



Words Matthew Sutcliffe

Photographs courtesy

Mersey Docks and Harbour

ELECTRIC CURRENT

Opening a window on the future of renewable energy.



As they speed along the M60 motorway and over the serpentine Barton Bridge fly-over, enjoying views of that temple to retail therapy, the Trafford Centre, most people are unaware that beneath them on the Manchester Ship Canal whirs a small hydroelectric plant. Perhaps it even powers some of those blue lights on the Trafford centre.

The plant, owned by Warrington based Novera Energy UK, has been quietly doing its bit for renewable energy for over a decade, but produces a maximum of only 660 kilowatts of electricity. It's barely enough to make a tiny dent in the government's target to produce 10 percent of the nation's electricity from renewable sources by 2010.

With over a third of all the carbon dioxide released every year in Britain coming from the burning of fossil fuels to generate electricity, renewables are a vital weapon in the fight against climate change.

Just downstream from the Barton hydroelectric scheme, the River Mersey surges into the Ship Canal. A few kilometres further on the river branches off from the canal again and both continue their separate journeys towards Liverpool. The difference is that the river is fast becoming a magnet for renewable energy. Over the next few years, schemes on the Mersey could even chart a course for technologies in which Britain aims to be a world leader.

Next to the river in Liverpool six large wind turbines already line the Seaforth Dock wall. Built in 1999 by the Mersey Docks and Harbour Company, next year they will be joined by five more even bigger turbines costing around £12 million. Standing almost 100 m tall, with blades 45 m long, the new turbines will each generate up to 3 megawatts (MW) of electricity, five times the

power of the existing ones. Much of it is expected to be used locally – it's enough to power a town the size of Crosby or Wallasey.

Last year the Mersey Docks and Harbour Company was acquired by Peel Holdings, which also owns Peel Environmental (based, coincidentally, in the Trafford Centre), a company with interests in renewable energy. As Peel Environmental's director, Richard Brewster, says: "Mersey Docks and Harbour had the foresight to invest in wind power well before the current explosion of interest."

In stark contrast to other wind farm proposals, which face celebrity-backed 'no' campaigns, the new turbines have provoked barely a murmur on Merseyside. Says Mersey Docks chief engineer, Tim Bownes: "We listened closely to what people had to say before submitting our proposals. We believe the new turbines will prove as much a complementary river front feature as the established units...[which] are now regarded as something of an attraction."

It helps that the turbines are surrounded by docks rather than countryside and that they are a kilometre from the nearest houses.

Another, much larger, wind farm is due to be built offshore in Liverpool Bay by the end of summer 2007. Burbo Bank will consist of twenty-five turbines, each capable of producing 3.6 MW, erected on a sandbank that has formed against a retaining wall built a hundred years ago to stabilise the river's navigable channel. They will produce enough power to supply around 72,500 homes – that's 12 percent of the homes in Merseyside.

"Year in and year out technology improves and turbines get more efficient," explains Adrian Maddocks of SeaScape Energy, which is building Burbo Bank. "Today's turbines are self-regulating and fully computer operated, with better generators, gearing, control systems and reliability."

They are also bigger, allowing them to benefit significantly from economies of scale.

Britain has the best wind supply in Europe, with the Northwest particularly blessed. Offshore, construction is easier if the water is shallow – again, the Northwest is lucky. The result is that the Northwest has been flagged up by the government as one of the

"It's really a feasibility study at this point," says Richard Brewster, who is also at pains to stress that this is not a resurrection of the old idea to build a barrage across the river and that the environmental impact of the technologies being looked at will be carefully considered from the start.

Five new wind turbines at Liverpool Dock could power a town the size of Crosby.

three locations with most potential for wind energy, alongside the Wash and the Thames Estuary.

There is one obvious resource on the Mersey that no one has yet tapped for renewable energy, however, and that's the river itself.

In November last year Peel Holdings and the Northwest Development Agency announced a major new study into marine renewable energy on the Mersey. The announcement was made at the Mersey Basin Campaign's annual conference and the initial results are due to be unveiled at this year's conference. The study aims to evaluate all the emerging marine renewables technologies, which fall mainly into two camps: wave power or tidal stream power.

Even so, there's no hiding the fact that this is the first step on the road to what could eventually be a very big project. As with wind power, the Northwest is in an enviable position, and nowhere more so than the Mersey. Its 8–10m tidal range is one of the biggest in Europe, producing powerful tidal streams that could turn out to be ideal for driving underwater turbines. The advantage is that the tide, unlike the wind, is entirely reliable.

Many in the renewables industry also warn against a repeat of what happened with wind energy, when Britain missed out on a golden opportunity to capitalise on its blustery weather by failing to invest at the crucial early stages of development. The forward thinking Danes, meanwhile, forged ahead. Now British companies must wait nine months for turbines while Danish manufacturers struggle to keep pace with exploding worldwide demand.

"The problem is that marine renewables are not yet commercially viable," says Chris Shearlock of Envirolink Northwest. There are barely a handful of prototypes up and running in scattered locations from Cornwall to Ireland and Scotland.

In the long run though, says Shearlock: "The odds of wave and tidal power coming to fruition and being used are very good, because there's a combination of an abundant and reliable resource and real need."

With onshore and offshore wind farms under development and the added potential for marine renewables, what is happening on the Mersey presents a microcosm of developments around the region, and the nation. New wind farms at Scout Moor in Lancashire and offshore near Barrow, the Solway Firth and North Wales are all in the pipeline. There is even talk of a bridge across Morecambe Bay that would act as an electricity producing barrage.

As Richard Brewster says: "If marine power takes off, people are going to be looking at all the estuaries around the UK. I'd like to think that we're at the cutting edge, putting the Northwest on the map."

MORE INFORMATION:

www.envirolinknorthwest.co.uk
www.seascape-energy.co.uk
www.merseydocks.co.uk
www.renewablesnorthwest.co.uk
www.noveraenergy.co.uk

PHOTOGRAPHS: WIND TURBINES ON SEAFORTH DOCK, LIVERPOOL.