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WWF-UK Policy Position Statement Tidal Energy in the Severn Estuary

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WWF-UK policy position on Tidal Energy in the Severn Estuary

SUMMARY OF WWF-UK POSITION

WWF believes that a revolution in our energy systems is vital if we are to meet the challenges of climate change and energy security. Our absolute priorities must be a strong drive for energy efficiency and sustainable, low-impact renewable energy technologies. We strongly support the government's commitment to deliver the UK's fair share of the EU renewable energy target for 2020, but in doing so it must respect wider concerns over environmental sustainability. WWF is concerned that the Feasibility Study into Tidal Power in the Severn Estuary will prioritise energy output over environmental and economic impacts, resulting in a bias towards traditional generation proposals that are more fully developed without full and proper consideration being given to all possible alternatives. We therefore call on the government to ensure that alternative, lower-impact options to exploit the Severn's tidal energy are not excluded from the ongoing feasibility study, and to ensure that its overall energy policy is designed to deliver rapid uptake of lower-impact technologies both in the Severn and across the UK.

INTRODUCTION AND SUMMARY

The UK government is carrying out a feasibility study into tidal power in the Severn Estuary; the two-year study will be completed at the end of 2009. Tidal power in the estuary has the potential to contribute up to 5% of present UK electricity demand (a little less than 1% of overall UK energy consumption). The full barrage scheme would be costly – estimated at £15 billion based on a 2006 update of a 1988 estimate.

The Severn Estuary is a wildlife habitat of European significance, which is reflected in its status as a Special Area of Conservation (SAC) under the European Habitats Directive. The rivers Wye and Usk are also designated as SACs, in part because of their migratory fish populations which are wholly dependent on the Severn Estuary.

The government has also been consulting on its Renewable Energy Strategy, with a closing date of late September 2008. This RES has the aim of meeting the EU renewable energy target which is strongly supported by WWF.

In this context, WWF has sought to form a preliminary view on the potential for tidal power in the Severn Estuary, although this view cannot be confirmed until the results of the feasibility study and other assessments (including a Strategic Environmental Assessment [SEA] under the EC Directive on SEA and an Appropriate Assessment under the EC Habitats Directive) have been properly considered.

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WWF is concerned that a Severn Barrage may impose unacceptable environmental impacts on the estuary and entail a serious breach of the Habitats Directive. We therefore call on the government to ensure that alternative, lower-impact options to exploit the Severn's tidal energy are not excluded from the ongoing feasibility study, and to ensure that its overall energy policy is designed to deliver rapid uptake of lower-impact technologies both in the Severn and across the UK.

WWF's LOCUS

Tackling climate change is central to WWF's mission, through our global programme and Network Initiatives. We work closely with the Welsh Assembly Government, with the UK government on sustainable housing and the development of the Climate Change Bill, in Europe with the power sector and with governments on the Emissions Trading Scheme, and globally with finance, business and with governments promoting Kyoto and its successor agreements. We are partners in a new £100 million global project to conduct scientific research, stimulate activism and advocate solutions at the interface between climate change and freshwater ecosystems. Work on our many field projects throughout the world has given us unrivalled firsthand knowledge of the impacts of climate change on wildlife and human livelihoods.

We are also very supportive of low-impact renewable technologies, which we described in our 2002 report *Turning the Tide* – the first assessment of the potential of tidal energy in the UK. In April 2007 we published *Climate Solutions*, which set out at a global level how climate change can be tackled through a combination of demand reduction, energy efficiency and low-impact renewable technology. In October 2007, we published *80% Challenge – Delivering a Low Carbon UK* in conjunction with the RSPB and IPPR, in which we showed that the UK can reduce land-based carbon emissions by up to 95% by 2050 without recourse to nuclear energy, excessive biofuels or the full Severn Barrage.

Our position has consistently been that we support much tougher emissions targets for the UK through the Climate Change Bill and for the EU, and that we consider that these targets can and should be met using sustainable and low-impact technologies.

CLIMATE CHANGE AND ENERGY POLICY

WWF believes it is vital to address the energy crisis through a combination of energy efficiency, demand reduction, and renewable and sustainable low-carbon technologies.

While simply meeting UK government and EU targets should not be the only driver, we do believe that the EU renewable energy target is a very important milestone.

WWF joined other environmental NGOs in commissioning Frontier Economics to assess the economic performance of a barrage. Its report, published in June 2008, concluded that there is no case for the government to make a special case of the barrage through public funding or special financial arrangements. While the Cost Benefit Ratio of the scheme must never be the paramount reason for its choice, it is important that scarce resources are invested as wisely as possible in energy futures. There are strong arguments in favour of government intervention in the marketplace, but subsidising the full Severn Barrage may not be the best use of such an intervention; for instance, WWF would like the government to investigate the value of setting up an offshore supergrid.

Severn Estuary potential

WWF agrees that there is huge potential to take advantage of the tidal range in the Severn Estuary for energy generation, as it is the second highest tidal range in the world. However, we are certain that low-impact modular technologies should be fairly and equally considered alongside permanent irreversible civil engineering solutions.
Any government investment in the £15 billion-plus cost of a barrage will inevitably divert resources from other renewable energy technologies, including other tidal energy technologies, many of which are being developed by institutions in the UK and which have applicability (and business potential) all round the world. Most other renewable technologies are cheaper per unit of output than a full barrage, according to Frontier Economics.

The government's feasibility study should ensure that all marine tidal technologies can be considered equally. According to WWF legal opinion, the alternative solutions to be considered by the UK government must be properly matched to the main objectives of the project which underpin the claim for imperative reasons of overriding public interest (IROPI); hence a barrage principally designed to produce long-term carbon-free energy at reasonable cost should be assessed against other potential ways of achieving those objectives. It follows that the possibility of tidal power of whatever sort – and indeed other forms of renewable energy elsewhere in the UK – must be assessed as possible alternatives.

Finally, it is important to recognise that none of the technologies proposed for the Severn Estuary – tidal range, tidal stream or hybrid – is proven at this scale. It is notable that Canada, the only country with similar tidal energy potential, is not considering tidal barrages, is very concerned about the potential impacts of tidal lagoons, and is much more in favour of tidal stream turbines. The Fundy Tidal Energy Strategic Environmental Assessment published in April 2008 concluded that 'until near and far-field effects of marine renewable energy are well understood and deemed to be acceptable, development should take place by modest increments supported by an effective and transparent research and monitoring program, installations should be removable, and clear thresholds should be established to indicate when removal would be required'[1].

Environmental impacts

Any tidal proposal in the estuary will have some impact on an internationally important and sensitive habitat, and this needs to be fully and fairly evaluated, both through the ongoing Strategic Environmental Assessment and through the Appropriate Assessment to evaluate the impacts of the barrage on the features of interest of the SAC/SPAs in accordance with Article 6(3) of the EC Habitats Directive.

The more permanent and invasive the structure, the more severe the impact, both within the Severn Estuary SPA and SAC, and also within the upstream SACs of the rivers Wye and Usk. These impacts will necessarily include loss of intertidal mudflats and salt marshes, and impacts on the free movement of migratory salmon and other fish species.

The SDC concluded, and most fish experts agree, that building a barrage would result in fish stock eradication. The Severn Estuary has 110 species of fish, including seven different migratory fish; this is more than any other British estuary. The Severn is one of the most important British estuaries for several rare species, including river lamprey, sea lamprey and twaite and allis shads, and a run of migratory salmon and sea trout. These fish pass through the estuary on their way to and from their spawning grounds in the upper reaches of the rivers and the open sea. The estuary also has the largest eel run in the country, with established elver fisheries on the rivers Parrett, Severn, Wye and Usk.

[1] http://www.offshoreenergyresearch.ca/OEER/SEAHome/tabid/117/Default.aspx

The barrage is seen by some as a way of urbanising south-east Wales and south-west England to create a metropolis with links to motorways and airport expansion. Proposals for renewable energy generation should be seen as just that – not as a serendipitous short cut to wider development which could lead to higher net CO_2 emissions. If any ancillary development is proposed to financially enable the barrage, then it should be fully considered as part of the SEA and the IROPI assessment under the Habitats Directive.

WWF is also concerned about the sourcing of construction materials, CO_2 emissions associated with its construction and from production and use of construction materials such as concrete. According to WWF legal opinion, the application of the IROPI test must take into account the detrimental consequences that will flow from the construction, maintenance and operation of the barrage and its infrastructure, and from carrying out compensatory works.

It will be virtually impossible to remove such a construction if better technologies emerge in future. No barrage proposal has ever factored in the cost of decommissioning.

Habitats Directive

The integrity of the Habitats Directive must be maintained; any proposal should comply with the Directive, not only in genuinely considering alternatives, but also in providing truly compensatory habitats.

The aim of the Directive (as set out in Article 2) is to contribute towards ensuring biodiversity through the conservation of natural habitats and wild flora and fauna throughout the EU. However, measures taken pursuant to the Directive may take account of economic, social and cultural requirements and regional and local characteristics. As such, the Directive seeks to make a contribution to the general objective of sustainable development (see 7th Preamble to the Directive). In order to do this, it sets out a process for evaluating the likely impacts on a Natura 2000 site arising from a particular project or projects; whether there are available alternatives that should appropriately be pursued; whether a project should be progressed for imperative reasons of overriding interest (including those of a social or economic nature); and whether suitable compensatory measures to ensure the overall coherence of Natura 2000 can be provided. Each of these steps must be rigorously followed if the integrity of the Directive is not to be eroded.

We have very real concerns as to whether an adequate compensatory package can ever be provided, with reference to the extent of habitat that would be needed to compensate for the loss of the mudflats and (in particular) how the UK can compensate for the impact on species of migratory fish for which the Severn provides a stronghold. Our Counsel's opinion suggests the UK cannot provide a package of compensation which falls short of being equivalent to that which is lost; that the designation of additional SACs/SPAs can only form part of a package which also includes recreating or improving the areas so designated or classified ; that the UK government must take into account the special features of the Severn (its size, shape and extreme tidal conditions) when considering compensation and, more especially, the quantum of that compensation; and, finally, the question of whether rivers can be found elsewhere in the UK which are capable of providing a spawning ground to equivalent populations of the various species forming part of the SAC designation, such as Atlantic salmon, the shads and the lampreys .

REFERENCES

- BERR TOR for Feasibility Study www.berr.gov.uk/files/file43810.pdf
- RES consultation summary http://renewableconsultation.berr.gov.uk/

- *Turning the tide: Power from the sea and protection for nature*. Report to WWF-UK from Iwan Ball, Cardiff University, December 2002.
- *Climate Solutions: The WWF Vision for 2050.* Paper prepared for WWF International's Global Energy Task Force by Karl Mallon, Greg Bourne and Richard Mott.
- *80% Challenge: Delivering a low-carbon UK*. IPPR, WWF and RSPB, November 2007.
- *Analysis of a Severn Barrage: a report prepared for the NGO Steering Group* by Frontier Economics. June 2008
- SDC report www.sd-commission.org.uk/publications.php?id=607

OTHER RELEVANT WWF POLICY POSITION STATEMENTS

WWF-UK Viewpoints on Planning (2008) – Q&As on the UK Planning System
WWF-UK Position on Ecotowns (2008)

FEEDBACK

We are keen to receive your views and comments in response to this Policy Position Statement, which we will be regularly updating. We also need to be aware of any new piece of work/research/evidence that you have undertaken that may affect this Policy Position Statement. There may also be gaps in the current position which we may not be aware of and which you may wish to highlight for any future review. Click here to email your feedback, and please state which Policy Position Statement you are referring to.