



Wind Power Briefing

The UK is the windiest country in the EU. Wind is the most useful and economic renewable energy resource available in this country. With the current grant regime, electricity prices and income from carbon trading, certain types of small scale wind power are not just affordable but potentially profitable.

Most renewable energy sources, including many smaller wind turbines, still have long payback times on capital cost; however the 5-6kW scale offer paybacks of well under 10 years. This type of investment has the capacity to turn one off capital outlay into long term revenue. In suitable sites, this offers great potential to reduce environmental impact and overheads, while going a long way to meeting stringent energy performance criteria, demanded by the new building regulations.

The table below offers a comparison of a number of small turbines on the market. Note the Iskra 5kW and the Proven 6kW turbines payback times after a 50% Low Carbon Buildings Programme Grant. The 5m/s (metre per second, annual mean wind speed) scenario shows payback times at a typical site and the 7 m/s scenario in the last column shows a likely best case.

Product	Rated power	Typical Installed cost inc 5% VAT	Annual generation at 5m/s (kWhrs)	Annual value of power at 5m/s	Payback time at 5m/s (yrs)	Annual CO2 saving at 5m/s kg£	Payback time at 7m/s (yrs)
D400 Steathgen	0.4kW	£2,246 [†]	462.25 (independent figures)	£71.09-£74.10	30.3-31.6	198.8	20.0-20.8
Air-x	0.4kW	£669 (self installed pole-mount)	257 (independent figures)	£39.53-£41.20	16.2-16.9	110.5	9.3-9.7
Windsave	1kW	£1,100	1,139	£175.18-£182.58	6.0-6.3	490	2.8-2.9
Swift	1.5kW	£7,400	1,974	£303.60-£316.43	23.4-24.4	678	10.7-11.1
Iskra AT5-1	5kW	£15,000	9,034	£1,389.43-£1,448.15	10.4-10.8	3885	5.4-5.6
Proven WT6000	6kW	£17,000	11,871	£1,825.76-£1902.92	8.9-9.3	5105	6.1-6.3

The annual value of power is based on earning 3.2ppkWhr fixed rate from Carbon trading certificates and 7.62ppkWh (exported power-EDF)-9.5ppkWhr (typical domestic electricity costs). Note that electricity costs are rising all the time and electricity costs may vary. Also note that these yields have been calculated independently, but are based on manufacturers own technical specifications.

Even with project management costs for site assessment, planning applications, funding applications, tendering and ongoing maintenance costs; the payback times for a suitable turbine is still likely to come in under 10 years.

Examples



The Turbine Innovation Centre

Shireoaks, Worksop

The Iskra AT5-1 5kW wind turbine is located in Worksop, Nottinghamshire, and was bought by Nottinghamshire County Council. The tower is bolted to a large concrete foundation, and is raised and lowered by a detachable hydraulic ram

powered by an electric pump. The installed cost was about £20,000 and the estimated annual capacity 10,071 kWhrs. At current domestic electricity prices/carbon trading certificates and an annual maintenance cost of £200 that gives a payback of 20 years however that is reduced to 10 Years after a 50% Low Carbon Building programme Grant. The will be an annual CO2 saving of about 4.3 tonnes



Eyres Monsell School

Leicester

The Proven 2.5kW machine installed at this school is predicted to generate more than 4,000 kWh of electricity per year, saving the school up to £300. The work has cost approximately £22,000, with funding from the Neighbourhood Renewal Fund (NRF), Powergen Green Plan Fund, Clear Skies and the Leicestershire Investment Fund for the Environment (LIFE). There will be an annual CO2 saving of about 1.72 tonnes

"Of course, the wind turbine will help us to cut electricity costs, but more importantly it will be an excellent tool for educating the next generation about the environment."