

28 August 2007 11:33

- [Home](#)
- [> Classified](#)
- [> Property](#)

Donnachadh McCarthy: The home ecologist

Will wind turbines ever work in cities? one pioneering new building may prove they can

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In Dalston, in London's East End, builders are about to go on site to start constructing what could be a crucial step towards making urban wind-turbines a feasible source of renewable energy. The Metropolitan Housing Trust has commissioned the architects Waugh Thistleton to build a new block of social-housing flats that incorporates four stunning large, vertical-axis wind-turbines.

The success, to date, of domestic wind-turbines in cities has not been extensive. About 18 months ago, I became the first person in London to get planning permission to attach one to my house. And the output to date has been pathetic. My wood-burner produces more energy in an hour than the turbine did in three months. I have yet to hear of anyone producing worthwhile amounts of electricity from any micro building-attached wind-turbines.

But that does not mean that experimentation should not carry on, nor that I regret being part of an experiment to see if they can be made to work in the inner city. While many experts say it is impossible, I would love to see them proved wrong.

The developer Waugh Thistleton has included two innovations in the Dalston project. It is using vertical-axis, helix-shaped turbines (costing about £30,000 from the UK firm Quiet Revolution) and, more creatively, they have designed the building to maximise wind-flow to the turbines – the building acts like a wing, whipping past it on one side. It will be fascinating to see if Quiet Revolution and Waugh Thornton can pull this off. There is no doubt the prize is great. If successful, each turbine could produce enough energy to save up to 4 tons of CO₂ a year – or power a 20-person office.

I contacted Sundog Renewables, which is based in Cumbria and is one of the leading renewable energy installers in the UK, with long experience in the installation of both solar electric panels and wind-turbines, to gather opinions on building-attached wind turbines. Their advice was that there were very few urban areas where building attached turbines will work on domestic homes, due to the lack of good-quality wind speeds at low enough heights.

But they were positive about larger turbines placed in windy locations on major buildings. They have had good experiences with the installation of Proven 6kw turbines in Blackpool and Liverpool. They said the sea-fronts on these west-coast cities were ideal locations for turbines, and I admit some jealousy when they waxed lyrical about the wind available to those living in the English Pennines or on Scotland's west coast.

A 2.5kw turbine costs about £11,000, and a good site provides about 2,500-5,000kWh a year. That is about £500 worth of electricity. The average home uses about £300 worth in a year. A 6kw system produces about 9,000kw and costs about £18,000. Grants – unfortunately – were slashed by the Chancellor in the recent budget and are now about £2,500.

There is no doubt that cutting energy wastage is a far more efficient way of cutting a building's CO₂ emissions, but we still need people to take risks if we are to replace fossil fuels with effective alternatives. The Metropolitan Housing Trust, Waugh Thistleton and Quiet Revolution are three such pioneers.