media *release*

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Severn reef leaves barrage in its wake

A new tidal power scheme could safeguard wildlife and generate more clean energy from the Severn Estuary than a 10-mile barrage, a report says.

A tidal reef, a longer dam, further downstream, would be less costly than a Cardiff to Weston barrage and keep intact most of the estuary's saltmarshes and mudflats on which at least 68,000 birds feed in winter.

The reef would operate for longer and have more underwater turbines than a conventional barrage, but turbines would be slower moving, minimising the danger to migrating salmon and eels.

Professor Rod Rainey of engineering consultants, Atkins, who authored the report, said: "We believe this scheme could be more powerful but less costly than other plans being put forward, particularly the Cardiff to Weston barrage."

The government wants to use the 45-foot tidal range of the Severn – the difference between low and high tides - to generate electricity to cut the UK's carbon emissions.

Ministers are to shortlist some of the 10 proposals for the Severn next month and the tidal reef and Cardiff-Weston barrage are among those being considered. The RSPB fears the reef will be dropped from the list because its design is untested.

The new study by Atkins, Europe's largest firm of consulting engineers, was commissioned by the RSPB to look at the feasibility of tidal reef technology, its energy generating potential and its cost.

Atkins drew four major conclusions:

- That the technology behind a conventional barrage could be used to build a tidal reef;
- That a tidal reef could generate more energy than the conventional barrage;
- That a tidal reef would cost £2 billion less than the Cardiff-Weston barrage;
- That a tidal reef could be designed within the government's target date.

The tidal reef proposal has been submitted to the government by Evans Engineering, a company based in Cornwall that designs and builds innovative renewable energy systems.

The reef would stretch 12 miles from Minehead in Somerset to Aberthaw, in the Vale of Glamorgan.

It could open at set points to allow large container ships to pass and be built in sections, enabling the much earlier generation of power.

Rupert Evans, of Evans Engineering, said: "The potential of a tidal reef is enormous. As well as electricity, it could produce hydrogen for use in non-polluting cars or the gas network. Its construction would mean far less road traffic because of rail connections, and would require less material and cost significantly less than other tidal options or nuclear power.

"It would cut Britain's carbon emissions by around 12 million tons annually, create more than 30,000 jobs during construction and give a

global lead for local manufacturing companies, particularly in the marine engineering sector.

"Other schemes either defy the laws of Europe and would result in years of litigation, and some even defy the laws of physics and simply wouldn't work."

Dr Mark Avery, Director of Conservation at the RSPB, said: "The government must crack the problem of how to use the Severn's tidal power without harming its wildlife.

"We already know a Cardiff-Weston barrage would cost far more than almost any other form of green energy and seriously damage sites protected by law.

"A tidal reef could reign in that damage, cost the taxpayer much less and be built more quickly. Ministers should look seriously at the enormous pitfalls of a conventional barrage and the potential for using the Severn's tidal energy in a much better way."

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Images:
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Notes to editors

- The tidal reef would hold back only two metres of water, rather than the 10 metres required by the Cardiff-Weston barrage. This would limit the delay in the natural tidal cycle. This cycle is key to maintaining the Severn Estuary's

important habitats. Click here http://www.severntidal.com/ <http://www.severntidal.com/> for more details of the tidal reef proposal

- Details of the government's feasibility study of energy options for the Severn Estuary are here: http://www.berr.gov.uk/whatwedo/energy/sources/renewables/explained/severntidalpower/page41473.html <http://www.berr.gov.uk/whatwedo/energy/sources/renewables/explained/severntidalpower/page41473.html>
- A Cardiff-Weston barrage could generate 17,000 gigawatt hours of electricity each year. Atkins says a tidal reef would generate 20,000 gigawatt hours of electricity annually. The cycle of the tides in the Severn means that a barrage would not necessarily provide electricity at peak times. The effect of tides on a reef would be far less.
- Barrage costs were last estimated in the 1980s when they were calculated at £15 billion. A tidal reef would cost £2 billion less.
- A report by economists, published in June, showed that the power generated by a ten-mile barrage across the Severn Estuary could be produced significantly more cheaply using other green technologies. The report also found that the use of taxpayers money to build a barrage would break Treasury rules for financing large projects.
- Atkins is the largest firm of consulting engineers in Europe and has unique experience of marine renewable energy and offshore oil platforms.
- Plans to build a barrage across the estuary were dismissed in the 2003 Energy White Paper because the scheme would cost too much and would damage the numerous estuary sites protected because of their importance to wildlife.
- The 35,000-hectare (86,500-acre) Severn Estuary is protected under the international Ramsar wetland agreement, is a Special Protection Area and has three candidate Special Areas of Conservation under European laws. There are several Sites of Special Scientific Interest in and on the banks of the estuary, all protected by UK law.
- It hosts about 68,000 birds in winter, including huge flocks of dunlin and shelduck, together with Bewick's swan, curlew, pintail, wigeon and redshank. Breeding birds feeding on the estuary in summer include curlew, shelduck and oystercatcher.

- At least 30,000 salmon and tens of thousands of shad, lampreys and sea trout use the estuary to reach spawning grounds in the Usk and Wye rivers. Eels swim back down these rivers to reach spawning grounds at sea with millions of elvers returning in the spring. A barrage would block the path all of these fish take. The Wye River and Usk River are Special Areas of Conservation because of their importance to migratory fish. The Severn Estuary is a candidate SAC.
- The estuary's 45-foot tidal range - the second largest in the world after the Bay of Fundy in Nova Scotia, Canada - creates numerous areas of saltmarsh, mudflat and rocky islands at low tide regularly providing food for wildlife. A barrage would reduce the Severn's tidal range by half leaving many feeding areas permanently under water.

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