Friends of the Earth

The Severn Barrage - Why we oppose it and what the alternatives could be

The tidal range in the Severn Estuary is one of the highest in the world, reaching over 13 metres, and ideas for taking advantage of energy generation have long been suggested. The proposed Severn Barrage project would stretch nearly 10 miles from Lavernock Point west of Cardiff to near Brean Down in Somerset. It would cost around £14 billion.

Construction of the 60 million tonne structure, including 370 reinforced concrete caissons totalling 17 million tonnes, would take until 2019 at the earliest. It would enclose around 185 square miles of the estuary.

Why would the Barrage be environmentally damaging?

- The Barrage wall would create a 5 metre deep lake to its eastward side, losing an inter-tidal habitat, feeding grounds for tens of thousands of birds
- The Barrage would halve the tidal range and sensitive flora and fauna would be lost, and the famous Severn Bore diminished
- The Barrage could also have a significant impact on fish species of conservation interest, through use of fish sluices within the barrage wall
- The Barrage could significantly damage the viability of ports. It would also generate new traffic on existing road networks around Lavernock and Cardiff airport and cause development pressures in rural Somerset
- The government's own statutory advisers state that 'a Severn Barrage project would not be possible within the current legal framework provided by the EU Habitats and Birds Directives. The estuary is also being proposed for designation as a Special Area of Conservation (SAC), the highest protection in European Union law

Why the Severn Barrage will not address our needs

- The Barrage project cannot be justified on coastal protection grounds as coastal flood defence schemes can be built relatively quickly and sea level rises are forecast to take decades to a century or more to rise to a point at which they would be needed
- Alternative investments would reduce carbon more quickly in the next few critical decades
- The Barrage's huge twice-daily three hour pulses of power would not synchronise with the daily variations in grid demand, resulting in costly stand-by capacity
- The Barrage itself could cause coastal erosion or flood risk on its seaward side

Alternative low-carbon solutions

- Tidal lagoons: electricity generating lagoons located about a mile off the Severn coast
- Shoots barrier or barrage: A shorter flood defence barrier or a barrage near the Second Severn Crossing
- Other marine technologies: eg marine current turbines in the Bristol Channel
- Wind energy: about 1,000 offshore 5 MW wind turbines would generate the same annual output as the Barrage project
- Carbon Capture and Storage (CCS): CCS fitted to coal or gas power stations would reduce their emissions by 85-90%

Friends of the Earth Cymru believes there are environmentally benign ways to generate tidal energy from the Severn Estuary. To destroy a unique, internationally important and protected conservation area to generate just one percent of UK energy is not the way forward.

Friends of the Earth has identified six main reasons why tidal lagoons would be a better option than a Severn Barrage, and sets these out in a comprehensive report released today. (1)

Lagoons are far more efficient - they could produce up to 60% more energy than the Severn barrage

Lagoons are much cheaper - they would generate electricity at about half the cost of the barrage (3 p/kWh versus 6 p/kWh)

Lagoons would not impede navigation - unlike the Severn barrage, which could significantly reduce freight trade entering the UK via the Severn ports, Avonmouth and Portbury. This would have adverse knock-on effects on Bristol, and strain capacity and transport links at other UK ports

Lagoons would not destroy an internationally important habitat - unlike the Severn barrage, which would destroy the feeding grounds of tens of thousands of birds and damage the legally protected Severn Estuary

Lagoons would integrate well with other renewable energy schemes - unlike the Severn barrage, which would need expensive stand-by capacity to cope with the huge twice daily pulses of power that would not synchronise with the daily variations in grid demand

Lagoons would be compatible with a Shoots barrage near the Second Severn Crossing, which could provide flood defence and a strategic rail link from London to south Wales avoiding the ageing Severn tunnel

Southwest Greens support Tidal Power in Severn Estuary

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The Green Party of England and Wales at its spring conference in Swansea examined the various options for generating power from the tidal streams in the Severn Estuary. After panel sessions with industry experts and debates the conference decided that tidal lagoons and tidal stream mill (underwater individual turbines tethered to the seabed) technologies should be pursued, but that a continuous barrage right across the Severn would be too costly in both economic and environmental terms to be a viable option.

GP policy is now that we should make use of the potential in the estuary, and that in the short term Tidal Lagoons offer a rapid and scalable option using tried and tested technology that could provide a significant fraction of Wales and the Westcountry's energy requirements with acceptable impacts.

Greenpeace

Reacting to the news that the Sustainable Development Commission has endorsed plans for a tidal barrage across the Severn estuary, Greenpeace executive director John Sauven said: “Tidal power can provide the UK with a tremendous amount of energy along with other marine renewables like wave power. And, importantly, it can do so without creating dangerous climate change emissions or nuclear waste. The Severn barrage could be a huge resource of carbon free energy, but the jury’s still out on the best way to reap the tidal power of the river without having huge environmental impacts on wading birds. Offshore wind, as a cheaper option, should also be much higher up the government's priority list. The UK has about 40% of Europe's wind resource which could be harnessed to meet our demand for energy. For example the London Array, in the Thames estuary, will supply 750,000 homes in London at a cost of around £1.5 billion."