

New Civil Engineer



LATEST

Why tidal energy must rise up the agenda now

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Tidal energy: it's a much discussed, yet significantly underappreciated subject, despite the fact these projects could deliver huge benefits to society, delivering no-carbon power by tapping into the only constant, everlasting renewable our planet has.

Unfortunately, the UK's tidal power potential remains untapped, and it baffles me why this remains the case, given we enjoy high tidal ranges in the Severn Estuary, the Dee Estuary and the Bristol Channel. This makes our waters ideal for this type of energy generation.

As demand for electricity increases and we strive towards Net Zero 2050, we will need to think more seriously about where our power comes from. Current renewable output is not enough to satisfy the public and businesses' growing appetite for energy.

Policy makers will be looking for a solution to this and I predict this will spark a resurgent interest in tidal. The market has evolved since Swansea released its plans, and we're on the cusp of game-changing solutions coming to market which truly deliver, both in terms of performance, value and sustainability.

Innovations are making tidal power viable

To date, the opportunity for the Civils community, presented by large-scale tidal infrastructure, has not been fully realised—the main barrier being the perceived high initial construction cost. But this is short-sighted.

Wind farms may require less upfront capital, but once set up, tidal power can achieve far lower operational and maintenance costs. Further, tidal plants can expect to last for at least 100 years if the right building materials are used.

Current thinking is that the future of tidal energy lies in tidal lagoon power stations. These enclose an area of coastline with a high tidal range behind a breakwater, with the footprint carefully designed for the local environment. The Swansea Bay Tidal Lagoon was billed as a world first, with an estimated capacity of 320MWh, but it would have only been able to operate 14 hours a day, and unavoidable issues regarding construction costs, environmental impact and long-term value have put plans on hold indefinitely.

When renewables are just not enough

However, we are edging closer to finding solutions to these challenges. Over the last decade, I have been working with a single goal in mind: a renewable energy system that produces power 24 hours a day, every day, to make tidal power viable. Such a solution is vital in the drive towards Net Zero by 2050.

At TPGen24, the tidal energy research centre I founded, we're testing a lagoon system with the potential to deliver on the above, and more.

Progress has been steady, but breakthroughs in 2020 make the system we're developing hard to ignore now. Currently being tested, we will be looking to bring it to a wider audience this year, demonstrating a tidal power technology which can provide huge benefits and deliver long-term value.

Further, the proposed, advanced design of this plant, which combines smart technology and traditional engineering, differentiates our system from what has come before it. Crucially, it will be equipped to generate electricity 24/7, 365 days a year. Not only will it realise my ambition for tidal power, but also make a far more compelling business case for investment in renewables than ever before.

Renewable energy is at a tipping point

In 2021, governments, developers and investors are getting serious about the renewables sector as more and more reliance is placed on low carbon and cleantech.

November's United Nations Climate Change Conference (COP26) will be the most significant climate event since the adoption of the Paris Agreement in 2015, putting pressure on legislators and consumers to take radical climate action.

Meanwhile, the UK government has set out plans to clean up the energy system in its Energy White Paper, establishing a decisive and permanent shift away from our dependence on fossil fuels.

It presents the perfect opportunity to bring offshore tidal energy back up the agenda.

Why tidal must rise up the agenda now

Ultimately, harnessing the potential of tidal energy could strengthen the UK's post-pandemic economy, creating a huge number of civil engineering and green energy jobs.

It also provides the civil engineering community with the potential to increase revenue through its expertise on large offshore projects. Further, a burgeoning industry could make us a world leader in a technology still in its infancy.

Exporting this to other countries which have similar tidal ranges to the UK, such as France, Canada, India and China, would present huge commercial opportunities for offshore engineering specialists.

There's enough energy in the coastal waters of the UK (and Ireland for that matter) to satisfy the electricity needs of both countries. If we're ever going to meet our 2050 targets, we need to give the latest tidal lagoon technology serious consideration today.

* Stuart Murphy is founder of TP:Gen24, a new tidal lagoon energy generation system

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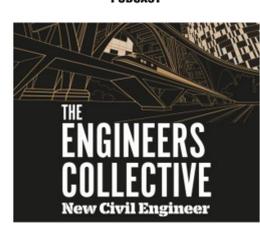
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