Envisioning Swansea energy plant powered by tides in lagoon

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Credit: The Guardian

(Phys.org) —What about building five "tidal energy" plants in the UK, as a source of clean and reliable energy? Can such a resource be harnessed in a way that makes economic, environmental and social

sense? That is the vision of a UK company, Tidal Lagoon Power, promoting such tidal plant installations as a beneficial energy initiative. On Friday, the Cheltenham-based company submitted an application for a Development Consent Order under the Planning Act 2008 for the Swansea Bay Tidal Lagoon. This would be the largest tidal power plant in the world. The project, along with four others, could meet 10 per cent of the UK's electricity needs from the tides by 2023. "Our intention is to supply 10 percent of the UK's domestic electricity by building at least five full-scale tidal lagoons in UK waters by 2023," said Mark Shorrock, chief executive of Tidal Lagoon Power. The current application represents the first step in deploying the lagoon technology that would enable renewable power. But what exactly is a tidal lagoon? This is a harbor structure that can close off a tidal sea area. Turbines are used through which the sea moves to generate electricity.

The project, if given the green light, would provide renewable power for 120,000 homes in Swansea, Wales, for 120 years. The initiative would involve a six-mile sea wall around Swansea Bay and turbines, to catch the world's second highest tide rushing in from the Atlantic. Harnessing incoming and outgoing tides would generate power for 14 hours a day. (Swansea Bay would be the site of a man-made, energy-generating lagoon, with a 240MW nominal rated capacity averaging 14 hours of generation every day.)

If given the go-ahead, construction of the Swansea Bay lagoon will begin in the first half of 2015, with first power generated in 2018. A report about the application in *The Guardian* quoted David Tonkin, chief executive for the UK and Europe at the engineering company Atkins. Tonkin said the concept of a tidal lagoon was an example of how innovative engineering could be used to harness natural resources and provide predictable power for thousands of homes.

Tidal energy is promoted as a clean and reliable source of energy. "Had

we invested in tidal lagoons in the 1980s, by now, and into the next century, we would be generating cheaper power than any other form of supply." said Shorrock. The UK has the second highest tidal range in the world.

The BBC said Friends of the Earth (FoE) Cymru and Wildfowl and Wetlands Trust have backed the plans. Gareth Clubb, FoE, said that tidal lagoons, provided they meet strict environmental criteria, can play a role in building a low carbon future.

More information: www.theguardian.com/business/2 … lagoon-power-planned
www.bbc.co.uk/news/uk-wales-so … -west-wales-26072805
tidallagoon.opendebate.co.uk/f … _DCO_Application.pdf

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