



# Renewable energy vs. biodiversity: Policy conflicts and the future of nature conservation

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## ABSTRACT

The European Union's (EU) network of nature conservation areas – Natura 2000 – covers almost 18% of EU territory, and is subject to strict legal protection, which is enforced by the European Commission, a supranational authority. Given the Natura 2000 network's size, conflicts between Natura 2000 and renewable energy projects are inevitable, particularly as countries push to meet their 2020 energy and emissions reduction targets by pursuing more – and larger – renewable energy projects. Focusing on two cases in the renewable energy sector – a hydroelectric dam in Portugal's Sabor valley, and a large tidal barrage in the UK's Severn estuary – this article shows that the EU's strict biodiversity protection regime could necessitate the rejection of many large renewable energy projects. That is, it may not be possible as a matter of EU law for national authorities to grant permission for such projects. The potential for such difficulties will be shown to be highly visible to policymakers, and could, this article argues, trigger negative impacts in terms of the rule of law, and negative feedbacks on nature conservation policies in the EU and, by way of precedent, globally. The legal issues presented here should not, this article argues, be regarded as insurmountable problems, nor as a trigger for reforms aimed at weakening biodiversity protections. Rather, these issues are better regarded as an opportunity for an open, informed, global debate regarding the relationship between biodiversity and climate change policies, and the hierarchy, if any, between them.

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## 1. Introduction

"In developing climate change law," writes Hodas (2008, p. 399), "we must not forget the need to protect and enhance biodiversity ... Instead we should seek win–win sustainable development solutions that reduce [greenhouse gases] while protecting and enhancing biodiversity."

Seeking win–win solutions is all very well, of course. But what of the challenges posed by hard cases? Rearranging the above quote, how many would accept that, "In developing biodiversity law, we must not forget the need to tackle climate change"? After all, over the course of the next century, climate change is expected to become the first or second greatest driver of global biodiversity loss (Heller and Zavaleta, 2009).

In light of this fact, are there circumstances in which we might countenance the setting aside or relaxation of legal provisions aimed at biodiversity protection in order to pursue (what might be perceived to be broader) climate change goals? Or are provisions aimed at biodiversity protection sacrosanct, even if their application impedes policies aimed directly at addressing climate change?

The posing of such questions might be regarded as controversial by some conservationists. However, these are issues that policymakers will face in the coming years, and to date they have received scant attention.

This article examines the above issues, focusing on two cases in the renewable energy sector: a hydroelectric dam in Portugal's Sabor valley (the Sabor dam), and proposals for a tidal barrage in the UK's Severn estuary (the Severn barrage). Both projects were promoted, at least in part, on the basis of their potential for reducing greenhouse gas emissions. The Severn barrage, for example, would make a sizeable contribution to the UK's renewable energy targets, and hence to the UK's current efforts to address climate change (SDC, 2007). However, the UK government has recently concluded that it "does not see a strategic case to bring forward a Severn tidal power scheme in the immediate term [since] ... [t]he costs and risks for the taxpayer and energy consumer would be excessive compared to other low-carbon energy options" (DECC, 2010a, p. 8), and the project would be unlikely to be operational in time to contribute to the UK's 2020 energy and emissions reduction targets (Defra and DECC, 2010a,b). In the immediate aftermath of the government's decision, much was made of the projected cost of the project (up to £34.3 billion (>US\$56 billion)(DECC, 2010a)), which arguably led the government to favour other technologies, in other places, at least in the

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short to medium term (e.g. see Harvey, 2010). While a focus on the likely financial cost of the project is understandable given the prevailing economic climate, and while financial cost was certainly an important factor in the UK government's decision (DECC, 2010a), any such focus risks underplaying two important points. First, the UK government has acknowledged that there may be a review of the case for Severn tidal power at some later date (DECC, 2010a). Second, and more importantly, "regulatory barriers," according to the government, "create uncertainties that would add to the cost and risk of construction" of a barrage (DECC, 2010a, p. 8).

As this article will show, such regulatory barriers are a very important factor in any discussion of large renewable energy projects in the EU. In particular, the strictness of the EU's biodiversity protection regime could *in any event* have necessitated the rejection of the Severn project, and could yet necessitate the rejection of other large renewable energy projects across the EU. In other words, it may not be possible *as a matter of EU law* for national authorities to grant permission for the construction of such projects. The potential for such difficulties will be shown to be highly visible to policymakers, and could, this article argues, trigger negative impacts in terms of the rule of law, and negative feedbacks on nature conservation policies in the EU and, by way of precedent, globally.

## 2. The policy framework

### 2.1. Climate change and renewable energy policy

The future trajectory of renewable energy policy is clear: we are likely to see many more – and many large – renewable energy projects proposed over the course of the next decade. Pursuant to the Copenhagen Accord, Parties to the UN Framework Convention on Climate Change had until 31 January 2010 to submit their greenhouse gas emissions targets (Annex I Parties) or mitigation actions (non-Annex I Parties) for 2020 (UNFCCC, 2009). The EU has committed itself to achieving at least a 20% reduction in greenhouse gas emissions by 2020 compared to 1990 levels (European Union, 2010), and continues to examine options to move beyond this target (Environment Council of the EU, 2010a). Other major emitters have proposed less ambitious targets and actions: the US, for example, has pledged to reduce its greenhouse gas emissions by something in the range of 17% by 2020 from 2005 levels, dependent on certain domestic legislation being passed (US Department of State, 2010); China has proposed a 40–45% reduction in *carbon intensity* (emissions per unit of GDP) between 2005 and 2020 (DCCNDRCC, 2010), slowing the rate of increase rather than cutting back; and India has proposed a 20–25% reduction in carbon intensity over the same period (Government of India, 2010). Such emissions targets and mitigation actions are naturally accompanied by renewable energy goals. The EU, for example, has committed itself to a 20% share of renewable energies in EU energy consumption by 2020 (European Council, 2007), and has adopted legislation that sets mandatory national renewable energy targets for each EU Member State, to ensure the delivery of the overall EU target (Renewable Energy Directive, 2009).

### 2.2. Biodiversity policy

Running in parallel with emissions and renewable energy targets are biodiversity targets. At the global level, in 2002 the Parties to the Convention on Biological Diversity (CBD) pledged to achieve by 2010 a significant reduction in the then current rate of biodiversity loss (UNCBD, 2002). The EU again adopted a more ambitious target, seeking to halt biodiversity loss in the EU by 2010 (European Council, 2001). Both the EU's target and the global target

were missed (European Commission, 2010a; UNCBD, 2010), and the process of recalibrating these targets for the post-2010 period has recently concluded, following the tenth meeting of the Conference of the Parties to the CBD. The revised global aim is to take "effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication" (UNCBD, 2010, paragraph 12). The EU has adopted an even more ambitious headline target for 2020: "to halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, restore them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss" (Environment Council of the EU, 2010b, p. 2; European Commission, 2011a).

### 2.3. Policy complementarity and policy conflicts

EU policymakers argue that climate change and biodiversity policies should be complementary: "We cannot halt biodiversity loss without addressing climate change," notes a recent policy statement, "but it is equally impossible to tackle climate change without addressing biodiversity loss. It is therefore essential that climate change policy is fully complementary with biodiversity policy" (Message from Athens, 2009, p. 6).

In practice, such complementarity is not always in evidence. In October 2003, for example, construction activities at a large terrestrial wind farm in Derrybrien, Ireland, appear to have been the trigger for a landslide which caused an "ecological disaster", when the mass of peat which was dislodged polluted the Owendalulleegh river, causing the death of around 50,000 fish and lasting damage to the fish spawning beds (ECJ, 2008a, paragraph 89).<sup>1</sup> And the Derrybrien wind farm is not, of course, the only conflict (or potential conflict) between large renewable energy projects and EU biodiversity. Others include, for example, the Sabor dam and the proposed Severn barrage (discussed in section 4); proposals for a series of wind farms on the island of Skyros in Greece (Dimitropoulos and Kontoleon, 2009); and the so-called Spirit of Ireland project, which would combine several hydro-power storage reservoirs with large wind farms in the west of Ireland (Spirit of Ireland, 2010).

Such conflicts look set to be a defining feature of environmental discourse over the next decade, but again, to date the potential

<sup>1</sup> While the Irish government argued in its defence before the European Court of Justice (ECJ) that "the landslide was caused by the construction methods used and ... there was no question of difficulties which could have been anticipated by an environmental impact assessment" (ECJ, 2008a, paragraph 93), the full picture seems rather more complex. ... Bragg (2007, p. 6) notes that "the specific cause of the [landslide] could not be identified even by the geotechnical experts who visited the site immediately afterwards, and so viewed all the evidence in a 'fresh' state. ... [however], the most likely triggers were activities that were directly related to wind turbine installation." More generally, the Irish government's assertion that the landslide could not have been anticipated by an impact assessment is open to serious question. Lindsay and Bragg (2005, pp. 122 and 126) comment that "It is possible to make predictions about [peat] instability on a theoretical basis but evidence of actual peat movement is provided that indicates that the [Derrybrien] bog slide of 16 October 2003 was part of a recognisable pattern of behaviour rather than a unique event. ... A major bog slide occurred at an adjoining turbine some weeks prior to the slide of 16 October 2003 but this does not appear to have altered working practices or initiated a period of investigation." As such, it is strongly arguable that the 16 October 2003 Derrybrien landslide was the result of a decision-making failure by the Irish authorities. Indeed, as the ECJ (2008a, paragraph 112) held in its judgment against the Irish government: "by failing to take all measures necessary to ensure that the development consents given for, and the execution of, wind farm developments and associated works [e.g. road construction and peat extraction] at Derrybrien, County Galway, were preceded by an assessment with regard to their environmental effects, ... Ireland has failed to fulfil its obligations under [EU law]."

impact of such conflicts on the future of nature conservation policy has received little attention from policymakers.

#### 2.4. The EU as an environmental precedent-setter

Having adopted more ambitious renewable energy and biodiversity targets than most of its counterparts, the EU is an important testing-ground for conflicts between these policies. That is, if major conflicts are to arise, they seem likely to arise more frequently, and perhaps earlier, in the EU than elsewhere.

Two additional factors make the EU of particular global interest: first, in respect of biodiversity, the EU has become the “linchpin of international environmental policy” (De Sadeleer, 2008, p. 191), and it is hence a precedent-setter in this field; second, the EU’s network of protected areas is particularly large, and is subject to strict legal protection, which is enforced by the European Commission, a supranational authority.

### 3. The legal framework

#### 3.1. Introduction to EU biodiversity law

The *Birds Directive* (1979) and the *Habitats Directive* (1992) are the “cornerstones of the EU’s biodiversity policy” (European Commission, 2010b, p. 17). The protection provided by the Directives is divided between species protection measures and site protection measures (European Commission, 2007a). In general terms, the species protection measures require the EU’s Member States to protect certain species wherever they are found in the wild in the Member States’ territories, while the site protection measures require Member States to identify, designate and protect conservation areas for certain habitat types and for the habitats of certain species: namely, Special Protection Areas (SPAs) under the *Birds Directive*, and Special Areas of Conservation (SACs) under the *Habitats Directive*. The network of SACs and SPAs – which is intended to comprise an ecologically coherent whole (Article 3(1) of the *Habitats Directive*) – is collectively known as Natura 2000, and is the “centrepiece” of EU biodiversity policy (European Commission, 2009).

This article will focus on the site protection aspects of the Directives, since it is here that there seems most potential for major conflicts with renewable energy projects, for the reasons set out in Section 3.4.

#### 3.2. Relevant historical background

The *Habitats Directive* was proposed by the European Commission in 1988, but it was only in 1991, during final negotiations over the text of the Directive, that a key provision was inserted, at the Member States’ behest (Sharp, 1998). In negotiating this provision, the Member States had the European Court of Justice’s (ECJ) February 1991 decision in the *Leybucht Dykes* case (ECJ, 1991) firmly in mind (Krämer, 2009a). That case, which related to the *Birds Directive*, arguably represented the high-water mark of EU nature conservation policy (Linehan, 2005), having established that economic considerations could not be regarded as exceptional circumstances justifying the reduction in size of a designated SPA for birds (e.g. to accommodate a construction project).

In the Member States’ view, the ECJ’s decision went too far (Krämer, 2009a): many governments were reportedly “alarmed” (Baldock, 1993, p. 144) by the decision’s “draconian consequences” (Sharp, 1998, p. 33). In negotiating the final text of the *Habitats Directive*, the Member States therefore introduced a derogation – Article 6(4) – to allow damaging projects to go ahead in or near protected areas for reasons of overriding public interest, including

for social or economic reasons (Krämer, 2009a). Given the above background, it is perhaps no surprise that the Member States provided for the derogation to apply not just to SACs under the *Habitats Directive*, but also to SPAs under the *Birds Directive*, in effect overruling the ECJ’s decision in the *Leybucht Dykes* case (Baldock, 1993). However, the protection of sites under the *Habitats* and *Birds Directives* could be characterised as something of a tug of war, with (broadly speaking) the EU’s Member States on one side, and the European Commission and ECJ on the other. That is, the Member States’ introduction of the above-mentioned derogation – arguably a retrograde step for EU nature conservation – was by no means the end of the story. Indeed, many decisions of the ECJ and the Commission after the adoption of the *Habitats Directive* can arguably be regarded as an attempt to regain some of the lost ground, and to limit the application of the derogation, as discussed below.

#### 3.3. Site designation under the *Habitats* and *Birds Directives*

The site designation process under the *Habitats Directive* is quite different from the straightforward process under the *Birds Directive*, with important legal consequences in terms of site protection.

##### 3.3.1. Site designation under the *Birds Directive*

Under the *Birds Directive*, in principle the EU’s Member States designate SPAs without the European Commission’s involvement. Pursuant to Article 4(1) of the Directive, the Member States must designate the “most suitable territories in number and size” as SPAs for the conservation of the species listed in Annex I to the Directive. Article 4(2) imposes a similar site designation obligation in respect of regularly occurring migratory species not listed in Annex I, “bearing in mind their need for protection in the geographical sea and land area where the Directive applies, as regards their breeding, moulting and wintering areas and staging posts along their migration routes”, paying particular attention to wetlands.

The Commission and the ECJ have pursued a strict ecological approach to SPA designation. In the *Lappel Bank* case, the UK government, supported by the French government, argued that in selecting SPAs and their boundaries, Member States should be allowed to take economic considerations into account (ECJ, 1996). The ECJ disagreed, holding that, in selecting SPAs and defining their boundaries, Member States must act solely on the basis of the ornithological criteria set out in Article 4(1) and (2) of the *Birds Directive* (ECJ, 1996). This judgment, which built on the ECJ’s 1993 judgment in *Santoña Marshes* (ECJ, 1993), arguably reinvigorated just the sort of ecology-trumps-economy principles that the Member States had earlier legislated against, in effect, by introducing the Article 6(4) derogation for damaging projects when negotiating the terms of the *Habitats Directive* in 1991. In other words, while the strict protection of SPAs might have been compromised, in part, by the Member States’ introduction of the Article 6(4) derogation, the ECJ’s judgment in the *Lappel Bank* case ensured that the SPA designation process would, at least in principle, remain the preserve of ecology, to the exclusion of economic factors. This has arguably contributed to the prolonged delay in completing the EU’s SPA network: while the network was to have been established by 1981 (Article 18 of the original version of the *Birds Directive*), it remains incomplete (European Commission, 2011a,b).

##### 3.3.2. Site designation under the *Habitats Directive*

The designation process for sites under the *Habitats Directive* is quite different to the process under the *Birds Directive*, and affords the European Commission a more prominent role.

First, under Article 4(1) of the Habitats Directive, each Member State must propose a list of sites – proposed Sites of Community Importance (pSCIs) – in its territory which host habitats listed on Annex I of the Directive or species listed on Annex II. This list of pSCIs must then be transmitted to the European Commission. The Commission examines these national lists at a biogeographical level,<sup>2</sup> and then, in agreement with the relevant Member States, adopts a list of Sites of Community Importance (SCIs) for each biogeographical region (Article 4(2)). (In practice, several such lists have been adopted over the years for most biogeographical regions, since the Member States have needed periodic nudging by the Commission to submit additional sites.) Once a site has been adopted as an SCI, the relevant Member State has six years to designate the site as an SAC, in principle to allow the Member State time to put in place conservation measures, such as management plans (Articles 4(4) and 6(1)). Pursuant to Article 4 of the Habitats Directive, this entire process was due to have been completed by June 2004, but as with SPAs under the Birds Directive, the process remains incomplete (European Commission, 2011a,b).

Like SPAs under the Birds Directive, the ECJ has adopted a strict ecological approach to the Member States' selection of sites under the Habitats Directive. In 2000, the ECJ held that “a Member State may not take account of economic, social and cultural requirements or regional and local characteristics . . . when selecting and defining the boundaries of the sites to be proposed to the Commission as eligible for identification as [SCIs]” (ECJ, 2000a, paragraph 25).

### 3.4. Site protection under the Habitats and Birds Directives

In terms of the protection of Natura 2000 sites, the leading legal case is the ECJ's 2004 decision in *Waddenzee* (ECJ, 2004). The case concerned the interpretation of Article 6(3) of the Habitats Directive, which determines the situations in which a so-called appropriate assessment (a type of environmental impact assessment) is needed in respect of the impacts of any plan or project on an SCI, SAC, or SPA, and the conditions under which permission for such a plan or project can be granted following an appropriate assessment. The ECJ's decision in the *Waddenzee* case thus impacts directly on the circumstances in which Member States have to rely on the Article 6(4) derogation for damaging projects: if a plan or project fails the test in Article 6(3), the only legal route available is the derogation in Article 6(4), which is limited in nature.

On the issue of the need for an appropriate assessment, Article 6(3) seems clear:

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives” (Article 6(3) Habitats Directive).

However, the ECJ gave a precautionary spin to this wording in the *Waddenzee* case: the wording, the Court held:

“must be interpreted as meaning that any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives *if it cannot be excluded*, on the basis of objective

information, that it will have a significant effect on that site, either individually or in combination with other plans or projects” (ECJ, 2004, paragraph 44; emphasis added).

In other words, an appropriate assessment is needed where significant effects on a protected site cannot be ruled out, rather than only where significant effects have been demonstrated to be likely, as the wording of Article 6(3) would appear to dictate.

Further, Article 6(3) provides:

“In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of [the Article 6(4) derogation], the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned” (Article 6(3), Habitats Directive).

That is the case, the ECJ held, only “where no reasonable scientific doubt remains as to the absence of such effects” (ECJ, 2004, paragraph 59). This sets a high threshold, which many plans and projects cannot pass. If they are to proceed, the only available route is the derogation in Article 6(4) of the Habitats Directive.

Article 6(4) allows plans or projects that have been the subject of a negative assessment to proceed, but only where three conditions are met: (1) an “absence of alternative solutions” must be demonstrated; (2) “imperative reasons of overriding public interest” for proceeding with the plan or project must be demonstrated (and these reasons are limited in cases involving priority species or habitats);<sup>3</sup> and (3) the Member State in question must take “all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected” (Article 6(4), Habitats Directive).

### 3.5. Restrictive interpretation of the Article 6(4) derogation, and non-availability in certain cases

Article 6(4) is interpreted restrictively, both by the Commission and the ECJ. Examples include a 2006 ECJ decision regarding the routing of a motorway in Portugal (ECJ, 2006a), and the Commission's guidance documents on the Habitats Directive (e.g. European Commission, 2007b).

In the Portuguese motorway case, the ECJ made it clear that it is not for an objector to demonstrate that an alternative solution exists for the purposes of Article 6(4); rather, the burden is on the relevant national authorities to demonstrate an absence of alternatives (ECJ, 2006a). Similarly, in the Commission's view, “it falls on whoever wants to make use of [the Article 6(4)] exception to prove, as a prerequisite, that the [conditions required by the Directive] do indeed exist in each particular case” (European Commission, 2007b, p. 4).

In addition to these examples of restrictive interpretations of the Article 6(4) derogation, the ECJ has held that the derogation is not available *at all* in respect of certain categories of protected areas. Namely, areas which have not been classified as SPAs but should have been so classified (ECJ, 2000b),<sup>4</sup> and, arguably, pSCIs (sites that have been proposed on a national list to the European

<sup>2</sup> For the purposes of the Habitats Directive, the EU has nine biogeographical regions (European Commission, 2010c): the Alpine region, the Atlantic region, the Black Sea region, the Boreal region, the Continental region, the Macaronesian region, the Mediterranean region, the Pannonian region, and the Steppic region.

<sup>3</sup> Priority species/habitats are the subset of EU protected species/habitats which are given the highest priority in view of their danger of disappearance. In respect of such species/habitats, public interest arguments are limited, under the Article 6(4) derogation, to reasons of “human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.”

<sup>4</sup> Thus resurrecting the ECJ's decision in *Leybucht Dykes* in respect of such sites (see Section 3.2), since the old, stricter Birds Directive regime (the first sentence of Article 4(4) of the Birds Directive) continues to apply to such sites (ECJ, 2000b).

Commission but which have yet to be adopted as SCIs by the Commission) (ECJ, 2006b).<sup>5</sup> Thus, these two categories of sites benefit from a *stricter* level of legal protection than fully designated SPAs and SACs. While this might seem counterintuitive, the policy reasons are clear: in the case of the Birds Directive, the Member States are thereby incentivised to complete their SPA designation processes; and in the case of the Habitats Directive, the Commission is thereby in a position to make its scientific evaluations at the SCI adoption stage on the basis of uncompromised sites.

### 3.6. Summary

Notwithstanding the difficulties that have been encountered in establishing the Natura 2000 network, and the fact that it remains incomplete (European Commission, 2011a,b), the network's importance should not be underestimated. It currently contains nearly 26,000 protected sites, covering almost 18% of the EU's entire land area and "significant additional marine areas" (European Commission, 2010b, p. 19, 2011b), with the network having roughly doubled in size in the past ten years (European Commission, 2010d). It is now said to be the largest network of protected areas in the world (European Commission, 2010e).

When one combines the strictness of the Natura 2000 legal regime with the size of the Natura 2000 network, it should be clear that conflicts with renewable energy proposals are inevitable,<sup>6</sup> particularly as countries push to meet the EU's ambitious 2020 energy and emissions reduction targets. Indeed, the legal protections afforded to Natura 2000 sites could necessitate the rejection of many large renewable energy projects in the EU, a point exemplified by the Sabor dam and the Severn barrage.

## 4. The Sabor dam and the Severn barrage: global test cases?

### 4.1. Introduction

Long before the UK government announced that it would not be supporting the construction of a barrage in the Severn estuary, the barrage was being cited as a test case: "[T]he Severn barrage is a

<sup>5</sup> In 2006, in the *Bund Naturschutz* case, the ECJ held that "Member States must ... take all the measures necessary to avoid interventions which incur the risk of seriously compromising the ecological characteristics of [pSCIs]" (ECJ, 2006b, paragraph 51). There is a strong argument that this excludes the use of the Article 6(4) derogation for damaging projects in respect of pSCIs, at least in certain cases. See, for example, Hamer (2007).

<sup>6</sup> Quantifying the likely scale of such conflicts is very difficult, since renewable energy projects in the EU – covering a broad range of technologies – are proposed, provisionally sited, and funded by private and public sector bodies, operating within a regulatory environment that is determined nationally or locally, within the framework of EU law. That said, several general points can be made. First, as a broad generalisation, many Natura 2000 sites – which by definition protect natural and semi-natural habitats – are found in areas with relatively low human population densities. Similarly, and again as a broad generalisation, such areas are often selected as the sites for large renewable energy projects (Vajjhala, 2006). Second, while the average percentage of EU land territory that is within the Natura 2000 network is almost 18% (European Commission, 2011b), the percentage varies widely at the national level. Thus, for example, 35.5% of Slovenia's terrestrial area is within the Natura 2000 network, compared to a mere 7.2% of the UK's (European Commission, 2011b). So, other things being equal, conflicts between renewable energy projects and Natura 2000 sites seem more likely in Slovenia's terrestrial area than in the UK's. However, other things are not, of course, equal, since the potential for onshore wind energy, for example, is much greater in the UK than in Slovenia (EEA, 2009), which complicates the picture. Further, at the national and local levels, certain authorities may have adopted strategic plans which make conflicts less likely (for examples from Scotland, France, Germany, and Denmark, see European Commission, 2010b, at pp. 54–62), while others will not have adopted such plans. Third, conflicts can of course occur on the ground without any legal conflict arising in practice. Fourth, while certain renewable energy technologies might typically have damaging impacts on protected areas, others will have lesser impacts, and some might even be beneficial in biodiversity terms (Inger et al., 2009).

test case for a new political proposition: that it is all right to cause massive environmental damage in order to tackle other potentially catastrophic environmental problems – such as the warming and sea level rise that will come with climate change" (Clover, 2009).

But this is not, in fact, a new political proposition in the EU, since it has already been tested by Portugal's Sabor dam, which is currently under construction, and expected to begin producing electricity in 2014 (EDP, 2011). When complete, the main dam – which will be >120 m high (EDF, 2007; EDP, 2011), and located near the mouth of the Sabor river in north-eastern Portugal – will create a reservoir around 50 km long, almost entirely within two Natura 2000 sites (EDP, 2002; Natura 2000 Viewer, 2011).

Writing before construction of the Sabor dam was approved, Freitas and Horta (2003, p. 10) described the projected biodiversity impacts as follows:

"A dam on the Sabor River would destroy one of Europe's few remaining regions of extraordinary biodiversity, and one that is home to unique cultural traditions. Much of the Sabor valley in northeastern Portugal (Fig. 1) is part of the Natura 2000 network, and several habitats along the river are classified as priority conservation areas [the subset of EU protected habitats that are given the highest priority in view of their danger of disappearance]. The region contains some of the few remnants of ancient Mediterranean native forest ecosystems, interspersed with low intensity agriculture of olive and almond trees. The Sabor valley is rich in endemic plant species and a critical habitat for endangered bird species such as the Bonelli's eagle, the golden eagle and the black stork, which nest on the steep cliff formations along the valley. The valley itself is a migratory corridor for wolves [a priority species in Portugal under the Habitats Directive] and other wildlife and the Sabor is the spawning ground for fish species, such as the barbel, which annually swim up-river to reproduce."

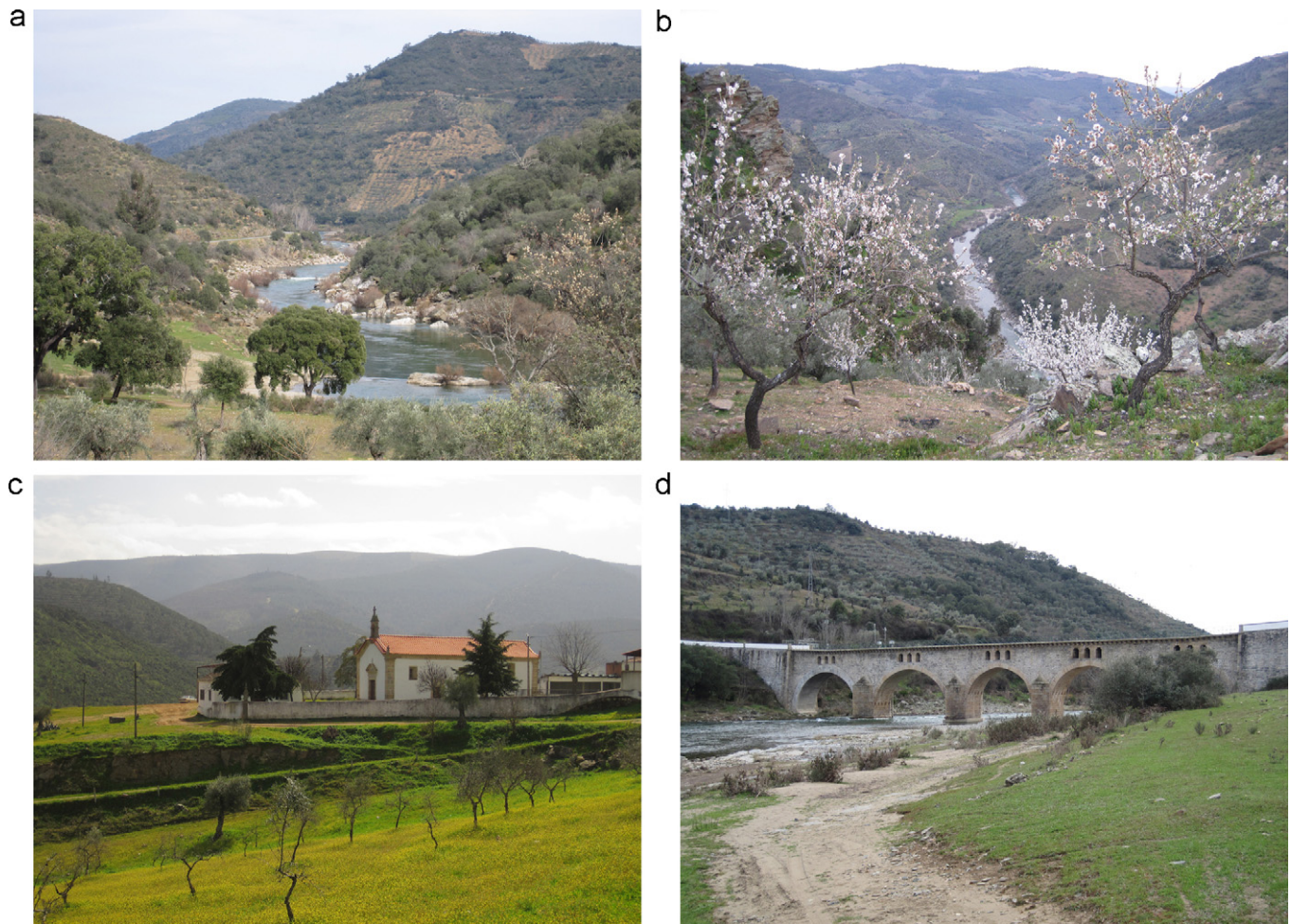
The fact that the Sabor dam was approved by the Portuguese authorities in spite of such projected impacts, and in full knowledge of the European Commission (as discussed in Section 4.2.2), might appear to contradict a central argument of this article: namely, that the EU's strict biodiversity protection regime could necessitate the rejection of many large renewable energy projects. However, there is no such contradiction. Rather, it is strongly arguable that it was not possible *as a matter of EU law* for Portugal's authorities to grant permission for the Sabor dam, but, for the reasons discussed below, the European Commission did not enforce the EU law position as one might have expected.

As such, had the UK government supported the Severn barrage, the barrage would in fact have been testing a rather different political proposition: that the European Commission will relax its application and enforcement of EU biodiversity law to facilitate flagship renewable energy projects. However, since the Severn barrage is no longer to proceed, we must await another large renewable project to test this proposition. In the meantime, there are valuable lessons to be learnt from the Sabor dam and the Severn barrage.

### 4.2. The Sabor dam

#### 4.2.1. Introduction

The proximate trigger for dam-building in Portugal's Sabor valley was the cessation of dam-building in a nearby valley. In November 1994, the Portuguese media revealed that, while carrying out an impact assessment study regarding the construction of a dam in the Cõa valley, the archaeologist in charge had noticed a large number of rock engravings that appeared to be of Palaeolithic age (Gonçalves, 1996). In light of this revelation, construction of the Cõa dam ceased in 1995 (Gonçalves, 1996), and in 1998 the *Prehistoric Rock Art Sites in*



**Fig. 1.** (a) the Sabor valley, near the Ponte de Remondes, looking north-east; (b) another view of the Sabor valley, with flowering almonds in the foreground; (c) the church of Santo Antão da Barca, which will be submerged when the Sabor dam is completed; and (d) the historic Ponte de Remondes, which will also be submerged. All photos: present author, March 2010.

the Côa Valley was inscribed on the World Heritage List by UNESCO (World Heritage Committee, 1999).

Having shelved its plans for a dam in that part of the Côa valley, in 1996 the Portuguese government announced plans for a dam in the nearby Sabor valley (SPEA and BirdLife International, 2006). The proposed Sabor dam quickly ran into legal difficulties. In view of the projected adverse impacts on the Sabor valley's two Natura 2000 sites – then an SPA under the Birds Directive and a pSCI under the Habitats Directive (Natura 2000 Viewer, 2011) – the first environmental impact assessment (EIA) for the project, published in 1999, recommended that the proposal should be withdrawn (SPEA and BirdLife International, 2006).

The Portuguese government was not deterred, however, and sought to apply the Article 6(4) derogation for damaging projects, notwithstanding the fact that the derogation is arguably not available in respect of impacts on a pSCI, as discussed in Section 3.5.<sup>7</sup> And even where Article 6(4) applies in principle, to recap: (1)

<sup>7</sup> The ECJ judgment clarifying this point (ECJ, 2006b) was only handed down in September 2006, while the Sabor dam was approved at the national level in June 2004. Thus, this argument almost certainly did not arise pre-approval of the dam, and to the present author's knowledge the argument has not been raised since. Nevertheless, it is strongly arguable that approval of the dam by Portuguese authorities in June 2004, using the Article 6(4) derogation, was in breach of EU law, as clarified by the ECJ in September 2006, since the Sabor dam seems certain to be an intervention "which incur[s] the risk of seriously compromising the ecological characteristics of [the then Rio Sabor e Maçãs pSCI]" (ECJ, 2006b, paragraph 51).

there must be an absence of alternative solutions; (2) there must be imperative reasons of overriding public interest for carrying out the project (which are limited in the case of priority habitats and species, which are present in the Sabor valley); and (3) all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected must be taken.

In view of this framework, the Portuguese government decided that alternatives would need to be considered before a final decision could be taken regarding the Sabor dam (SPEA and BirdLife International, 2006). The alternative site selected for consideration? The upper Côa valley – upstream of the World Heritage Site, some distance from the protected engravings (EDP, 2002).

In June 2002, a general election returned a new government in Portugal, with Prime Minister José Manuel Barroso at its helm. Shortly thereafter, in September 2002, an EIA was published comparing the Côa and the Sabor valleys as potential locations for a dam (EDP, 2002). The Côa project – which would comprise a series of smaller dams – would be more expensive, the EIA concluded, and would produce less electricity than a dam in the Sabor valley, but would have fewer impacts on Natura 2000 (EDP, 2002; SPEA and BirdLife International, 2006). In light of this EIA, Portugal's statutory nature conservation agency (then the ICN) published a report in 2003 stating that the Sabor option would be unlawful pursuant to the Habitats Directive, given the project's projected impacts on Natura 2000, the existence of the Côa valley as an

alternative, and the impossibility of compensating adequately for the damage that would be caused (SPEA and BirdLife International, 2006; European Commission, 2007c). In spite of this report, on 15 June 2004 the Portuguese government formally approved the construction of the Sabor dam (European Commission, 2004). Less than one month later, José Manuel Barroso left his job as Prime Minister of Portugal to take up a new position: President of the European Commission, a post he holds to this day.

#### 4.2.2. Legal issues

By the time the Sabor dam was approved at the national level, the European Commission was well aware of the proposal and its potential impacts on Natura 2000. Indeed, following the publication of the ICN's 2003 report, the Liga para a Protecção da Natureza (LPN), a Portuguese civil society organisation (CSO), and the Plataforma Sabor Livre, an umbrella organisation of CSOs, filed complaints with the Commission regarding the legality of the proposed Sabor dam (General Court, 2009; LPN, undated).

Given the strict protection afforded to Natura 2000 sites by EU law, the odds seemed stacked against the dam. In October 2005, the Commission launched infringement proceedings against Portugal (European Commission, 2006), and throughout 2006 it seemed that the Commission remained resolutely in favour of pursuing these proceedings, which raised issues regarding all three conditions of the Article 6(4) derogation. In respect of alternatives, for example, there seemed to be a clear breach of Article 6(4), given the existence of the Cõa alternative; and additional potential alternatives kept emerging, a result of the Portuguese government's incessant drive to expand the country's hydroelectric capacity. In 2007, for example, Portugal announced its National Dam Programme, which foresees ten additional new dams being built, six of which are to be in the Douro valley region, like the Sabor dam (PNBEPH, 2011).<sup>8</sup> In advance of this announcement, an internal European Commission briefing note, obtained under access to information legislation, recorded that:

“Of all these [then five dam] proposals, Sabor is the most damaging for nature but the Portuguese are not prepared, it would seem, to see any of the others as alternatives as they want them all!” (European Commission, 2006)

This drive for hydroelectric power stems, at least in part, from Portugal's ambitious renewable energy targets and obligations: by 2020, Portugal aims to produce some 60% of its electricity from renewable sources (Portuguese Government, 2010), and it is legally obliged to ensure at least a 31% share of energy from renewable sources in the country's gross final consumption of energy in 2020 (from 20.5% in 2005) (Renewable Energy Directive, 2009). However, as Melo (2009) highlights, Portugal's entire large dam programme (comprising, at that time, twelve new dams including the Sabor) is worth no more than a year of business as usual increase in consumption in Portugal; and as Paterson et al. (2008, p.1353) note, “the studies used to support the Sabor project did not evaluate the effects of future climate change”, and hence made no mention of an assessment of the long-term viability of hydropower in the region.

<sup>8</sup> The European Commission (2011c, p. 4) records that “the Portuguese authorities state that the other dams in the national dam programme, particularly those in the Douro valley, presented a level of performance, in terms of water-holding capacity, turbine efficiency and speed of response, that was clearly below [the] Sabor in fulfilling the proposed aims, particularly that of augmenting the level of wind energy. The national programme's dams should be seen as a necessary complement and not an alternative to the...Sabor dam, in view of the highly ambitious energy targets that the Portuguese Government had set itself.” Writing in an industry publication, Lopes Santos et al. (2010), representatives of the EDP (the utility company behind the Sabor dam), develop this argument in more depth.

#### 4.2.3. The Commission's change of heart

In early 2007, shortly before Portugal's assumption of the then rotational six-month Presidency of the Council of the EU, the Commission had a change of heart regarding its infringement proceedings. In February 2007, Commission President Barroso – who, to recap, was Prime Minister of Portugal when the Sabor dam was approved at the national level – received an internal briefing note regarding the ongoing Sabor dispute (European Commission, 2007d). The preliminary legal assessment has been redacted from the copy available to the present author, though there seems little doubt what the assessment must have said, given what had gone before.

In April 2007, President Barroso received a further briefing (European Commission, 2007e), which summarised the position at that time:

“The Commission issued a Letter of Formal Notice on 18.10.05 in which it considered that the project breached the Habitats Directive namely because [the Cõa dam] should be considered as an alternative solution (less impacts on the Natura 2000 sites) and the public interest justifications invoked by the Portuguese authorities were not accurate and not proportional to the damages caused by the project in the Natura 2000 network.<sup>9</sup>

In January 2007 the Portuguese authorities provided some complementary studies they had announced in July 2006 aimed at justifying the project and at replying [to] some questions asked by the Commission services in November 2006. The Portuguese authorities basically argued that (1) the impacts on the Natura 2000 sites were overestimated by the previous impact studies, (2) [the Cõa project] would be 70% more expensive and less efficient (both technically and economically) and (3) would be operational 5–7 years later than [the Sabor project].”

Notwithstanding this summary, and the fact that the points reportedly raised by the Portuguese government could not be regarded as adequately addressing the conditions of Article 6(4), a mere three months after President Barroso received this briefing, the Director General of the Commission's Directorate-General for the Environment (DG Environment) indicated to the Portuguese government that the Commission was on the verge of closing its infringement proceedings:

<sup>9</sup> According to the European Commission (2007e), “The Portuguese government decided on 15.6.04 to execute the project in the [Sabor] location, on the basis of reasons of public interest linked to (1) the reduction of greenhouse gases (the dam would operate as back-up of a network of wind-farms, allowing for a 1% reduction of CO<sub>2</sub> emissions in Portugal), (2) the prevention of floods in the Douro valley, and (3) the protection of an archaeological rock engravings site.” (Interestingly, the Portuguese government thus sought to justify its choice of the Sabor valley on the basis, in part, that this would help to preserve rock engravings in the Cõa valley. Such reasoning arguably unravels, however, when one considers that the Portuguese government chose the Cõa valley as the alternative site for consideration in full knowledge of the existence of rock engravings in the valley.) An internal European Commission (2006) briefing note records that, “To date the Commission has not accepted the arguments of the Portuguese government on these issues.” This is fleshed out in a later internal Commission briefing note as follows: “The Commission contested the reasons of public interest linked to the flooding protection and the greenhouse gases reduction invoked in the authorisation of the project...A map showing the flooded areas... with and without dam, for more or less frequently occurring floods (once every 10 years and once every 50 years) show the difference to be quite small and not very relevant for the more frequent floods, while it would be slightly more important for the less frequent ones... Concerning the reduction of production of CO<sub>2</sub>... the initial reduction due to the Sabor dam, of 270,000 tons/year, would...be of the order of 6 to 8% of the Portuguese commitment for reductions in the sector of energy generation and supply, and less than 1% of the total production of CO<sub>2</sub> in Portugal” (European Commission, 2007f).

"If the above elements [a list of additional compensatory measures plus a timetable for their implementation] are made available to us during August [2007]. . . , we would have the legal basis to recommend to the College [of Commissioners] the closure of the [Sabor] case at the earliest opportunity." (European Commission, 2007g)

In other words, between April 2007, when President Barroso received his further briefing note, and July 2007, when the Commission wrote to the Portuguese authorities in the above terms, the Commission appears, for some reason, to have changed its mind regarding two of the three conditions of Article 6(4) of the Habitats Directive, with only the issue of compensatory measures remaining outstanding. This remaining issue was evidently resolved to the Commission's satisfaction, since the infringement proceedings were formally dropped on 28 February 2008 (European Commission, 2008), a decision that is effectively immune from legal challenge (Hedemann-Robinson, 2007). The compensatory measures to be implemented:

"include restoring the Vilariça stream (important to fish), improving and restoring the habitats of several tributaries of the river Sabor, ensuring the continuity of ecosystems in tributaries of the river Sabor, improving the river corridor of "Alto et Médio Sabor" and the river Maçãs, improving and protecting priority habitats in the area surrounding the dam basin, creating new shelters for bats, an otter and mole ["mole" presumably refers here to the Pyrenean desman (*Galemys pyrenaicus*)] (European Commission, 2007c) conservation programme, wolf and river birdlife improvement and protection programmes (particularly improving the food chain) and an improvement and protection programme for reptiles and invertebrates in the Sabor valley." (European Commission, 2011c, p. 5)

Setting other arguments to one side, in legal terms it is unclear how such compensatory measures could be regarded as sufficient within the terms of the European Commission's (2007b) guidance, particularly given the scale of the habitat to be lost, the species affected, and the fact that the Portuguese government is not proposing to designate another river valley as an SAC and SPA in the Sabor's place.

In a series of interviews conducted by the present author in 2010, a consistent explanation was provided by Portuguese environmentalists and CSO representatives for the Commission's change of heart regarding its infringement proceedings: Commission President Barroso, having presided over the national authorisation of the Sabor dam while Prime Minister of Portugal, personally intervened to influence then EU Environment Commissioner Stavros Dimas's handling of the case (Interviews, 2010). One CSO representative stated that he had been given this version of events by officials from the European Commission and the Portuguese government (Interviews, 2010). Another stated that he had been told by a senior DG Environment official that this was indeed what had happened (Interviews, 2010).

It is important to highlight that this would not be the first time a Member State has used the Commission President's political influence to affect the outcome of EU infringement proceedings (Krämer, 2009b). The possibility of a direct intervention by President Barroso in respect of the Sabor dam is therefore not without precedent. In that regard, the Sabor dam raises two important issues. First, the case is arguably another example of political factors impinging on EU legal enforcement decisions, damaging the integrity of the rule of law. While one might argue that this is merely the *realpolitik* of enforcement in a supranational

context, clear examples of such political impingement are in fact relatively rare at the EU level (see Williams, 1994, 2002; Hedemann-Robinson, 2007; Krämer, 2009b), and in any event such an argument does not excuse such conduct. Second, one wonders whether the Commission's handling of the Sabor dam has set a precedent: can the Member States hereafter expect the Commission to relax its application and enforcement of EU biodiversity law to facilitate large renewable energy projects? This remains an open question, with arguments pointing in both directions.

On the one hand, in 2010 the Commission was reportedly in the process of preparing infringement proceedings in respect of Portugal's National Dam Programme, whose ten new dams will entail further adverse impacts on the Natura 2000 network (Avosetta, 2010). A report, commissioned by the European Commission, records: "It is evident that the [National Dam Programme] will cause significant impacts on species protected under the Natura directives. It will also have a considerable direct impact on a Natura 2000 site (Alvão-Marão), which has not been properly assessed, and some indirect impacts on other four [sic] Natura 2000 sites (Rio Vouga, Carregal do Sal, Ria de Aveiro and Estuário do Tejo), which have not been considered at all in the [strategic environmental assessment]" (Arcadis-Atecma, 2009, p. 23). However, the Commission recently notified Portuguese CSOs of its intention not to pursue these infringement proceedings, notwithstanding the fact that Portugal's adoption of the Programme arguably breaches the Habitats Directive (Público, 2010). On the other hand, the UK government's detailed consideration of the legality of a Severn barrage suggests that the government expected the project to receive very close scrutiny from the Commission. There is certainly no evidence that the UK expected the Severn barrage to receive lenient treatment.

### 4.3. The Severn barrage

#### 4.3.1. Introduction

The Severn estuary's attraction as a potential source of renewable energy relates to its tidal range, which, with a mean of 8.2 metres at Avonmouth, is the highest in the world after the Bay of Fundy in Canada, creating around 200 km<sup>2</sup> of intertidal habitat (SDC, 2007).<sup>10</sup> While the estuary's high tidal range makes it very attractive in renewable energy terms, at the same time the estuary's tidal system has created an assemblage of habitats and species that is "extreme and unusual" (DECC, 2010b, p. 3), and important in EU terms, leading the UK government to designate two Natura 2000 sites in the estuary (Fig. 2), and additional sites in the Usk and Wye rivers, two of the estuary's tributaries (DECC, 2010a).

#### 4.3.2. The legal issues

The largest barrage option under consideration (Cardiff-Weston) – 16.1 km long – would have been capable of generating up to 4.4% of the UK's electricity needs (0.6% of its energy needs) (SDC, 2007), and would thus have contributed sizeably to the UK's 2020 renewable energy targets.<sup>11</sup> However, such a barrage would inevitably have triggered Article 6(4) of the Habitats Directive. Indeed, the UK government's 2010 feasibility study revealed that, in respect of the Cardiff-Weston barrage, the government could not

<sup>10</sup> Intertidal habitat is the area between the low-tide and high-tide marks (e.g. the areas of mud and sand flats which are exposed at low tide in the Severn estuary (DECC, 2010a)).

<sup>11</sup> The UK is legally obliged to ensure at least a 15% share of energy from renewable sources in the UK's gross final consumption of energy in 2020 (from 1.3% in 2005) (Renewable Energy Directive, 2009), and the "lead scenario" in the UK's National Renewable Energy Action Plan envisages 30% of electricity coming from renewable sources in 2020 (DECC, 2010c, p. 11).



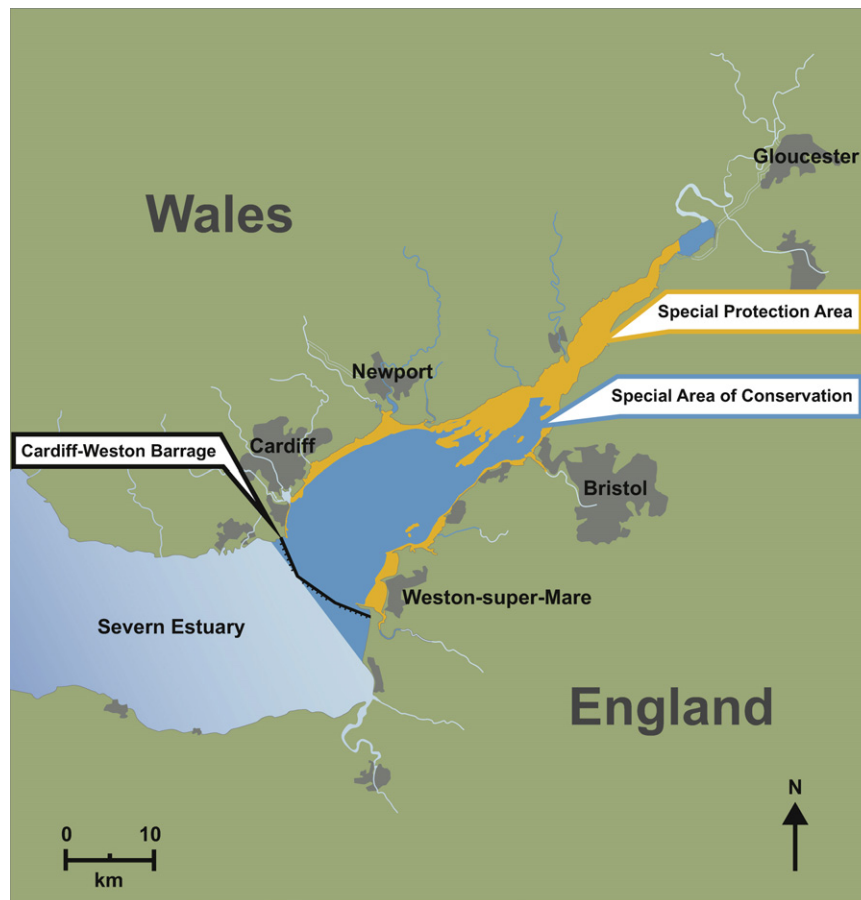


Fig. 2. Natura 2000 sites in the Severn estuary, and the proposed location of the Cardiff-Weston barrage (edited version of Fig. 25 of SDC, 2007, p. 92).

rule out an adverse effect on the integrity of 24 Natura 2000 sites (19 SACs and five SPAs), including seven SACs supporting a total of three priority habitats (DECC, 2010a,d). Out of these 24 Natura 2000 sites, a definite conclusion of adverse effects on site integrity was reached in respect of four sites (DECC, 2010a).

In respect of the tests in Article 6(4), the provision of adequate compensatory measures appears to have been the key sticking point (SDC, 2007). A research report commissioned by the SDC noted that the provision of appropriate compensatory measures would be very challenging, “possibly to the point of not being deliverable,” particularly in the case of the Cardiff-Weston proposal (SDC, 2007, p. 132). The loss of designated intertidal habitat as a result of that proposal was estimated at 140.5 km<sup>2</sup> (mean)(DECC, 2010e), with an upper limit estimate of 163 km<sup>2</sup> (DECC, 2010a).

Setting the ecological challenges to one side, the extent of compensatory habitat required – and the cost – would be enormous, because the European Commission generally requires countries to replace lost areas with equivalent habitat, at ratios “generally well above 1:1” (European Commission, 2007b, p. 18; European Commission, 2011d, p. 30), and in the case of the Severn there is no suitable estuary in the UK that could be designated in its place (SDC, 2007; DECC, 2010b). Using a compensatory ratio of 2:1 as a “base case” (DECC, 2010a, p. 44), the government’s feasibility study records that an upper limit of 326 km<sup>2</sup> of intertidal habitat would need to be created to compensate for damage caused by the Cardiff-Weston barrage (DECC, 2010a). In terms of scale, this is 60 times greater than the largest existing UK compensation project (DECC, 2010a). Using the government’s estimated cost of creating compensatory intertidal habitat

(£4.5 million/km<sup>2</sup> (>US\$7.3 million/km<sup>2</sup>), uncorrected for optimism bias) (DECC, 2010f), this upper limit scenario would cost £1467 million (>US\$2404 million) for intertidal habitat alone.

In any event, the consensus view appears to have been that it may not have been possible for the UK government legally to grant permission to construct the Cardiff-Weston barrage (SDC, 2007).

#### 4.3.3. Potential solutions

Perhaps unsurprisingly, a (pre-emptive) backlash did not take long to materialise. The SDC recorded that it “heard from a number of stakeholders who believe that the [Habitats and Birds] Directives no longer reflect modern conservation priorities in light of the challenges presented by climate change. A number of commentators have suggested possible ways forward on a Severn barrage that lie outside the current legal framework” (SDC, 2007, pp. 130–131). These boiled down to: (1) reforming the Directives to give greater importance to the development of renewable energy projects in Natura 2000 sites (SDC, 2007) or (2) breaking EU law, albeit on a one-off basis, possibly by failing to provide the requisite compensation (SDC, 2007).

The SDC expressed concerns regarding both routes. The first was described as a “risky strategy, as the eventual scope of possible amendments would be outside any one country’s control. As a result, the final outcome could be quite different, and possibly much weaker, than the instigator intended” (SDC, 2007, p. 131).<sup>12</sup> The second route, according to the SDC, “would represent a very

<sup>12</sup> That said, if the UK ever chose to seek a renegotiation of the Habitats and Birds Directive, the government would not need to look far for allies in the EU (see, for example, Balkenende, 2009).

serious step. The UK has up to now prided itself on its leadership role on both climate change and biodiversity. [T]he [Habitats and Birds] Directives are already threatened or overlooked by a number of Member States, and have been a significant hurdle for some new Member States entering the EU. There is the potential to jeopardise or open up important protections by seeking to derogate from [i.e. breach] the Directives in the context of a major renewable energy project” (SDC, 2007, p. 131).

And breaking EU law can of course have serious legal consequences, if the European Commission chooses to act. Thus, if the UK opted to break EU law in the context of a Severn barrage, the government might ultimately face a large fine from the ECJ under Article 260 of the *Treaty on the Functioning of the European Union* (2010). While such fines have to date been rare,<sup>13</sup> their potential nevertheless creates a powerful incentive for Member States to avoid continuing breaches of EU law. For example, the largest fine to date was imposed on France in 2005: a lump sum payment of €20 million (>US\$28 million) plus a penalty payment of €57.7 million (>US\$83 million) for every six months of continuing non-compliance (ECJ, 2005).

In addition, the European Commission and the ECJ have been willing to, respectively, seek and grant injunctions in the context of the Habitats and Birds Directives,<sup>14</sup> ordering the cessation of certain activities pending the outcome of infringement proceedings (ECJ, 2007a,b, 2008b,c, 2009). Thus, if construction work on a Severn barrage were about to commence in breach of EU law, the European Commission would have the power to request the ECJ to issue an injunction preventing construction going ahead. Indeed, even if the European Commission decided not to commence infringement proceedings, an individual or CSO could seek to have the EU law position enforced in the UK courts (though it is worth noting that recourse to national courts in Portugal has not been successful to date in preventing the construction of the Sabor dam (Público, 2010)).<sup>15</sup>

#### 4.3.4. A progressive interpretation of the Habitats Directive?

While the SDC cautioned against reforming or breaching the Directives, it concluded its report with the following recommendation: “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” (SDC, 2007, p. 12; emphasis added).

This idea was fleshed-out somewhat, as follows: “Rather than a process which attempts to create equivalent habitat on a narrowly-defined basis, a progressive strategy would look at the long-term coherence of the Natura 2000 network [...], and the types and locations of habitat required to support it within the relevant biogeographic region. This would explicitly aim to adapt to climate

change by using the funding available . . . to create new coastal and wetland habitats on a national scale, aiding both biodiversity and coastal protection objectives” (SDC, 2007, p. 145).

This suggestion was considered in detail as part of the UK government’s barrage feasibility study, which reported in 2010. The result was an array of reports, detailing, amongst other things: (1) a toolkit of 14 compensatory measures, in respect of the impacts of a barrage, which are either within, or arguably within, the terms of the Commission’s guidance on Article 6(4) (DECC, 2010b,g), and (2) potential compensatory measures that are “outside Commission guidance but [arguably] within the requirements of the Habitats Directive” (DECC, 2010a, p. 44) and of “equal value to the coherence of the Natura 2000 network” (DECC, 2010b, p. 2).

Amongst the many potential compensatory measures within (1), of particular interest in the present context is managed realignment (i.e. landward movement of existing flood defences) to create intertidal habitats, both adjoining and at a distance from the Severn estuary. Such managed realignment would arguably answer the SDC’s (2007) call to combine compensatory measures with climate change adaptation on a national scale, since new intertidal habitat would be created around the UK coastline, and coastal squeeze – a feature of the sea-level rise accompanying climate change in Europe (IPCC, 2001) – would be eased.

The government’s feasibility study concluded that “it may be possible to create very large areas of inter-tidal habitat through managed re-alignment, although this would be challenging and would not be fully ‘like for like’ compensation” (DECC, 2010b, p. 3), given the unusual ecology of the Severn estuary (DECC, 2010b). Challenges would include: the scale of habitat creation envisaged; the potential displacement of homes and people; the loss of terrestrial and freshwater habitats; and the difficulty of finding sufficient areas over which mudflat could be created and maintained in the longer term (mudflat is likely to progress to sandmarsh over time) (DECC, 2010b,h). This latter concern is echoed in recent literature (Mazik et al., 2010), with Burgin (2010, pp. 52–53) arguing that:

“There is a major flaw in the concept of offsetting one wetland with another for conservation when it results in wetland loss in one area and the construction, rehabilitation or maintenance of wetlands in a different habitat type, with no connection to the lost wetlands. The outcome for wetland mitigation may not be an ‘unmitigated disaster’ but it is, at best, modestly successful.”

While the full extent of proposed compensatory measures in the context of a Severn barrage is beyond the scope of this article, it is worth noting that the government’s feasibility study makes it clear that for certain interest features – some migratory fish species, for example – the impacts of a barrage may be particularly severe (e.g. local or national extinction), and hard or impossible fully to compensate within the terms of the European Commission’s guidance (DECC, 2010a). The feasibility study thus considers offering “‘substitute’ measures where it is not possible to directly replace a habitat or species” (DECC, 2010a, p. 44), an approach referred to as “equal value” compensation (DECC, 2010i). This aspect of the feasibility study appears to have been particularly controversial, with an absence of consensus on many fundamental issues (DECC, 2010i).

More generally, the feasibility study records “a tension between what might succeed in ecological terms and what might be deliverable in practice or acceptable from a political and legal perspective” (DECC, 2010i, p. 3). An example of this is the government’s admission that the ability to compensate for the impacts of a barrage is constrained by a lack of suitable sites in the UK (DECC, 2010i). In that regard, the government mooted the

<sup>13</sup> Across all sectors of EU law, in only twelve cases has the ECJ found a Member State in breach of its obligations under Article 228(2) of the *Treaty establishing the European Community* (2006), or its successor provision, Article 260(2) of the *Treaty on the Functioning of the European Union* (2010): Cases C-387/97 (Greece), C-278/01 (Spain), C-304/02 (France), C-177/04 (France), C-119/04 (Italy), C-503/04 (Germany), C-70/06 (Portugal), C-121/07 (France), C-109/08 (Greece), C-568-07 (Greece), C-369/07 (Greece), C-407/09 (Greece), ten of which resulted in a fine (C-119/04 (Italy) and C-503/04 (Germany) did not). ECJ judgments in respect of proceedings for fines are pending against Italy and Spain: see cases C-496/09 (Italy) and C-610/10 and C-184/11 (Spain).

<sup>14</sup> Under Articles 278 and 279 of the *Treaty on the Functioning of the European Union* (2010) (ex Articles 242 and 243 of the *Treaty establishing the European Community* (2006)).

<sup>15</sup> An individual or CSO with a sufficient legal interest could bring an action before the High Court of England and Wales under Part 54 of the Civil Procedure Rules 1998 (S.I. 1998 No. 3132), as amended, to judicially review any decision to grant permission for the project in breach of EU law. Such an action would refer to the relevant transposing legislation for the Habitats Directive in England and Wales: the Conservation of Habitats and Species Regulations 2010 (S.I. 2010 No. 490), which consolidated the earlier relevant transposing legislation.

possibility of widening the geographic area within which compensation could be delivered to include providing compensation in other EU Member States, “in order to maintain or enhance the conservation status of a habitat or species within the [Atlantic] Biogeographic Region or the Natura 2000 network as a whole” (DECC, 2010i, p.4). While such an approach might potentially be of interest ecologically, and could be acceptable legally, one can imagine the political difficulties of, for example, persuading the French government that it should designate an additional Natura 2000 site to compensate for damage caused in the UK by a large UK renewable energy project.

While a host of ecological, legal, and political issues remain in respect of large-scale compensatory measures under Article 6(4), the UK government nevertheless regards its feasibility study as having “started an important and timely debate, [which] represents a real opportunity for the broadening of thinking about biodiversity conservation in the face of the twin challenges of climate change and the scale of energy infrastructure development that will be need to be put in place across the EU” (DECC, 2010i, p. 4).

## 5. Discussion and conclusion

Cases like the Sabor dam and the Severn barrage clearly present serious difficulties for policymakers, and they are likely to be simply the first of many hard cases in the renewable energy sector in the EU. The European Commission is left in an unenviable position: if EU law is strictly enforced, the Commission runs the risk of triggering a renegotiation of the Habitats and Birds Directives, potentially leading to substantially weaker biodiversity protection provisions. If the Commission instead engages in political *ad hockery* (e.g. accepting less by way of compensatory measures than one might expect on the basis of its existing guidance), the rule of law will be compromised, and with it important environmental protections.

While the Sabor dam and Severn barrage cases do not appear to reflect any systematic new policy to integrate EU biodiversity and climate change concerns, any policy decision to depart from the strict protection afforded by EU law to Natura 2000 sites would damage the EU's credibility as a leader on biodiversity policy. It would also send a message internationally, boosting those who would willingly see biodiversity protections weakened, including for reasons other than facilitating renewable energy projects.

The legal issues presented here should not, it is submitted, be regarded as insurmountable problems, nor as a trigger for reforms aimed at weakening biodiversity protections. Rather, these issues are better regarded as an opportunity for an open, informed, global debate regarding the relationship between biodiversity and climate change policies (for an economic analysis of the relationship, see TEEB, 2009, 2010). Three issues seem likely to be key.

First, can a hierarchy between biodiversity and climate change policies ever be justified? If not, it would be wise to consider why this is not always reflected on the ground (e.g. the Sabor dam). Second, while certain renewable energy technologies might typically have damaging impacts, others will have lesser impacts, and some might even be beneficial in biodiversity terms (Inger et al., 2009). Where conflicts with biodiversity arise, such low(er) impact alternatives should be given serious consideration by national authorities (for an example in the context of the Severn barrage, see RSPB, 2008; Atkins and Rolls-Royce, 2010). Third, the demand side of the energy equation should not be forgotten. Given that even the zero option (i.e. deciding not to proceed with the envisaged plan or project at all) must be considered under Article 6(4) of the Habitats Directive (European Commission, 2007b), arguably the alternatives to be considered by national authorities in respect of large, centralised power projects should include: investing in end-use generation; energy conservation initiatives; and an overall reduction in national consumption levels.

One might object that local, rather than national, authorities may in some cases be the authorising body for renewable energy projects, and that such local authorities would not be best placed to adopt a position on energy production vs. consumption reduction issues, for example, which might properly be regarded as national-level policy issues. However, that is a practical issue that could be addressed relatively straightforwardly (e.g. by way of national-level guidance, combined with an appeal procedure to a national-level body in respect of such decisions). One might further argue, as a related point, that such issues would be better considered via strategic environmental assessment of national plans and programmes (e.g. under the EU's Strategic Environmental Assessment Directive (2001)). However, it would arguably be optimal for the above-mentioned alternatives to be required to be considered both at the strategic plan and programme level *and* at the project level, particularly given the potential adverse impacts of large energy projects on biodiversity, which tend to be most evident at the project level.

A forward-thinking approach to Article 6(4) of the Habitats Directive in the context of energy generation could include requiring a broadening of the consideration of alternatives, as described above. In practical terms, this could be achieved by way of revised guidance from the European Commission. Such an approach would arguably have three-fold benefits: first, it would help to protect Natura 2000 sites, and hence biodiversity, from damaging development; second, it would be consonant with the Renewable Energy Directive's (2009, Article 3(1)) obligation on the EU's Member States to promote and encourage energy efficiency and energy saving; third, it would force the Member States to think expansively about their energy, consumption, and population policies (on the issues of consumption and population, see Ehrlich and Ehrlich, 2004). While the rejection of a large, flagship renewable energy project on the basis of the existence of the above-mentioned alternatives might currently seem unlikely, as Kaletsky (2008) has commented in another context: “The wonder of ... crises is how events can move straight from impossible to inevitable, without ever passing through improbable.”

There is an old legal saying, “hard cases make bad law.”<sup>16</sup> We now face the task of ensuring that hard renewable energy cases do not make bad nature conservation policy.

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<sup>16</sup> Often attributed to the US Supreme Court Judge Oliver Wendell Holmes, who wrote, “Great cases, like hard cases, make bad law”, in *Northern Securities Co. v. United States* (1904), 193 U.S. 197, pp. 400–401.

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