

# Executive Summary

The UK has the potential to generate large amounts of clean and secure electricity from the tides. Using both types of tidal resource – tidal stream and tidal range – we could supply at least 10% of the UK's electricity if fully exploited, around 5% from each resource. Such a substantial prize deserves very close attention as part of much wider action aimed at tackling the twin challenges of climate change and energy security.

This report discusses both tidal stream and tidal range technologies, and considers a wide range of research, including the results of a public and stakeholder engagement programme. It presents the Sustainable Development Commission's position and recommendations on proposals for a Severn barrage which, if built, would utilise a very large proportion of the UK's tidal range resource, and could generate large quantities of low carbon electricity for over 120 years.

There is minimal conflict between the exploitation of tidal stream and tidal range resources, or between the technologies that might be deployed. The best tidal stream sites are in the north of Scotland, with significant potential also around north Wales, Northern Ireland, and the Channel Islands. The tidal range resource is concentrated in the estuaries off the west coast of Britain, including the Severn, the Mersey and the Humber.

## Tidal stream technologies

In addition to having an excellent tidal stream resource – one of the best in Europe – the UK is currently leading the world in the development of a wide range of tidal stream devices. The long-term potential for this new industry – both in terms of its contribution to UK electricity supply, and its export potential – is considerable. The UK's success so far can be attributed to the ingenuity and perseverance of the device developers combined with the commitment shown to date by the UK and Scottish Governments.

However, this nascent industry still has a long way to go, with all the devices in the demonstration and testing stage of development. Taking the successful technologies on to full commercial deployment will require sustained Government support – both financial

Exploiting our tidal energy resources will require concerted action on a number of fronts. The tidal power technologies that could be deployed are very different in both design and level of development. Tidal stream devices are currently at the demonstration stage, and will require many years of targeted support to reach commercial maturity. Tidal barrages, on the other hand, are a proven, but highly capital-intensive option that would require a strong lead by Government to be built. With tidal lagoons, a lack of evidence means that the priority should be filling information gaps through practical, on-the-ground experience so that long-term viability can be better assessed.

However, all tidal technologies have a number of environmental, social and economic impacts that need to be considered. In particular, the impact of a Severn barrage on internationally protected habitats and species, is of great concern.

In this report, the Sustainable Development Commission (SDC) lays out a series of recommendations for Government on how to develop the UK's tidal power resources. On the issue of a Severn barrage, we consider the conditions under which such a scheme would be consistent with the principles of sustainable development, and issue clear advice to Government on how this should be taken forward.

and practical. Innovation, and the development of new low carbon technologies such as tidal stream generators, needs to be a fundamental part of the UK's response to the challenge of climate change. The Government must increase R&D expenditure and become less risk-averse in supporting innovation.

As a result of the Government's plan to introduce technology banding to the Renewables Obligation, there is now an opportunity to build on the success of the Scottish Government's marine energy support programme by changing the focus of the UK Government's Marine Renewables Deployment Fund (MRDF) from revenue to grant support. This could better serve the needs of the tidal stream industry by providing access to funds aimed at encouraging pre-commercial demonstration.

The successful European Marine Energy Centre (EMEC) in Orkney, which provides a testing site for wave and tidal devices, must be used to its full potential. The centre could benefit from additional funding to offer a wider range of services, including certification of devices, baseline environmental data, and an expanded marine energy research role.

Furthermore, Government should explore the opportunity to develop a regional tidal stream cluster, or 'hub', around the Orkney islands and parts of the Caithness & Sutherland coastline. This could make good use of the less challenging conditions in these locations to develop a coordinated pre-commercial testing programme. There is potential for a new interconnector to the Orkney islands, and

a need for better coordination to decide how to make use of available capacity between Dounreay and Beaulieu. The SDC recommends that work developing a regional 'hub' is led by the Scottish Government, in conjunction with EMEC, the Nuclear Decommissioning Authority, and Highlands & Islands Enterprise.

Finally, the SDC is very concerned over the long-term ability for tidal stream generation to connect to the electricity transmission system due to a lack of capacity. There is a real absence of long-term thinking on the part of Ofgem and the Government on the solutions necessary to overcome this constraint, which is a particular threat to the development of tidal stream in the north of Scotland.

### In summary

- **The UK should 'stay the course' in supporting new tidal stream technologies**
- **Innovation funding in the UK must rise, with a commitment to support the development of tidal stream devices at every stage of the innovation chain**
- **Government should consider the potential for EMEC to become a tidal stream development and research hub to build on the success of this resource**
- **Ofgem and Government must urgently increase the capacity of the electricity transmission system to accommodate renewables over the long term.**

## Tidal range technologies

As yet there has been no attempt to exploit the UK's large tidal range resource, despite numerous project proposals going back many decades. Virtually all of these have focused on the construction of tidal barrages, which use similar technologies to hydropower dams and are therefore relatively mature. However, the high capital cost and concerns over environmental impacts have prevented a barrage ever being built in the UK, despite examples in France and Canada operating successfully.

Likewise, the concept of a tidal lagoon is not a recent proposition. Not one has ever been built anywhere in the world, and although the technologies used would themselves be classed as mature, the concept itself is unproven due to a number of remaining uncertainties over design, construction methods and physical impacts. This means there is a lack of evidence with which to assess the long-term potential of tidal lagoons, despite a potentially significant resource in shallow

water areas around the UK.

To help fill this information gap, the SDC believes there is a strong public interest in developing one or more tidal lagoon demonstration projects in the UK. We recommend that the Government takes this forward by providing financial support to encourage private sector or joint initiatives – either through increased support under the Renewables Obligation or by announcing a one-off competition. There should be a requirement that the research that is conducted is placed in the public domain.

On tidal barrages, our analysis has focused on the issue of a Severn barrage, which is dealt with separately. But we have also looked at the extensive resource outside the Severn Estuary, including the well-developed proposals for the Mersey Estuary. We are supportive of selective further investigation of barrages outside the Severn, and our recommendations on a Severn barrage will also be relevant to other barrage schemes.

Our evidence suggests that there is no serious conflict between the tidal stream and tidal range technologies that could be deployed in the Severn. Tidal stream devices are unlikely to be viable in the Severn Estuary, but there are more appropriate conditions further out in the Bristol Channel. Small-scale tidal lagoon development could take

place alongside a tidal barrage. The only option ruled out by a barrage would be large-scale tidal lagoon developments, as these would be directly competing for resource. We do not consider that large-scale tidal lagoon development in the Severn Estuary would offer any economic or environmental advantage over a barrage.

### In summary

- There is minimal conflict between the potential development of tidal stream, tidal barrages and tidal lagoons
- There is strong justification for the development of at least one tidal lagoon demonstration project
- Government should offer incentives to encourage the development of a demonstration project, with the results of any research undertaken placed in the public domain
- There should be further strategic investigation of barrages outside the Severn based on rigorous application of the five principles of sustainable development.

## A Severn barrage

A number of different barrage options have been proposed for the Severn Estuary. This report considers two of these in more detail. The Cardiff-Weston scheme is one of the larger options proposed, and would have a generating capacity of around 8.64GW. The Shoots scheme (which would run near to the two Severn road crossings) is a smaller, 1.05GW proposal, with an annual output of around 2.75TWh.

The SDC's public and stakeholder engagement programme showed that 63% of the public in a national opinion poll had no knowledge of proposals for a Severn barrage; 18% had only a little knowledge. After being given summary

information on a barrage proposal, including the potential advantages and disadvantages, 58% of people across the UK were in favour of a barrage and 15% against. This support was mainly because of the perceived climate change benefits.

The results of the public workshops held in Bristol and Cardiff (where more detailed information was provided) were also in favour of a barrage, as delegates felt the benefits outweighed the disadvantages. However, stakeholders were far less positive over the net benefit of a barrage, with a large number of concerns raised over the perceived negative impacts, particularly those affecting the environment.

### Power output and cost summary for the two main Severn barrage options

		Cardiff-Weston	Shoots
Length of embankments		16.1km	4.1km
Generating capacity		8.64GW	1.05GW
Annual average electricity output		17TWh	2.75TWh
Contribution to UK electricity supply (2006 data)		4.4%	0.7%
Estimated cost of construction		£15bn	£1.5bn
Estimated cost of output at various discount rates (high case scenario)	2%	2.31p/kWh	2.58p/kWh
	3.5%	3.68p/kWh	3.62p/kWh
	8%	9.24p/kWh	7.52p/kWh
	10%	12.37p/kWh	9.54p/kWh
	15%	22.31p/kWh	15.38p/kWh

## Potential benefits

The assumption is that both barrages would be operated on the ebb tide, with the addition of ‘flood pumping’ to increase the total energy output. This means that they would be generating electricity for around 7-8 hours on each tide, and output would vary within this period. As a result, the annual output of each barrage is less than that implied by their size. If built, the Cardiff-Weston scheme would generate 17TWh per year, which is equivalent to around 4.4% of UK electricity supply. This is the same level of output as would be produced by just over two conventional 1GW power stations.

The high capital cost of a barrage project leads to a very high sensitivity to the discount rate used. At a low discount rate of 2%, which could be justified for a climate change mitigation project, the cost of electricity output from both barrage proposals is highly competitive with other forms of generation. However, at commercial discount rates of >8%, these costs escalate significantly, making private sector investment unlikely without significant market intervention by Government.

The timing of output from a Severn barrage, regardless of the scheme, is not optimal. On average, both proposals would produce more power at the times of the day when demand is lowest. Nevertheless, electricity from a barrage would displace output from fossil-fuelled power stations, and would make a genuine and sizeable contribution to meeting the UK’s targets on renewable energy and on reducing carbon dioxide emissions. The SDC does not believe that the variability in output from a barrage, which is highly predictable, would raise any significant technical challenges for the operation of the electricity grid. As we showed in our 2005 report on wind power, variability is something that can be managed at very low cost.

As well as being an energy-generating project, a Severn barrage is often seen as a way to provide

additional flood protection to low-lying land along the estuary, and additional transport links. On flooding, a barrage would provide some additional upstream benefit against the risk of coastal flooding (such as a tidal surge) and would counter the effect of rising sea levels. However, existing flood defences would still need to be maintained, and a barrage would provide no additional protection from fluvial flooding events.

The SDC’s conclusion is that there would be substantial flood risk benefits from a barrage, but these are only marginal to the economic case for its construction. Without a barrage, it is very unlikely that the Environment Agency would seek to provide this increased level of flood protection when it is viewed against all the other competing priorities for limited resources. The flood protection benefits of a barrage should therefore be seen as ancillary to a primarily energy-generating project. Options for increased levels of flood protection through alternative barrage alignments or designs should be valued in a way that is consistent with existing policy on coastal flood risk and through a strict analysis of the additional costs and benefits that would result.

On the potential for new transport links over the top of a barrage, the SDC believes that these benefits may have been overstated. There is little evidence showing how a road or rail crossing would actually be designed, and we conclude that this would present a number of challenges due to the existence of one or more ship locks, and could be very costly. On the question of identified need, there is nothing to indicate a strong justification for an additional road link. The case is stronger for a new rail link, to replace the aging Severn Tunnel crossing, but this would need to be considered against the alternative option of building a dedicated rail bridge or a new tunnel, neither of which require a barrage project to go ahead.

### In summary

- Electricity from a barrage would displace output from fossil-fuelled power stations, making a significant contribution to the UK’s renewable energy targets
- The variability in output from a barrage is not a major problem for the electricity grid and can be managed at very low cost
- There would be substantial flood risk benefits from a barrage, but these are only marginal to the economic case for its construction
- The case for new transport links over a barrage is unproven, and needs to be assessed looking at the net costs and benefits.

## Conditions for sustainable development

The SDC has approached the issue of a Severn barrage from a general position that favours renewable energy. We have then examined the conditions under which a barrage might be sustainable, focusing on a number of controversial, potentially 'deal-breaking' issues.

This approach neither signifies the SDC's unquestioning support for a barrage, nor proposes a set of conditions which we believe would make it impossible to develop. Instead, we have considered a Severn barrage within a framework that places a

high value on the long-term public interest and on maintaining the overall integrity of internationally recognised habitats and species.

We do not take a position on the relative merits of the various barrage schemes but have instead considered the issues generically, with an inevitable focus on the larger Cardiff-Weston scheme due to the availability of more detailed evidence and the greater degree of impact it would have – environmentally, economically and socially.

### In summary

- The SDC has approached the question of a Severn barrage by looking at the conditions under which its development might be sustainable
- We have done this within a framework that places a high value on the long-term public interest and on maintaining the overall integrity of internationally recognised habitats and species.

## Energy policy context

The SDC has a number of concerns over how a decision in favour of a Severn barrage might impact on wider energy policy aims. There is a risk that the development of a barrage might divert Government's attention away from the other necessary solutions to the challenge of climate change.

A Severn barrage has a number of disadvantages that are similar to those of nuclear power, and developing such a large amount of electricity generating capacity in a single location would not of itself move the UK any closer to a more decentralised energy system. Furthermore, the SDC is concerned that development of a highly-centralised Severn barrage project could frustrate efforts to reduce energy demand, as consumers perceive a barrage to be a solution to climate change mitigation, relieving them of the need to act.

Despite recent progress with the Climate Change Bill and the 2007 Energy White Paper, the SDC believes that the Government does not yet have

the policies in place to deliver the carbon savings that will be required to 2050 – and in particular, the delivery of emissions reductions over the next 15 years. As shown by the Stern Review, action to reduce carbon emissions needs to be 'front-loaded' to have the best chance of stabilising the average temperature rise to no more than 2°C. The new EU target for 20% of energy to come from renewable sources by 2020 will also be a major challenge.

Nevertheless, in the light of increasing public concern over climate change and a greater political willingness to tackle the issue head-on, the SDC believes that a Severn barrage could be pursued as part of a major drive to reduce emissions substantially over both the short and the long term. A robust climate change and sustainable energy policy is an essential pre-requisite for development of a barrage. If this exists, there is the potential for a Severn barrage to be used as a symbolic example of the scale of action that is required.

### In summary

- Development of a Severn barrage must not divert Government's attention away from much wider action on climate change, including the development of a more decentralised energy system and the reduction of energy demand
- There is increased public and political space for action on climate change – it is therefore possible for Government to deliver on a Severn barrage as part of a comprehensive and radical programme on climate change.

## Ensuring the public interest

If built, a Severn barrage would be designed to generate electricity for at least 120 years. It would be a major addition to the landscape, and would have fundamental environmental, social and economic impacts on the surrounding area. These timescales emphasise the need for any barrage project to be designed and delivered in a way that ensures the long-term public interest rather than a short-termist, profit-maximising approach.

The SDC has a number of concerns over the apportionment of risks and benefits for any barrage scheme, particularly one that is led and owned by the private sector. It is very unlikely that a proposal for a Severn barrage would ever come forward without significant Government intervention, and a substantial funding package to pay for the initial research and evaluation. Once construction begins, the Government effectively underwrites the project due to its size and political significance. This increases the risk of moral hazard – i.e. that underinsured risks will be picked up by the taxpayer.

Despite taxpayers and consumers taking on a high level of risk, a barrage project led and owned by the private sector would not result in a fair distribution of the benefits, and the public would lose out.

A project of this kind also raises concerns over short-termism. A private sector developer would require a high rate of return on any barrage project, leading to a strong incentive to maximise near-

term revenues through inappropriate ancillary development. The SDC has identified a number of risks regarding the possibility of unsustainable development pressures as a result of a barrage – for example, housing development in green belt or environmentally sensitive areas, new transport infrastructure, negative impacts on local ports – and the implications of these on local communities and on the net carbon balance.

We are concerned that a profit-maximising approach would substantially increase these pressures, putting all the emphasis on the role of planning controls and regulation, rather than integrating sustainability into the barrage development itself. There is also the risk that a short-termist approach could lead to the use of sub-optimal construction methods and materials (possibly leading to higher levels of ongoing maintenance), as most commercial projects find it difficult to value adequately benefits that occur over the very long term.

Finally, development of a Severn barrage would require a highly coordinated, outcomes-based approach to strategic planning and consenting issues. The organisations involved would need to ensure that any project was integrated into local policy and planning frameworks. This favours an approach where such considerations are firmly embedded into the project developer's aims and objectives.

### In summary

- The long lifetime of a Severn barrage places a very high emphasis on ensuring the public interest in the design and delivery of any development
- The SDC has a number of concerns over the apportionment of risks and benefits for a Severn barrage scheme, particularly one led and owned by the private sector – taxpayers and consumers could end up with all the risks but none of the benefits
- Short-termism in the design and delivery of a barrage could lead to unsustainable ancillary development and possibly sub-optimal methods and materials used in barrage construction.



## Compliance with environmental legislation

The Severn Estuary is a unique and dynamic environment. It has the second largest tidal range in the world, combined with a high suspended sediment load, and has a number of special features, including extensive areas of salt marsh, and mobile sandbanks. It is an important site for migratory birds, and for fish movements in and out of the estuary's tributaries, such as the Wye and the Usk. For these reasons the Severn Estuary has been designated a protected site under national and international legislation.

The most important pieces of conservation legislation for a prospective Severn barrage are the EU Directives on Birds and Habitats (the 'Directives'), which protect sites designated as Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). The total amount of land protected under the Directives is a very small percentage of the UK, and the identification of sites is a science-led process that is based on protecting important ecosystem types and threatened bird species. The Severn Estuary is a SPA and a candidate SAC. The aim of designation is to protect against biodiversity loss by conserving a series of important or at-risk habitats and species that make up the Europe-wide Natura 2000 network.

The Natura 2000 network is based on the need to conserve biodiversity across Europe, and internationally. Biodiversity is a measure of both quantity and quality, and therefore distinctiveness. An increase in the total quantity of plant or animal life living in a particular location may not in itself represent an increase in biodiversity if the species concerned are commonly found elsewhere.

The Severn Estuary is a relatively unproductive environment due to the harsh conditions; yet it is host to a number of highly distinctive features and species. Its sheer size ensures that while species density may be relatively low, total numbers of some bird populations, for example, are very significant. Therefore, while a barrage might result in an increase in biological productivity, any reduction in the quantity of rarer species might lead to an overall loss of biodiversity.

The SDC is convinced that the Severn Estuary will remain an important area for biodiversity, despite the impacts of climate change. Warmer weather may account for some of the current observations of bird species shifting to estuaries on the east coast of England, but there is no certainty as to how

climate change impacts will manifest themselves over the long-term. As a result, the Severn Estuary will remain an important future option for migratory bird species. Furthermore, the estuary may play host to new species that are forced to shift away from more southern locations – this illustrates the importance of considering the trans-boundary nature of biodiversity.

The Directives are intended to facilitate sustainable development, by ensuring that environmental conservation objectives are adequately considered when proposals are put forward that would negatively impact on protected habitats or species.

Any development that is proposed within a SPA or SAC must go through a series of tests, as outlined by the Directives. If an 'appropriate assessment' identified the likelihood of adverse impacts, then the process that must be followed is:

1. Consideration of alternatives: The first test then requires an assessment of the alternatives, including the 'zero' (no-development) option and ways to mitigate against any adverse impacts.
2. Overriding public interest: If there are no viable alternatives to the development, then a political decision can be taken to proceed on the basis of 'imperative reasons of overriding public interest'. This decision would normally be taken by a Secretary of State.
3. Compensation requirement: If this is the case, there is then a compulsory requirement to provide compensatory habitat to ensure the overall coherence of the Natura 2000 network. The practicality and cost of this requirement represents the final test of the overall viability of the proposal.

Providing habitat compensation could include the creation of new habitat, the restoration of existing habitat, or the recreation of habitats within the site, in other designated sites, or in non-designated sites (and then designating them). It may also be possible to designate other estuaries not currently designated as SACs. To compensate for impacts on fish, compensation could involve the artificial restocking of certain fish species to maintain overall numbers.

The SDC has looked closely at the relevance of the European conservation legislation in the face of climate change. Some commentators have argued for a relaxation of the Directives when they are applied to projects that would reduce carbon emissions. The SDC believes that applying the principle of 'living within environmental limits', which is one of the UK's sustainable development principles, must result in the creation of absolute limits and boundaries if the concept is to have any meaning. Biodiversity objectives become even more important in a world impacted by climate change, and economic development must take place within the environmental constraints imposed by both biodiversity and climate change objectives.

As a result, the SDC believes that the UK's legal obligation to protect habitats and species that contribute to the overall viability of the Natura 2000 network should be vigorously upheld. The Directives

provide a clear and robust legal framework for achieving sustainable development and therefore compliance with the Directives is a central condition for a sustainable Severn barrage. The SDC would be firmly against moves to reform or derogate from the Directives, as this would send a dangerous signal to other European member states that could end up harming compliance with the Directives, and the biodiversity objectives that they uphold.

This means that proponents of a Severn barrage must be prepared to fully comply with the process laid out by the EU Directives, including the requirement for a full compensatory habitats package to be in place before a barrage is built. Providing compensatory habitat on this scale would be a very significant undertaking matched by an equally high cost, but it needs to be seen as a central part of any proposal which may eventually dictate whether or not it can proceed.

### **In summary**

- **The Severn Estuary is a distinctive habitat that is protected by national and international designations – in particular, the EU Birds and Habitats Directives, which apply a series of tests to prospective developments**
- **A Severn barrage could lead to a loss of biodiversity, resulting in the need for a compensatory habitats package to maintain the overall integrity of the Natura 2000 network**
- **The EU Directives provide a clear and robust legal framework for achieving sustainable development and therefore compliance with the Directives is a central condition for a sustainable Severn barrage**
- **Providing compensatory habitat would be a very significant undertaking on a scale hitherto unprecedented in the UK – but this would have to be an integral part of any barrage proposal.**

## **Our advice to Government**

The SDC believes that there is a strong case to be made for a sustainable Severn barrage, subject to the conditions we outline in this report. This is the consensus view of all 19 of the SDC's Commissioners. Our headline advice to Government is as follows:

A decision in favour of a Severn barrage should only be part of a major effort to deliver at least a 60% cut in greenhouse gas emissions by 2050, with action loaded towards the next 20 years.

A barrage should only be considered within the constraints imposed by the European environmental legislation. As a result, the provision of compensatory habitat should be seen as a core part of any barrage project, and there should be no attempts made to

weaken or derogate from the Directives.

Providing compensatory habitat is not a burden on the project; rather, it represents an 'environmental opportunity' to use a revenue-generating climate change mitigation project to help fund a large-scale compensation package that is designed around the need for climate change adaptation. This could be linked to coastal realignment strategies, which can have a number of flood protection benefits. The Government should seek a progressive interpretation of the Directives that takes into account climate change impacts on the long-term integrity of the Natura 2000 network of protected sites.

Finally, the SDC believes that a barrage should



be publicly-led as a project and publicly-owned as an asset to ensure long-term sustainability in its design and delivery, and a fair allocation of risks and rewards. We believe that a publicly-led approach would be the best way to ensure against unsustainable ancillary development as a result of a barrage, and the early integration of local and regional economic and social priorities.

A publicly-led approach would enable the use of a low discount rate, justified by the long-term climate change benefits and potentially facilitated by the Government's access to low cost capital.

### **In summary**

- **The SDC believes that there is a strong case to be made for a sustainable Severn barrage**
- **Much wider and stronger action on climate change is a pre-requisite for the SDC's support**
- **There may be an 'environmental opportunity' available by linking a compensatory habitats package to climate change adaptation**
- **A Severn barrage must be publicly-led as a project and publicly-owned as an asset to ensure long-term sustainability**
- **Government should consider a range of innovative financing mechanisms that would maintain overall public control and ownership of the project.**

### **Moving forward**

The SDC's recommendations are a major challenge to current Government energy policy. However, the approach we prescribe would enable Government to deliver a significant quantity of new renewable energy without compromising our international obligations on conservation and biodiversity.

Proposals of this scale require a new approach to decision-making. Government must avoid a 'decide-and-deliver' approach, and not set off on a pre-determined course of action where important conditions and principles could eventually be discarded. Instead, it must reflect on the wider implications of such a decision, and engage widely with stakeholders and public to ensure that their concerns and opinions are taken into account.

A crucial first step will be to obtain an early indication of the feasibility of compliance with the European environmental legislation, and the cost of achieving this. This should include an analysis of whether there is an 'environmental opportunity' available for linking the compensatory habitat package to climate change adaptation policies, and this would require early discussions with the

European Commission. As the SDC has clearly stated, if compliance with the Directives is found to be scientifically or legally unfeasible (which, in the light of our current investigations, we do not believe it would be), then proposals for a Severn barrage should not be pursued, as the development would fail to satisfy the principle of 'living within environmental limits'.

There is a strong need for a cross-Government approach to this issue. As energy policy is a reserved matter, it is appropriate for the UK Government to take the lead, with close cooperation required between BERR, Defra and, critically, the Welsh Assembly Government, as well as the relevant statutory agencies. There is also a distinct and important role on strategic planning and economic development issues that should fall to the South West of England Regional Development Agency as well as the Welsh Assembly Government.

The SDC's advice to Government is based on our assessment of the current evidence, and it is up to the Government to decide how to proceed. However, the SDC would be interested in working

with Government and other key stakeholders to explore some of the substantive issues we raise, in particular the prospect of an environmental

opportunity, and in scoping out innovative financing options that maintain overall public control.

### **In summary**

- Government must avoid a 'decide-and-deliver' approach
- An early priority is to ascertain the scientific and legal feasibility of compliance with the EU Directives, and the likely cost of this
- There must be a cross-Government approach to this issue.