amenity is an important consideration which should be given proper weight in planning decisions

For this planning application, all of these factors have been considered and addressed with sufficient information in each of the relevant areas. It is not suggested that the need for renewable energy overrides environmental protections; rather that the impact of the proposal has been carefully considered, and that on balance, established precedent and the clear benefits of the proposal outweigh any limited negative impacts.

Paragraph 30 clarifies that ETSU-R-97 should be used to assess noise from wind energy developments, and also endorses the Good Practice Guidance prepared by the Institute of Acoustics. This states quite clearly at 1.2.2 that “Smaller developments such as single turbines warrant a simplified procedure (either based on ETSU-R-97 or other method agreed with the LPA), commensurate with the size and impact of the project.”

The simplified procedure requires that noise levels be below 35dB at the nearest noise-sensitive properties. The supporting information submitted with the application demonstrates that this is the case and therefore noise will not be a problem. A standard, simplified noise condition is usually attached to a planning approval for this type of turbine. (Noise has already been considered as acceptable during the original application.)

Paragraph 33 refers to Natural England guidance in relation to potential impacts on Ecology. This proposal complies with the Natural England guidance in relation to 50m clearance from blade tips to linear hedgerow features (as identified on the Site/Block Plan, the nearest means of enclosure is a fence, not a hedge). Furthermore full and extensive Upland Breeding Bird Surveys as well as Vantage Point Bird Surveys have been carried out that demonstrate there will not be any detrimental impact on Ecology.

Paragraph 34 requires that careful consideration is given to wind turbines in relation to heritage assets. There are no significant heritage assets in close proximity to the proposed wind turbine (and this was not raised as an issue of concern during the original application).

Paragraph 35 refers to shadow flicker and reflected light. There are no properties within a distance 10 times the rotor diameter of the turbine and within 130 degrees either side of north.

Standard conditions are usually attached to a permission to deal with decommissioning in accordance with paragraph 45.

In this respect it is our professional opinion that this application has thoroughly addressed all of the areas of concern as highlighted in this most recently published government guidance.

## REGIONAL

On 6 July 2010 the Rt Hon Eric Pickles MP, Secretary of State for Communities and Local Government, announced the revocation of Regional Spatial Strategies with immediate effect.

This application does not therefore rely on any targets for renewable energy specifically set out in the RSS.

## LOCAL POLICY

## COMMUNITY STRATEGY 2007 - 2020

This Strategy sets a long-term vision and plan for bringing about a sustainable improvement in the social, economic and environmental conditions of Staffordshire Moorlands. It aims to bring together the needs, interests and aspirations of the community of Staffordshire Moorlands.

**The strategy:**

- Addresses the major challenges we face: such as climate change, economic development, meeting the needs and harnessing the energy of an ageing population, and helping our children and young people achieve their potential.
- Is based on the aspirations and concerns of the people who live, work and visit Staffordshire Moorlands
- Builds on our strengths: the quality of our environment, the strength of our communities, the skills and energy of our people
- Relies on the co-ordinated effort of many partners to achieve our aims
- Sets out priorities for action

It is the 'top plan' that all other local plans and strategies are expected to support.

The vision is:

> *"By 2020 Staffordshire Moorlands will be recognised as a vital part of a regenerated North Staffordshire sub-region. All our communities will be enjoying an excellent quality*

> *of life, including access to affordable housing and excellent public services. Our vibrant 'market' towns will be home to a range of successful, retail, visitor and knowledge based businesses. We will have a highly skilled and entrepreneurial workforce. Our natural environment will be protected and our carbon emissions reduced"*

The plan for Staffordshire Moorlands is:

> *"to take a step to dramatically reduce the carbon emissions by individuals, communities and businesses. They want to engage people in voluntary activity and sustainable environment practices."*

This community strategy is delivered through the LDF process. There are two LDF's, the Staffordshire Moorlands LDF and the Peak District National Park LDF. In order to achieve the vision decribed above each LDF has their own objectives.

The Staffordshire Moorlands Core Strategy is currently at an advanced stage of production and will, when adopted, replace the Staffordshire Moorlands Local Plan and become the primary planning policy document in determining where in the District future development will take place to 2026.

However at this stage the Planning Inspector has identified modifications required to the Core Strategy Development Plan Document Revised Submission Document to ensure that the Plan is sound, following its Examination. These modifications have not yet been subject to consultation; therefore the emerging policies cannot currently be given any significant weight.

## STAFFORDSHIRE MOORLANDS LOCAL PLAN 1998

Within the Staffordshire Moorland Local Plan there are no Policies which cover renewable energy specifically. The only policy which applies to this application is N11 – The Peak District National Park.

**The Peak District National Park**

The eastern part of the Staffordshire Moorlands contains some of the country's wildest and most beautiful landscape. It forms part of the Peak District National Park and the Peak Park Planning Board has responsibility for Planning in the National Park. If the special qualities of the area are to be protected, careful control needs to be exercised over harmful development not only inside the National Park but also on other land which is conspicuous from the Park.

> **N11** IN CONSIDERING PROPOSALS FOR DEVELOPMENT ON LAND CONSPICUOUS FROM THE PEAK NATIONAL PARK, THE COUNCIL WILL HAVE REGARD TO THE NEED TO ENSURE THAT THE VISUAL AMENITIES OF THAT LAND ARE NOT ADVERSELY AFFECTED TO THE DETRIMENT OF THE NATIONAL PARK.

The submitted ZTV map shows that the proposed turbine would not be visible from the vast majority of the Peak District National Park to the east and north. Areas where there is some visibility would only see the uppermost parts of the turbine (the rotor and blades = the blue

areas on the map) or just the very tip of the blades (the green areas on the map). The only exception to this would be an area from Meerbrook through Gun Hill and some areas around Swythamley, where theoretically the whole turbine could be visible (the pink areas on the map). However, there are two main considerations here – one is that the distances involved range from 4km to 10km from the proposed turbine and so the impact would be greatly diminished, and secondly that these areas should be directly compared to the visibility map for the identical turbine at Kniveden Farm that was allowed at appeal [SMDC ref: 12/00689/FUL, PINS ref: APP/B3438/A/12/2187418] whereby it can be seen that the visibility of the Kniveden Farm turbine *actually covers a greater area of the Peak Park*, and is separated by a comparable distance to many of these areas.

## SECTION E

## OPTIONS APPRAISAL

Please note that the National Planning Policy Framework indicates that LPA's should not require applicants for energy development to demonstrate either the overall need for renewable energy and its distribution, nor question the energy justification for why a proposal for such development must be sited in a particular location.

The next few sections in this supporting statement clearly outline the benefits of this application, benefits to both our client and the wider community.

### WHY A WIND TURBINE?

There are positives and negatives towards wind energy. Eventually all power will have to come from renewable sources, anything else, by definition will come to an end as the current sources we use for energy (fossil fuels) are finite resources.

The primary reason for choosing a wind turbine is that the area has an excellent wind speed, a good factor for wind turbine technology[4]. However, there are some criticisms of wind turbines, the main reproach is that wind turbines are inefficient – this is a myth. Wind turbine technology is well developed, is low maintenance, and proven to give pronounced results. They are one of the most cost effective renewable electricity technologies.

In comparison to wind turbine technology, photovoltaic (PV) cells (another form of renewable electricity) are based on complex technology and are expensive to purchase. A large surface area of cells is required to create electricity, having a potentially greater visual impact than a single wind turbine.

It must also be highlighted that wind turbines can produce renewable electricity all year round, day and night.

However, like all renewable energy, wind power is not perfect. Wind does not blow all the time, so it is vital that a good site is chosen to place the wind turbine to mitigate this potential problem and some people do not like the way that wind turbines look. Both these negative aspects of wind energy have been covered by this application.

[4] Please see the section on **Wind Speed.**

## WHY THIS TURBINE?

This particular model has been chosen for a variety of reasons:

1. The model is well developed – designed in North America – the turbine is efficient, safe and quiet.
2. It is configured to give an optimal yield from moderate wind speed sites, and starts generating at wind speeds of just 3.5m/s (11mph).
3. The turbine is much smaller than the wind-farm scale turbines and is of a sleek, attractive design.
4. The turbine has low noise emissions[5].
5. The proposed turbine is identical to the other turbines erected across the local area.

## WHY THIS SIZE?

There is a common misconception of how wind turbines are rated. A 50kW rating is not a claim that the wind turbine will always produce 50kW; this figure refers to the rated output, which is achieved at a wind speed of 10m/s. The Endurance wind turbine has been chosen as it is one of the most efficient wind turbines of this size on the market.

Using the manufactures product details (available on-line), it clearly shows that at the average wind speed for the site of 7.6m/s the turbine will only be generating at a 25kW capacity. Taking into account the electricity usage at Triangle Farm, with the farmhouse, the holiday let, and the outbuildings, the wind turbine will cover the electricity consumption at peak times (replacing the use of Oil for heating and hot water). When the on-site use at Triangle Farm is low, any surplus electricity produced by the turbine will be exported into the National Grid.

The farmhouse and the holiday let is currently powered by oil fired boilers for heating and hot water which currently consume 3 tanks of oil @ 1500 Litres per tank = 4500 litres per annum.
The proposed turbine would meet all heating and water requirements for the house and holiday cottage, representing a saving over the 20 year design life of the turbine of the $CO_2$ content from 90000 litres of oil. This has been calculated as 284 tonnes of $CO_2$.

At the average wind speed for the site of 7.6m/s the turbine is expected to generate 240,000kWh of electricity per annum. Mains electricity on the grid has a carbon footprint per kWh of 0.44548 kg$CO_2$e, so the proposed turbine would replace 107 tonnes of Carbon Dioxide annually or **2,140 tonnes over the next 20 years**.

[5] Please see the section on **Impacts: Noise** and the manufacturer's noise information attached.

## WHY THIS LOCATION?

A number of alternative locations for the Endurance wind turbine were considered within the applicant's landholding. However, this site has been chosen the most suitable for a variety of reasons, including efficiency, feasibility (in relation to wind speed and turbulence), noise, separation from the nearest neighbours, visual impact and ecological reasons.

In our opinion, after appraising all alternative options in terms of renewable energy technology it is considered that a wind turbine at the proposed location is the most appropriate option.

### Wind speed

It is essential to have a good wind speed at the proposed site before proceeding with a wind turbine installation. This is because potential energy outputs are exponential to the wind speeds; even a 0.5 meter per second (m/s) variation in wind speed is able to alter payback periods significantly.

The primary reason for the proposed wind turbine is that the site has an excellent wind speed. The Department of Energy and Climate Change (DECC) maintain a wind speed database (NOABL) which contains estimates of the annual mean wind speeds at locations throughout the UK.

The wind speed at Triangle Farm from this database is 7.6m/s, at a height of 25m above ground level.

### Wind turbulence

As mentioned above, the feasibility of the project can be affected greatly by the speed of the wind. The site has an excellent wind speed; however it is important that the wind turbine is located in a position where there are no obstructions that would cause turbulence, affecting the wind speed which reaches the wind turbine.

Levels of turbulence can be hard to predict as both wind direction and wind speed are factors in determining its level. As a general rule, a height twice the height of the height of obstacles can be used; anything above this height is likely to be unaffected.

For the proposed site at Triangle Farm there are few obstructions to the prevailing wind, and the proposed position of the turbine is at a sufficient separation distance from the farmhouse and buildings on the site to not cause excessive turbulence. Moving the turbine any closer to the farm buildings would potentially bring it into a turbulent wind zone caused by the existing buildings on the site.

**Ecology**

The turbine is located within an area where there are no established trees or hedgerows within 50m of the blade tips (and further in this case) which is the buffer distance recommended by Natural England in the interests of bat activity.

**Visual impact**

The position of the turbine has been chosen to minimise visual impact. The turbine is not located at the highest point of the applicant's land, to minimise visual impact without jeopardising the wind speed. The land at Triangle Farm is steeply sloping and the turbine has been moved further down the hill from the previous application, which further reduces the visual impact in the wider area.

There are very few properties near to the proposed wind turbine site and the closest neighbours have already been consulted in relation to the proposed wind turbine, with no objections.

There is considerable separation from the more populated areas which results in a greatly diminished visual impact in any views from these areas. Familiarity with the existing identical turbines in the wider area means that this proposal will not stand out as unusual in its design or appearance.

# SECTION F

## OPPORTUNITIES

Sites with excellent wind speeds that can achieve sufficient separation distance from neighbouring properties, and also have owners that are willing and able to invest in wind energy generation projects are surprisingly uncommon. Once constraints mapping is undertaken to eliminate low wind sites, densely populated areas, and other designations; the available locations that are actually viable for wind energy become fewer.

If as a nation we are to embrace wind energy as a form of renewable energy then we must do our utmost to assist applicants to resolve any issues. This is highlighted in the NPPF where it states that "LPA's should look for solutions rather than problems, seeking to approve applications for sustainable development where possible."

### CARBON FOOTPRINT

As a zero emission (in operation) power source, the wind turbines demonstrate a commitment to sustainable energy, and could enhance the brand of reputation of the business at Triangle

Farm. A small wind system will fit well in a broader carbon or environment strategy, adding value for both reputation and compliance purposes.

Both the UK government and governments across the world are increasing their focus on **energy security and combating climate change** and are beginning to put pressure on businesses to take action to secure their energy supply and reduce their carbon footprint.

To fulfil these pressures from the government the applicant is aiming towards a **self-sustaining, low carbon business**. The proposed wind turbine will help achieve this. The wind turbine will produce green energy, which can be used on the site, making the farm net self-sufficient in electric. Using the renewable electricity will also eliminate the site's current dependency on fossil fuels.

## TOURISM

The applicant operates a self-catering holiday let from the site, and many objectors to wind energy claim that "wind turbines negatively affect tourism businesses". Not only is this unsubstantiated with any evidence, any reasonable person can see that other areas of the UK which rely heavily on tourism have embraced wind energy (e.g. Cornwall, Wales, Scotland…) without any ill effects. Indeed, many small businesses now capitalise on "eco-tourism" and view sustainability as a selling point, not a negative connotation.

The applicant has undertaken a survey in April/May 2012 by contacting the last 50 guests that have previously stayed in their holiday cottage. 3 of the guests were unable to be contacted, one couldn't care either way, and only 1 disliked wind turbines and was not in support. The remaining 45 guests said that isolated wind turbines of the size described would not put them off visiting the area. Some even stated that a holiday cottage powered by green energy would encourage them to rent it. These letters of support are included with the planning application documents.

## RENEWABLE ENERGY TARGETS

In 1997 the **Kyoto Protocol** was adopted by most countries in the world, including the UK, committing these countries to reduce emissions of greenhouse gases.

Production of power from fossil fuels is a prime contributor to greenhouse gas emissions. Britain's emissions of carbon dioxide, the main greenhouse gas, rose by 2.2% in the year 2002-

2003, according to government data released in March 2005. It was concluded that this was because of the reduction of the cost of coal by 8%. It was stated that:

*"Unless the government takes control of UK emissions and starts delivering substantial year-on-year reductions, the target will be impossible to reach… The heart of the problem is that although CO2 emissions from industry have fallen - partly as a result of measures like the Climate Change Levy, a pollution tax - they are rising from* ***other sectors****."*

The UK has committed to reducing greenhouse gas emissions by 12.5% between 2008 and 2012 against a 1990 baseline figure. Further, the Climate Change Act of 2008 committed the UK to reducing greenhouse gas emissions by an upgraded 80% by 2020, a challenging and European-leading target.

The UK government has set figures for the proportion of electricity generated from renewable energy going forwards. The UK commitment to the European Union is to generate 15% of its energy requirements (electricity, heat and transport) from renewable sources by 2020. From current UK levels this is the biggest growth target set in Europe. The government is hoping that policies introduced in the Renewable Energy Strategy (RES) and Low Carbon Transition Plan, published in July 2009 will enable the UK to meet even higher levels, as shown in Table 1, below:

*Table 1 - UK Renewable Energy Contribution*

| **Year** | **Target** | **Actual** |
|---|---|---|
| 2007 | | 4.9% |
| 2009 | 10% | 6.7% |
| 2020 | 30% | |

This application will help the UK reach their renewable energy targets.

## SECTION G

## LANDSCAPE AND VISUAL IMPACT ASSESMENT

Due to the proximity of the proposal site to the Peak District National Park, a full Landscape and Visual Impact Assessment has been carried out by a suitably qualified Landscape Architect.

Please see the LVIA documents which have been produced by "Eco Designs" (Chartered Landscape Architects) submitted in support of the planning application:

- Triangle Farm LVIA Report
- Triangle Farm LVIA Appendix A
- Triangle Farm LVIA Appendix B
- Triangle Farm LVIA Appendix C

Please also refer to the document "Wireframes and Photomontages" for a photo-realistic representation of the scale and location of the proposed wind turbine from a variety of viewpoint locations in the surrounding area. This document has been produced using industry standard "WindFarm" software from ReSoft Ltd. and shows a "wireframe" with the proposed turbine in a digital terrain landscape (produced from Ordnance Survey height data). The specific details of each photograph used are programmed into the software so that the horizontal and vertical fields of view match that of the photo.

A map showing the Zone of Theoretical Visibility (ZTV) extending to a radius of 10km has also been produced, with different coloured zones representing the degree of visibility that is theoretically possible from eye height by an observer at that location:
Pink = the whole of the turbine could be visible
Blue = just the hub height could be visible (the rotor blades)
Green = just the very tip of the uppermost blade could be visible

The ZTV is calculated on the topography of the 'bare earth' only and so does not take into account any screening that is provided by existing buildings, trees, hedges, or any other obstruction to the view. In this respect it represents a worst case scenario, but allows comparisons to be made with the visibility of other approved turbines and to assess the possible visibility from sensitive areas.

The LVIA report concludes that the visual impacts will be mainly localised and that the landscape impacts would not be considered to cause significant harm to the landscape character. In this respect it is considered that the primary reason for refusal has now been addressed and demonstrated to be acceptable for the proposed wind turbine in this location.

## SECTION H

## IMPACT ASSESSMENT

The factors that have been considered for the impact (other than Landscape and Visual Impact) of the proposed wind turbine are:

- Environmental Aspects;
- Noise
- Shadow Flicker
- Biodiversity and Wildlife;
- Public Rights of Way;
- Physical Impacts;
- Telecommunications;
- Pollution;
- Cultural Heritage;
- Aircraft and Radar.

Please note that consultations have already been carried out in relation to the above issues, during the consideration of the original planning application.

### NOISE IMPACT

In the original planning application it was accepted that the noise from the turbine would not cause any problems with neighbouring properties. However, the manufacturer's noise data is attached again in the supporting documents. The noise test and report has been carried out in conjunction with IEC 61400-11 (2006) Wind Turbine Generator Systems.

The manufacturers of the Endurance wind turbine have focused on minimising noise output throughout the operating range of turbines. The Endurance has been developed as one of the quietest models on the market. Even at higher wind speeds, the Endurance is so quiet that it will not drown out a conversation between two people standing underneath the structure.

The only noise that is audible is the gears and the gentle 'swooshing' noise of the blades cutting through the air. Whilst it is not possible to eradicate this noise completely, the blades are designed to be aerodynamic so 'cutting' through the air and reducing noise levels. Due to the proposed site for this wind turbine and the sufficient distance from the nearest properties it is extremely unlikely that local residents would be troubled by any noise generated.

## SHADOW FLICKER

A report which was commissioned by the Department for Energy and Climate Change (DECC), refers to European guidelines that state to avoid any impact from shadow flicker, a turbine should be installed a minimum of 10 x the rotor diameter from the closest property. The proposed turbine has a rotor diameter of 19.2m, therefore 10 times the rotor diameter equals 192m as the DECC recommended distance to avoid shadow flicker issues. There are only 2 other properties anywhere near the proposed turbine site, and they are both separated by distances significantly more than 192m away, therefore these properties and other properties much further away are unlikely to be affected by shadow flicker.

## IMPACT ON BIODIVERSITY AND WILDLIFE

Subsequent to the refusal of the previous planning application, a full suite of ecological surveys has been undertaken including an Extended Phase 1 Habitat Survey, an Upland Breeding Bird Survey, and a Vantage Point Bird Survey.

Natural England and the RSPB have been consulted at every stage to ensure that the methodology, timings, and extent of surveys are acceptable and will enable full consideration of any possible impacts on protected species (in particular bird life).

The conclusions reached are that the proposed development will not have any detrimental impact on bird populations or any other protected species.

This reason for refusal of the original application has therefore now been fully addressed.

## IMPACT ON PUBLIC RIGHTS OF WAY

The general opinion of Councils is that the wind turbine should not “oversail” the footpath. There are no public footpaths and no bridleways in the same field where the turbine is proposed. The nearest footpath is over 250m north of the turbine site, and is located on the opposite site of a road to the site.

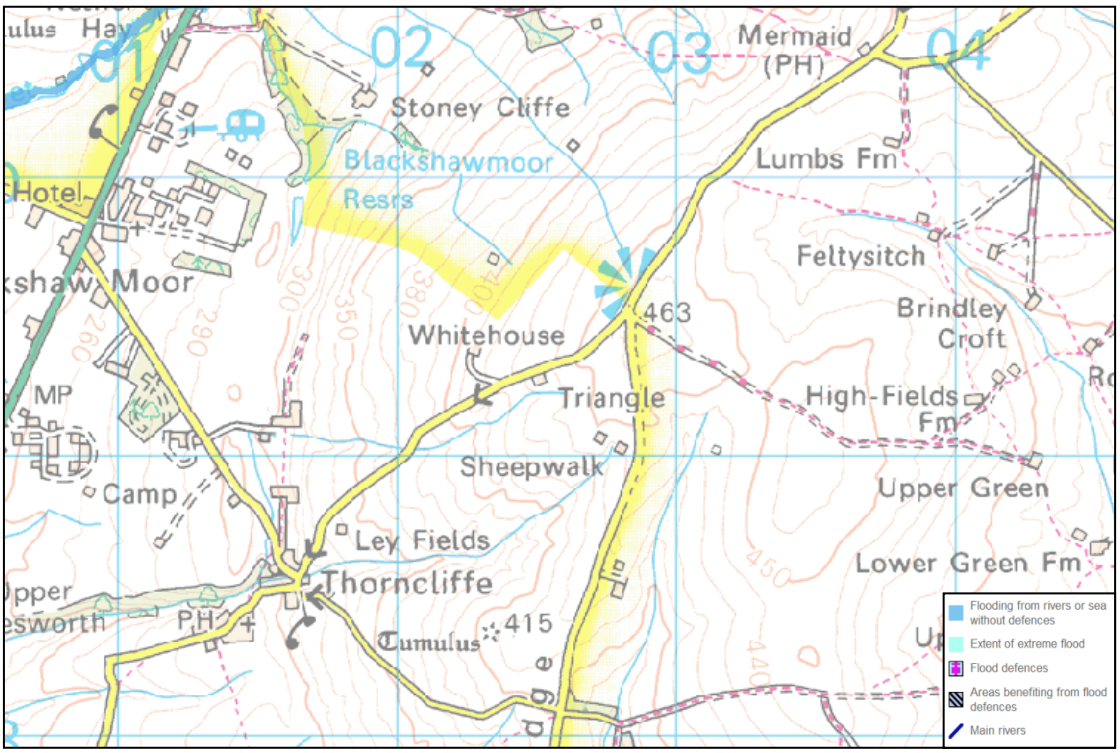
This proposed location exceeds the (non-statutory) recommendation of the British Horse Society for a **wind farm** to be situated at least 200m from any public bridleway.

Photomontages have been provided using photographs taken from the closest public rights of way, and also public rights of way that are used to take full advantage of views within the surrounding area. These have been included and discussed in the landscape and visual impact assessment.

## PHYSICAL IMPACTS

### HYDROLOGY

The Environment Agency flood risk map has been consulted to ensure that the wind turbine is not located within a flood plain, or within an area that is at risk of flooding. The corresponding map is shown below:




There is no flood risk on or around the site. Therefore a flood risk assessment is unnecessary.

### SOILS

A small amount of excavation will be required for the concrete base to anchor the wind turbine tower. Any excavated subsoil will be retained on the farm and the topsoil will be spread around the tower on completion of construction and cultivated to marry in with the undisturbed adjoining agricultural land.

It will not be necessary to create any new permanent tracks. Ground conditions and routes across the field suitable for heavy equipment are well understood. For the installation a temporary road surface matting across the field is used (e.g. “TuffTrak” matting).
It will not be necessary to excavate any soils or import any hardcore to create any access route across the field.

## POTENTIAL ADVERSE IMPACTS ON CULTURAL HERITAGE

A desk top survey using the Natural England Magic Map website shows that there are no historical, archaeological features or Scheduled Ancient Monuments on or within close proximity of the proposed wind turbine site.

## IMPACT ON THE COMMUNITY

The development is proposed primarily to supply renewable energy to the farmhouse at Triangle Farm and the associated self-catering holiday accommodation. Surplus energy generated when the on-site use is low would be exported to the National Grid, reducing the carbon intensity of mains electricity in the local area. The wider benefits of carbon reduction are not in dispute.

Supporting a proposed installation by Less CO2 Ltd. supports business in the local area, securing employment for local people in the "Green Economy". Less Co2 Ltd. is a local business based in the Staffordshire Moorlands and many of the staff live in the Staffordshire Moorlands area. Local contractors and suppliers (e.g. freight hauliers, and lorry loads of cement for the foundations) are used during the installation process. Additional community benefits are gained from the acknowledged trickle-down economic effects of renewable energy generation.

## POTENTIAL TELECOMMUNICATIONS INTERFERENCE

Consultations have taken place with both Ofcom and the JRC (Joint Radio Company) and there are no issues with regards to telecoms interference.

## POTENTIAL ADVERSE IMPACTS ON AIRCRAFT AND RADAR

The size, scale and location of the proposed wind turbine will not have any effect on aircraft or radar systems. The Ministry of Defence have been consulted in the previous application, and no objections have been received.

NATS have also confirmed recently that they do not have any objection to the proposed turbine location.

## POLLUTION

There is no known pollution generated from the operation of a wind turbine. Wind turbine foundation soil displacement will be levelled within the field boundary and cultivated as part of the field. The design of the foundations minimises the amount of concrete required to anchor the turbine.

# SECTION E

## CONCLUSION

The environmental impacts of the development have been assessed and are reported in this Design and Access Statement. If any additional information is required we would of course wish to be given an opportunity to provide it.

It is however concluded that the single wind turbine development would cause no unacceptable environmental harm to the area. The proximity of the site to the Peak District National Park is acknowledged, however the benefits of this application clearly outweigh the limited drawbacks. The overall positive aspect of the application is that it is carbon neutral, producing green electricity which will help the UK in its drive towards renewable energy and energy security and help combat climate change.

The proposal is in compliance with National and Local Planning Policies and will assist the government to meet its renewable energy commitments.

The applicant therefore respectfully requests that the Planning Authority approves this proposed development.