



Nidderdale School Wind Turbine

An energy and educational resource

Nidderdale High School & Community College, in Pateley Bridge near Harrogate, is one of the first schools in the UK to have had a wind turbine installed. The school is in a designated Area of Outstanding Natural Beauty and is the hub of activity in the dale. The turbine meets part of the school's energy needs and also provides an educational resource both for pupils and the wider community.

When did the project begin?

The project began in September 2002 and construction of the turbine was completed in July 2003. Educational activity around the turbine is ongoing.

Who was involved?

The project began when electricity supplier npower approached North Yorkshire County Council with the idea of siting a turbine at a school to act as an exemplar community-scale wind energy project. Several sites were investigated before Nidderdale High School & Community College was identified as the most suitable. The New Opportunities Fund and Clear Skies were enlisted to help with the funding.

How was it funded?

The total cost of the project was approximately £95,000 met entirely by grants: electricity supplier npower contributed £31,500, the New Opportunities Fund £50,000 and Clear Skies £13,400. North Yorkshire County Council provided its services at no cost.

What were the targets and aims?

Nidderdale High School & Community College serves a sparsely populated rural community and has 440 pupils. Its facilities include a business education centre, a sports centre, a swimming pool and a private creche. This project aimed to:

- 1) install a wind turbine that could supply some of the school's electricity needs without harming the environment

- 2) create an exemplar project to show schools, colleges, businesses, local authorities and the wider community that wind power can be successfully used to generate electricity for properties of this scale
- 3) demonstrate to the school's students and wider community the principles of wind power and provide a learning resource around issues of sustainable development.

How was it implemented?

After npower made its initial approach to the education authority, various sites were investigated to assess their suitability for a turbine by measuring wind speed and wind direction. The search also focused on sites where gaining planning permission was unlikely to be a problem. Many potential sites were unsuitable because of low wind speed, but the Nidderdale School, which occupies a rural and reasonably elevated position, was found to be viable. Annual average wind speed on the site was estimated at 6.5 metres per second.

County council officers dealt with the grant application procedures to secure funds to add to the grant from npower. All the funds were in place by March 2003 with construction undertaken in the summer.

Local planning permission was obtained with no objections to the scheme being lodged. This is believed to be due, in part, to the relatively small size of the turbine and an understanding of the need for sustainable energy, but also because of the role the school plays at the heart of the community and the goodwill felt by local people towards it. Throughout the process, the community was kept informed about the plans via the school newsletter and website, and the local paper.

The turbine chosen was 13m high, with an 11m diameter rotor and an expected output of 50,000kWh per year. Construction took place during the school half-term holiday and the turbine was officially switched on in July 2003 in a ceremony attended by representatives of the county council, the borough council, npower, the New Opportunities Fund and the installers, Gazelle Wind Turbines.

The event was hosted by headteacher, Stuart Mason, and the school's governors, and featured a presentation from the student council. Local press and radio attended and there were guided tours of the site by students and the turbine designer. An energy bus also came to the launch to raise awareness of energy efficiency and home energy-saving measures.

The turbine is connected to the national grid so if it generates electricity beyond the school's needs (e.g. at weekends or during the school holidays when the school's demand for electricity is much lower), this can be fed back into the grid. However, the school doesn't get paid for generating electricity it doesn't consume, because the budget did not allow for the installation of monitoring equipment.

As well as having a continual visual reminder of the potential of renewable energy, the school has incorporated references to the turbine into its curriculum and is also holding adult education classes in alternative energy, using the turbine as a resource.

Achievements

- the turbine is meeting 15–20% of the school's daytime electricity needs
- the school can expect to save around £2,000–£3,000 a year on its electricity bills
- based on an output of 50,000kWh a year, the turbine will save around 21 tonnes of carbon dioxide annually
- awareness of energy issues has been promoted in the school and throughout the local population, and this will continue throughout the turbine's operational life of at least 20 years
- elements of the school's Key Stage 3 and 4 curriculum in geography and science now refer to the on-site wind turbine technology
- Harrogate Borough Council's Agenda 21 has begun work with Year 9 students on energy-related issues which, in turn, has led to recycling schemes being implemented in schools throughout the borough.

Four key success factors

- 1) finance was forthcoming from several sources at a level which would not have been possible within a school budget
- 2) the local community was kept informed about and involved in plans and so gave their backing to the initiative
- 3) the project had the support of the local education authority
- 4) staff and students in the school welcomed the idea of their own turbine.

Next steps

The turbine will continue to be a valuable educational resource for the next 20 years, with more links being made with other schools and businesses, and a continuing role as an example to the local and wider community. The turbine features in the school's recent bid for specialist status in science and visual arts, which will further promote work with business partners and partner primary schools. It is hoped that funding can be secured in the future to install an electronic display board showing live information about the turbine's energy output.

LESSONS LEARNT

- 1 close cooperation between the partners in this project was essential to its success
- 2 the expertise of professional bid writers seemed necessary to unlock the funding sources available. County council officers provided invaluable help in preparing grant applications
- 3 getting media interest beyond local press proved difficult and it may be necessary to spend longer developing contacts to ensure wider media coverage
- 4 the technology of the new breed of small-site wind turbines is very new and there have been some teething issues around its reliability. It was only some six months after its commissioning that it began to generate electricity reliably, but is now producing the expected 15–20% of the site's electrical energy needs.



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Nidderdale High School is a member of the **Community Action for Energy** network. Community Action for Energy (CAfE) is an initiative of the Energy Saving Trust that promotes and facilitates local community based energy projects. This case study is one of a series showcasing the most exciting and innovative of the 2500 projects that are part of the CAfE network.

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