Wind turbines on your land

Renewable energy development for landowners
Diversification

By diversifying into wind energy, landowners have an opportunity to receive a regular, guaranteed income for up to 25 years, with no additional labour or expense required.

- Regular income for up to 25 years
- No expense
- Community benefits
- Fight global warming
- Government Policy
- Sustainable energy supply
- Green electricity for local consumption

Landowners can earn an income for each wind turbine, which typically uses less than one acre of land after taking into account the associated foundation, cables and access roads. The level of this income will depend on a number of factors including size of turbine, wind speed and wind quality.

Local communities can also benefit from wind energy and Wind Prospect encourages the establishment of Trust Funds, where part of the project revenue can be allocated to local environmental projects on an annual basis.

Why wind power?

In response to the challenges of climate change, the use of wind energy is dramatically increasing and the Government has a legally binding target to ensure that 15% of the UK’s energy is from renewable sources by 2020.

Typically, a wind farm with 10 turbines, each with a 2MW\(^1\) rating, will generate on average as much electricity each year as is used by approximately 10,000 homes, and will save more than 20,000 tonnes of harmful greenhouse gas emissions.\(^2\)

\(^1\)A Megawatt (MW) is equivalent to 1,000 kilowatts (kW)

\(^2\)Source reference: www.bwea.com/edu/calcs.html (June 2009); using average UK household electricity consumption of 4,700kW hours

Working with Wind Prospect

Wind Prospect has almost two decades of experience in the global wind energy industry, beginning with the UK’s second commercial wind farm in 1992. The company is one of the most successful independent renewable energy developers in the world and to date has secured planning approval for over 1,100MW of wind energy projects worldwide. This success is attributable to careful site selection, optimised site layouts and in-depth consultation.

At no cost to you, our teams will prepare and progress your project’s planning application, taking care of all aspects of the development process, from commissioning environmental studies to liaising with the local community. Our flexible structure allows you to participate in the process as much or as little as you like.

We pride ourselves on our strong relationships with landowners and are happy to put you in touch with other clients who can tell you more about wind energy and their experiences with us.

The absolute essential to developing a wind farm is securing planning approval and Wind Prospect have one of the highest planning success rates in the UK for wind energy projects, with more than 90% of applications approved.

Working with us means your project has the best chance of coming to fruition.
Wind turbines on your land

We will carry out an assessment of your site including wind monitoring and stakeholder consultations, to determine whether it is suitable for development. If indications are positive we will move to more detailed feasibility studies with a view to submitting a planning application.

Once a successful planning application is achieved, the installation of a wind farm should take nine to twelve months.

The construction process is a series of distinct activities that will be planned in association with you so as to minimise disruption to farming or other activities.

Once the turbines are in place, normal farming can go on around them. There is no requirement to fence off the towers as the rotating blades are well clear of the ground.

Turbine Selection

Modern commercial wind turbines are typically available in two general sizes, around 1 MW and multi-MW class machines.

As shown in the table below, larger turbines will normally generate more energy, but it is important to assess the constraints of each site individually in order to determine the most suitable turbine size and type.

Our aim is to maximise the amount of renewable electricity generated, therefore larger turbines are favoured where possible.

Tower Base

The turbines are built on concrete foundations, which are approximately 16 x 16 metres, generally 2-3 metres deep, and are buried below normal ploughing depth (typically 1.5 metres below ground surface).

- Under a year to construct
- Continue farming up to crane base
- Foundations buried below ploughing depth
- No pylons - cables buried below ground surface
- Access roads follow existing tracks where possible
- Full environmental or planning assessment conducted

<table>
<thead>
<tr>
<th>Turbine output</th>
<th>Tower height</th>
<th>Blade length</th>
<th>Total height to blade in the upright position</th>
<th>Average equivalent number of homes supplied by electricity generated by a single turbine¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MW machines</td>
<td>50-70m</td>
<td>30m</td>
<td>80-100m</td>
<td>500 homes</td>
</tr>
<tr>
<td>2-3 MW machines</td>
<td>60-80m</td>
<td>40-50m</td>
<td>100-130m</td>
<td>1,000-1,500 homes</td>
</tr>
</tbody>
</table>

¹Source reference: www.bwea.com/edu/calcs.html (June 2009); using average UK household electricity consumption of 4,700kW hours
Typical Turbine Layout

Less than one acre of land is required for each turbine, including the access track, the tower itself and the hardstanding for the crane.

The remaining land can be utilised as it was previously.

Roads and Hardstandings

For access to the turbines, we require stone roads that are 5 metres wide, and space for drainage alongside - both of which we will aim to route along existing tracks or field boundaries. Depending on the site layout, we may need to widen corners and add turning areas.

We have extensive experience with land drains and would normally use your regular drainage contractor to advise on and carry out any necessary work.

Once built, the roads and hardstandings must remain in place for access to carry out maintenance or repairs, but they are available for your use and arable farming can continue everywhere else on the site.

The turbines are connected by underground cables, which again are buried below ploughing depth, approximately 1.5 metres below ground surface. We are usually able to run the cables along tracks or field boundaries to minimise disruption.

Switchgear House

A switchgear house, normally a small building of the order of 12 x 7.5 metres, is required to house the equipment needed to route the electricity generated through a single export cable. This cable then runs underground to an existing local substation or overhead line.

Operation

When the turbines are in operation, normal requirements for access are limited and unless there is a major fault which is rare, maintenance will be undertaken from a van every few months. The turbines are monitored remotely via the internet 24/7 so there is no need for more frequent visits.

The control systems in the turbines are fail safe, so if a fault does occur the turbines stop automatically and communicate with the operator via the internet or text message. The fault can then be dealt with and the turbine restarted.

<table>
<thead>
<tr>
<th>Buried Foundation:</th>
<th>16m x 16m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbine Base:</td>
<td>4m diameter</td>
</tr>
<tr>
<td>Crane hardstanding:</td>
<td>40m x 25m</td>
</tr>
<tr>
<td>Access road:</td>
<td>5m wide</td>
</tr>
<tr>
<td>Switchgear house:</td>
<td>12m x 7.5m</td>
</tr>
</tbody>
</table>
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Community and the environment

Wind Prospect works closely with local communities to aid in the understanding of the need for wind turbines and the effect that they will have on the local environment.

Through newsletters and public exhibitions, all issues relating to such a new development can be addressed in a structured manner over the duration of the project.

Appearance
To cater for any visibility concerns that may arise we liaise closely with communities and landowners, conducting comprehensive studies to work out the best site layout.

Sophisticated computer modelling is carried out from many viewpoints to provide realistic photomontages of a proposed site.

Sound levels
Modern turbines are far quieter than their predecessors and with a suitable set-back distance from residential housing a well designed wind farm ensures there will not be any noise nuisance. Even if you were to stand at the base of a turbine, a normal conversation can be conducted without effort.

Protecting the environment
An environmental and planning statement is compiled prior to submitting a planning application and detailed studies are undertaken to determine the effects of the appearance of the project as well as for example potential effects on ecology, archaeology and telecommunication transmission.

We will design the wind farm to fit into the existing ecology. As part of the flora and fauna analysis, we consult with relevant bodies such as Natural England, Scottish Natural Heritage and the RSPB.

Birds are rarely affected by wind farms. A recent scientific study found no evidence to suggest that farmland birds avoided areas close to wind turbines and in 2009 an RSPB-commissioned report from the Institute for European Environmental Policy (IEEP) found that the UK could greatly increase the number of onshore wind farms it builds, without harming wildlife.

Possible effects are examined in depth however, with studies taking place to ascertain whether the proposed wind farm would have any effect on bird activity at the site, including their migratory routes or breeding habits.

It is our experience that grazing animals and horses are largely oblivious to the presence of the turbines. As the blades rotate very slowly, and there is little noise generated, animals carry on with their normal activities undisturbed.

Community Funds
A proportion of Wind Prospect’s revenue will be donated to a local community fund. The purpose of this fund is to support environmentally based projects in the area of the wind farm. For example, the Bicker wind farm (near Boston in Lincolnshire) donated £50,000 as a start up to their community fund, with £18,000 annually for the life of the project.

Gosberton House School, Lincolnshire now have a bird hide thanks to trust funds

Further Information
We have a number of regional offices throughout the UK. In the first instance please contact our Bristol or Edinburgh offices who will be pleased to direct your enquiry to the most appropriate member of our team:

Bristol: 0117 925 7798
Edinburgh: 0131 225 8545

Further information and detailed track records for Wind Prospect are available on our website:

windprospect.com
info@windprospect.com