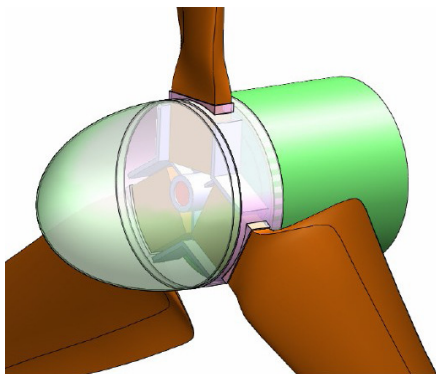


Project Title: 'Innovation of small Wind turbine Technologies (IsWindTech).'
Principle Investigator: Dr Xiongwei Liu (UCLan)
Project duration: 01/11/08 – 31/10/09
Grant Value: £74862.00

The North West of England is blessed with wind as a resource which could be used to generate electricity for small discrete locations. A significant number of isolated communities exist off the normal supply grid, in Cumbria and the Pennines for example, where customised small wind turbines would sit well. A number of small companies exist in the region for the design, manufacture and installation of small wind turbines (up to 20kW generating capacity). In April 2010 Government Feed In Tariffs, whereby people who install small scale renewable devices receive payment for any electricity they generate, will come into force making small wind schemes more attractive and economically viable. By doing this the government hopes to meet its ambitious target of generating 2% of UK electricity consumption by 2020 from small scale renewable devices. This should increase the size of the market for small wind turbines and present significant commercial opportunities for any businesses operating in the field.

Extensive research has been done into the technical and non-technical issues associated with large wind-farm turbines however in comparison very little work has been done into those related to small wind turbines. The aims of this project were to research and develop customised design, economically viable manufacturing methods, performance and operational control solutions for small wind turbines. Non-technical issues such as manufacturing standards and certification, market barriers and public education were also addressed. As part of this project three test sites, in the NW, were supplied with customised small turbines and the specific design, manufacture and operation of the systems at these sites will be monitored during and after the project. The University of Central Lancashire has also developed a small wind turbine testing laboratory for innovative wind turbines for this project. There were a number of commercial partners for this project working with a community group in the village of Mawdesley to carry out a carbon audit which examined the effects lifestyle changes can have on carbon emissions.



This project contributed towards the further development of the University of Central Lancashire's Wind Energy Engineering Research Group (Winergy) and was aimed at stimulating growth for small wind turbine research and commerce in the North West region. The project removed some outstanding technical barriers for the take-off of innovative small wind turbine technologies and its most notable contribution is the concept and methodology of site specific design and integration of small wind turbine systems for low wind speed onshore sites. With this innovative technology it is possible to double the energy production achieved by small wind turbines.

As a direct result of this project two new short industrial training courses, in small wind energy systems and small wind turbine applications, will start in 2010 at UCLan, and an SME wind turbine spin-off company is planned within the next three years. It also helped Dr Liu and his team to obtain further funding (£96550) from UCLan for facilities and research which will be of great use to industrial partners.