

Steady growth is key to tidal

Tidal energy companies should learn from wind's steady growth and roll out tried and tested services rather than plan to start with massive projects which could overpromise and under-deliver, Sean Hargrave is warned.



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If wind energy has taught other green technologies following in its path one thing, it is to start small and learn from those implementations as the move into large scale production is made.

The massive offshore wind farms delivering many mega watts of power have evolved over twenty years or more in the making as technology has been constantly improved. There are some fears in the renewables industry that other green technologies which wish to follow this success could look at wind's capabilities now and pitch plans for overly ambitious projects too early, which do not deliver and so make the technology look less promising than it is.



Certainly Hans van Breugel, Managing Director of Dutch tidal energy company, Tocardo, believes tidal has a bright future, but only if projects start off on a small scale and respect the different challenges of working around water, compared to land. Hence, although his company is launching in north America and Europe with a range of turbines for small, medium and large (50kW to 700 kW) energy requirements, he certainly has no predictions for massive tidal farms until more realistic, smaller scale (1-10 MW) projects are proven.

"We're rolling out our turbines after they've been installed and tested here in the Netherlands because we know from our experience, as a company in both ocean and wind energy, the worst thing you can do is overpromise," he says.

"Our first product sales have started and in 2010 some 1.5 MW projects will be installed in the Netherlands and over 10 MW is under development in Scotland and mainland Europe."

"Water, and the sea in particular, is a very harsh environment and so we're not immediately going out with plans for large-scale offshore tidal energy farms. We've developed our turbines for river and barrage use, with the challenges at sea in mind, because we know the market will need to see more realistic, nearshore projects proving successful first."

"You have to remember that wind energy took twenty five years or so to get from 50kW to 5mW. We don't think it will take tidal that long but we are firm believers you can't do it overnight. The secret of wind's success was to progress bit by bit, build large numbers and to not go out straight away trying to build massive offshore farms."

Keep it simple

Hence van Breugel is concerned that some proponents of tidal power are looking at the success of wind and trying to mirror it, not just in the projects they are outlining but in the technology itself.



Wind has evolved to develop turbines with complicated gearing mechanism to get the maximum amount of energy from every possible wind speed. However, trying to replicate this with tidal would be missing the crucial need to keep tidal installations as simple as possible because water, as Van Breugel reminds, is a demanding medium for any engineer to work in.

"Even the well proven wind industry has struggled with its first steps offshore," he says.

"The Dutch know all about the power of water; we hold it back daily, a third of our country is under sea level. This gives you a respect for it and makes you realise that the only way to start tidal power projects is with simple turbines which do not have gear mechanisms that can go wrong and need a lot of maintenance."

"I firmly believe people want green energy but they will always end up going for the energy source that is the most reliable and the most cost effective. So keeping it simple and building up is the key. You must learn to walk before you can run."

To make tidal energy successful van Breugel believes there has to be a market pull from the utilities, government support through 'feed-in' tariffs and technologies ready to deliver.

Why tidal?

Tidal energy is a generic term given to harnessing the power of flowing water even though, as is the case with Tocardo's turbines, there is no need for a tide so long as there is fast flowing water, such as a river, to turn a turbine's blade.

The technology is pretty self-explanatory. Water flows over the torpedo-shaped turbine driving blades which create electricity as they turn. In this sense, the technology is just like wind power, only with some crucial differences, explains Pieter de Haas, Operations Director at Tocardo.

"The beauty is that, unlike wind, you never see the turbines, they're totally submerged," he says.

"The other obvious benefit is that tidal flow and the flow of a river is predictable. You can only ever tell how windy it is going to be a day ahead but you can predict tides and river flow for years in advance. This certainty will really help power companies match demand with supply."



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