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UK urged to push ahead with world-first tidal lagoon power plant



Tidal Lagoon Power

By News Scientist staff and Press Association

The UK government has been urged to “stop dithering” and push ahead with a world-first tidal lagoon power plant.

Speaking ahead of the publication later today of a government-commissioned report into the role tidal lagoons could play in the energy mix, shadow business secretary Clive Lewis said an initial scheme in Swansea Bay should be built.

“We have high hopes that tidal energy will get cheaper fast, as we’ve seen in other renewable technologies,” he said. “The Government has repeatedly delayed this project, despite Labour backing it months ago. It’s time to stop dithering and get it built.”

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The review to be published today is expected to back the scheme.

Predictable energy

Backers of the project say it could produce predictable low-carbon energy over a long time-frame and provide economic opportunities to boost the supply chain, regenerate the local area and develop an export business.

Juliet Davenport, chief executive of Good Energy, one of the first investors in Swansea Bay Tidal Lagoon, said: “By kicking off a British tidal lagoon industry we are presenting the world with another awesome low-carbon option, and it’s British know-how that will be called upon should other countries look to take up that option.”

“Tidal lagoons are a brilliant way for Britain to diversify its energy mix and keep the lights on. They will also create a whole new industry and thousands of jobs as well.”

Environmentalists backed the development of the clean technology, but warned that considerations such as the impact on the wildlife-rich Severn Estuary must be taken into account.

Impact on sealife

Haf Elgar, acting director of Friends of the Earth Cymru, said: “A tidal lagoon in Swansea Bay could play a significant role in generating clean energy in Wales, and will be an important test of this exciting new power source.”

“Tidal lagoons could have a big future, however it is crucial that any potential impacts on wildlife and the wider environment are properly considered and addressed before any new developments are given the go-ahead.”

“New clean energy sources are important, but it is crucial that the Government also ensures that adequate investment is targeted right now in low-cost renewable technologies, like solar and wind, that already generate a quarter of UK electricity.”

Joan Edwards, from the Wildlife Trusts, said: “The Severn Estuary is a remarkable and unique cathedral of Britain’s natural heritage. It has the second largest tidal range of any estuary in the world.

“Any major development within it risks dramatically affecting the fish and birds and other wildlife that depend on it. We recognise the urgency for renewable energy development but its overall environmental impact must be assessed.”

What are tidal lagoons?

They are U-shaped breakwaters built out from the coast, with a bank of turbines turned by water to harness the tides to generate renewable electricity.

How do they work?

They capture a large volume of water behind the breakwater which is then released to drive the turbines.

As the tide comes in gates which are shut in front of the turbines hold back the water and create a difference in water levels. Once a significant height difference is reached, the gates are opened and water flows through the turbines into the lagoon, driving them to generate power.

The process is repeated in reverse as the tide goes out.

Where are they?

Nowhere, yet. There have been efforts to develop a scheme of around 320 megawatts (MW) – enough to power 155,000 homes – in Swansea Bay, which developers say would be a world-first tidal lagoon power plant.

Developer Tidal Lagoon Power wants Swansea Bay to be a proof-of-concept project, opening the way for a series of lagoons around the coast, costing less due to economies of scale and meeting 8 per cent of the country’s power needs for 120 years.

Why Swansea Bay?

The Severn Estuary has the second highest tidal range – the height difference between high and low tide – in the world, and at Swansea Bay it is around seven to nine metres, making it ideal for harnessing tidal power.

Why hasn’t technology been developed for the Severn before?

There has long been a debate about ways of harnessing the tidal power of the Severn, most frequently a tidal barrage which would stretch across the estuary at some point between Wales and south-west England.

It has been repeatedly rejected as too costly and environmentally damaging.

What are the benefits of a tidal lagoon?

A lagoon would not block the estuary like a barrage, and it would generate low-carbon electricity in a predictable way according to the tides over a long time-frame.

The review for the Government said it could be cost-effective compared with other low carbon technologies such as nuclear power, help the UK meet its targets to tackle climate change and provide an economic boost to the supply chain and local area.

Any downsides?

There have been concerns about costs, with the Swansea Bay project needing capital of £1.3 billion, although the review seems to lay those to rest to some extent.

Such a large development in the Severn Estuary – a wildlife-rich region with multiple protected areas – could have an impact on nature and habitats, as well as on other commercial interests in the region.

The review has called for the Swansea Bay project to be operational before the go-ahead is given for any more, larger lagoons, so the impacts could be studied.

What would the costs be?

An initial smaller project, such as the one in Swansea Bay, would be about 30 pence per household per year. A large-scale project would be less than 50 pence over the first 60 years, according to former energy minister Charles Hendry, who led the review.
