



House of Commons
Environmental Audit
Committee

**HS2 and the
environment**

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*Report, together with formal minutes relating
to the report*

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Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

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Contents

Report	<i>Page</i>
Summary	3
1 Introduction	5
Our inquiry	6
2 The environmental aim of HS2: no net biodiversity loss	7
The aim	7
Applying the mitigation hierarchy	8
Assessment baselines	11
3 Biodiversity offsetting	13
The offsetting metric	13
The time delay factor	18
Location of replacement habitats	20
4 Monitoring and management	22
5 HS2 and emissions	26
6 Consultation and environmental assessment	30
Consultation and public engagement	30
Sustainable development	31
Environmental assessment	33
Hybrid Bill select committee	37
Conclusions	40
Recommendations	42
Formal Minutes	44
Witnesses	45
Published written evidence	46

Summary

In this report we have examined the rationale for the HS2 aim of delivering ‘no net biodiversity loss’ and the mechanisms for environmental protection in the project. Our aim has been to inform the House on these matters ahead of the imminent second reading of the HS2 Hybrid Bill and the forming of a select committee soon after to examine petitions from those affected by the project.

The Government should aim higher than that objective of no net biodiversity loss. It has significant work to do to demonstrate that it has put the ‘mitigation hierarchy’ at the heart of its approach, given the environmental damage expected to ancient woodlands, SSSIs and local wildlife sites. Where such biodiversity loss is genuinely unavoidable and cannot be mitigated, compensation measures should be applied to the fullest extent possible. HS2 Ltd must carry out environmental surveys as much as possible of the 40% of the route yet to be examined and catalogue all ancient woodland and protected animal species.

The HS2 biodiversity offsetting metric in some respects provides additional protections compared to those in Defra pilot projects, but given the uncertainties surrounding the effectiveness of HS2 offsetting and the scale of the land to be taken by the project, the HS2 metric should be adjusted wherever possible to encompass the precautionary principle and be independently monitored. Where damage to ancient woodlands is inevitable the metric should bring forward the maximum possible compensatory habitats, but ancient woodlands should be treated separately from the overall ‘no net loss’ calculation. The Government should reconsider its requirement for biodiversity compensation to be provided directly alongside the HS2 route, to take opportunities for better offsetting measures further afield.

The *HS2 Environmental Statement*, and its associated documents and plans, published alongside the Hybrid Bill, provide a degree of environmental protection by specifying minimum requirements and standards, but only if adjustments are not avoided on the grounds they would not be ‘reasonable’ or ‘practicable’ and only if a separate budget is provided to meet the cost of environmental protections. The Government should establish a long-lasting process to monitor all aspects of environmental protections needed for HS2, overseen by an independent body, along with a ring-fenced separate environmental budget.

Carbon is diminishing as a factor in the debate on the case for the project, and the likely savings are likely to be relatively small. A bigger issue is the potential effect of the decarbonisation of the generation of the required electricity. The Government should examine the scope for requiring a reduced maximum speed for the trains until electricity generation has been sufficiently decarbonised.

In the absence of a formal Strategic Environmental Assessment process for HS2, the Government should ensure that its instructions to the Hybrid Bill Select Committee: (i) include sufficiently broad ‘principles’ to allow full consideration of the environmental

impacts of options still available, and (ii) require it to consider and report on the environmental impacts of the project, including the issues we have highlighted in our inquiry. We hope and expect that the Government will do so. If it, or others in the House, do not, we will seek to ensure that that an appropriate instruction motion is tabled.

1 Introduction

1. The High Speed 2 (HS2) project aims to build a fast rail line from London to Manchester and Leeds, via Birmingham, the East Midlands, Sheffield and Crewe, to begin operation in 2026 and be completed in 2032. The High Speed Rail (London-West Midlands) Bill, which allows the construction of the first phase of the route and its associated infrastructure, is expected imminently to be given its second reading in the House of Commons. This will be followed by the establishment of an HS2 Hybrid Bill Select Committee to consider petitions from those affected by the proposed project.

2. These are the latest stages of a project that has been progressed over several years.¹ In January 2012 the Government announced its intention to proceed with phase 1 of the scheme; from London to Birmingham.² In May 2013 the Government and HS2 Ltd (the Government-owned body charged with developing and taking forward the project) published two consultations on phase 1: a *Draft Environmental Statement* and 14 proposed significant *Design Refinements*.³ A final *Environmental Statement* was published for consultation alongside the Hybrid Bill in November 2013 and the period of consultation was subsequently extended by Parliament to 27 February.⁴ Comments on the *Environmental Statement* are being summarised by an independent assessor (Golder Associates) appointed by the Examiners of Petitions for Private Bills, and their report is expected to be published before the 2014 Easter Parliamentary Recess.

3. In March 2014, Sir David Higgins, the Chairman of HS2 Ltd, recommended major adjustments to the project, including extending the line north of Birmingham to a new regional transport hub at Crewe by 2027, scrapping the proposed direct HS1-HS2 link in North London and reconsidering the plans for developing Euston.⁵ The Government subsequently indicated its support in principle for these changes.⁶

4. In January 2013 the Government published details of phase 2 of the line, from Birmingham to Manchester and Leeds. There would be no decision on a possible Heathrow spur until after the Davies Commission on aviation capacity reported in 2015.⁷ A consultation on phase 2 was launched in July 2013 and a final decision is expected by the end of 2014.

1 Further details are set out in House of Commons Library Standard Note 316, [Railways: high speed rail \(HS 2\)](#).

2 Department for Transport, [High Speed Rail: Investing in Britain's Future – Decisions and Next Steps](#), Cm 8247, January 2012, pp37-38

3 Department for Transport/HS2 Ltd, [Design Refinement Consultation: Consultation Document – London-West Midlands](#), May 2013, p7

4 [HC Minutes Of Proceedings taken before the Standing Orders Committee on the High Speed Rail \(London – West Midlands\) Bill](#), 15 January 2014, para 331; and: [HL Standing Orders \(Private Bills\) Committee considering the Examiners' Certificate on the High Speed Rail \(London - West Midlands\) Bill](#), 20 January 2014, para 259

5 Sir David Higgins, [HS2 Plus](#), March 2014, pp12-14

6 [HC Deb, 17 March 2014, col53WS](#)

7 Department for Transport, [High speed rail: investing in Britain's future – Phase Two: the route to Leeds, Manchester and Beyond](#), Cm 8508, January 2013, p9

Our inquiry

5. The parliamentary process for HS2 is unusual. Because HS2 is a major project that potentially affects individuals and businesses along its route, the Government has chosen to implement it through a hybrid bill, leaving Parliament as the ‘relevant authority’ to give planning permission through the passage of the Bill. That places a greater imperative on the House, and its committees, to undertake scrutiny of the proposals.

6. Our inquiry is intended to inform the House about the environmental aspects of the project when it gives the HS2 Hybrid Bill its second reading, and afterwards to inform the Select Committee when it considers petitions. In doing so, we put our 2013 report on *Biodiversity Offsetting*—providing alternative habitats to compensate for biodiversity lost in developments—into the context of a major project which will have to make it work in practice. The Government’s response to our report indicated that Defra would await the completion and evaluation of its offsetting trials before finalising any new system. In the meantime, the HS2 *Environmental Statement* proposes a metric for assessing biodiversity offsetting which is adapted from that draft Defra methodology. We also examined the Government’s aim of preventing net biodiversity loss, and the emissions consequences of the project.

7. We did not examine the economic case for HS2, and we make no judgement about that in this report. This has been the focus of a number of inquiries by other committees.⁸ Nor do we examine the environmental or community issues for particular parts of the route.

8. We received written submissions from a range of NGOs and individuals as well as from Government and its agencies. We took oral evidence in only two sessions in the interest of being able to produce a report ahead of the Bill’s second reading. We heard from HS2 campaign groups, NGOs, Natural England, the Environment Agency, Defra and the Department of Transport as well as Robert Goodwill MP, Parliamentary Under-secretary of State at DfT. We are grateful for the assistance of our specialist adviser Dr William Sheate.⁹

8 National Audit Office, [High Speed 2: A review of early programme preparation](#), HC 124 (2013-14); Public Accounts Committee, Twenty-Second Report of Session 2013-14, [High Speed 2: A review of early programme preparation](#), HC 478; Treasury Committee, Third Report of Session 2013-14, [Spending Round 2013](#), HC 575

9 Dr Sheate declared the following interests on 26 February 2014: Adviser to HS2 Action Alliance and Chiltern Conservation Board on the judicial review of HS2 and the HS2 Appraisal of Sustainability (2011-13); and project manager on Defra’s evaluation of the biodiversity offsetting pilot scheme in England (2012-14).

2 The environmental aim of HS2: no net biodiversity loss

The aim

9. HS2 Ltd's *Environmental Statement* declares that "Overall, ... the project is seeking to achieve no net loss in biodiversity at the route-wide level".¹⁰ This reflects the National Planning Policy Framework, which states that

If significant harm to biodiversity resulting from a development proposal cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.¹¹

Defra told us that such a 'no net loss' objective would be challenging:

There is no other international infrastructure project this large that ... [goes] further, so to achieve 'no net loss' is in itself challenging. Whether they can go beyond, and achieve net gain, is something we will have to wait and see, but that would be above any other international standard.¹²

10. However, that is the aim set out in the Government's 2011 *Natural Environment White Paper*, which stated:

The Government wants this to be the first generation to leave the natural environment of England in a better state than it inherited. ... It requires us all to put the value of nature at the heart of our decision-making—in Government, local communities and businesses. In this way we will improve the quality and increase the value of the natural environment across England.¹³

Our witnesses also believed the goal should be higher. The Country Land and Business Association (CLA) thought that "there is not much ambition in [no net loss]".¹⁴ Campaign to Protect Rural England (CPRE) told the Committee:

The *Environmental Statement* seems to be about trying to minimise environmental harm rather than seek any environmental opportunities. There is a massive lost opportunity there ... HS2 should be part of a bigger strategy to try to maximise use of brownfield land and reduce land-take by

10 HS2 Ltd, *Environmental Statement*, [Volume 1: Introduction to the Environmental Statement](#), Para 9.8.6

11 Defra, [Biodiversity Offsetting in England Green Paper](#) (September 2013), p24; Defra, [Making Space for Nature](#) (September 2010), p87

12 Q142

13 Defra, [The Natural Choice: securing the value of nature](#), Cm 8082 (June 2011), para 2

14 Q29 (Mr Robinson)

car parking and roads, but unfortunately it is not being planned in a joined-up fashion.¹⁵

11. Whether an aim of ‘no net loss’ or ‘net gain’, we were told that it should not be calculated only at route-level. The Woodland Trust believed that:

... there is a natural justice in that if something is lost to a local community they should have the benefit provided, or a compensation provided, at that stage as well.¹⁶

The CPRE shared that view.¹⁷ Camden Council wanted any compensation measures to be tailored to local conditions and to ensure that residents’ enjoyment of green spaces was not diminished.¹⁸

12. On HS2 the Government should aim higher than simply striving for no net biodiversity loss. As it further develops its processes and metrics for biodiversity offsetting (paragraph 23), it should seek to weight these to be more likely to produce biodiversity gains and take explicit account of local communities’ well-being (paragraph 44).

Applying the mitigation hierarchy

13. The HS2 *Environmental Statement* reflects the ‘mitigation hierarchy’ previously set out in Defra’s *Natural Environment White Paper*: environmental impacts should be avoided in the first instance, mitigated if impossible to avoid, and compensated for as a last resort.¹⁹ At each successive step down the hierarchy, the degree of environmental protection is diminished. The *Environmental Statement* states that HS2 Ltd had attempted to minimise identified adverse environmental impacts through route design. Where, despite mitigation, adverse effects were predicted to occur, it “proposed repair and compensation measures”.²⁰ In a similar vein, the Department of Transport told us that “the approach taken to mitigation was to address the likely significant effects of the scheme wherever reasonably practicable.”²¹ Specifically, they said:

HS2 has sought to avoid impacts on sites designated under the Habitats Regulations. No internationally important sites will be significantly affected by Phase One. Only two nationally important Sites of Special Scientific Interest will be directly affected by the railway. Where Local Wildlife Sites are affected, compensatory habitat creation will be provided to ensure no permanent significant effects remain on the ecological network at a regional

15 Q29 [Mr Smyth]

16 Q31 [Mr Barnes]

17 Q31 [Mr Smyth]

18 London Borough of Camden ([HS2 035](#)), para 6

19 Defra, [Biodiversity Offsetting in England Green Paper](#) (September 2013), p24; Defra, [Making Space for Nature](#) (September 2010), p87

20 Department for Transport/HS2 Ltd, [Non-Technical Summary of the HS2 Phase 1 Environmental Statement](#), November 2013, p4

21 Department for Transport ([HS2 028](#)), para 4.3

or route-wide level. The exception to this is for irreplaceable ancient woodland, where compensation measures have been included to substantially reduce the effects.²²

Some of our witnesses were not convinced. CPRE complained that HS2 Ltd had not provided information on where costs had been the determining factor in not adhering to the principles of the hierarchy.²³ The Minister told us that there would be “no Natura 2000 sites affected, ... two SSSIs affected, ... 41 habitats of principal importance directly affected, and 19 ancient woodlands [covering] 32 hectares”.²⁴ The Woodland Trust told us that the destruction of ancient woodlands raised questions about the application of the mitigation hierarchy, illustrated it argued by a lack of explanation about why a Chilterns Tunnel (“that would save one third of the ancient woodland threatened along the route”) would not be taken forward.²⁵ Environment Bank, similarly, said it was necessary to use tunnels rather than cuttings to minimise damage to ancient woodlands.²⁶

14. HS2’s commitment to a high train operating speed provides a wider-scale test of the application of the mitigation hierarchy. Some of our witnesses considered that a slower speed scheme would allow the route to curve more and miss particular environmentally sensitive features.²⁷ Greengauge 21 noted, though, that “a wiggly line is basically longer”, needing more construction and consequently producing environmental disruption over a longer distance.²⁸ HS2 Ltd told us that lower speed would allow greater “lateral curvature” of the route, “but you would not change it to any great extent or to the extent where you could perhaps skirt around an individual woodland”.²⁹ They told us, furthermore, that reducing maximum train speed from 360kph to 300kph would result in a 25% reduction in the benefit:cost ratio.³⁰ But this, it appears to us, simply reflects the fact that the economic case for HS2—which is largely based on calculations of journey time savings—does not take most environmental impacts into consideration (the exception being costs attributable to landscape effects).³¹

15. The task of presenting a credible case that the mitigation hierarchy has been followed has been made unnecessarily more difficult by HS2 Ltd’s apparent confusion and inconsistency over terminology. Witnesses told us that throughout the *Environmental Statement*, ‘mitigation’ and ‘compensation’ measures had been used interchangeably. The Woodland Trust told us that individual Community Forum reports had blurred the lines between these, and that what was classified as a mitigation or a compensation measure had

22 Department for Transport ([HS2 028](#)), para 2.18

23 Q43

24 Q122

25 Q43

26 The Environment Bank ([HS2 023](#)), para 17

27 Q1

28 Q12

29 Q120

30 Q121

31 Department for Transport, [The Economic Case for HS2: Value for Money Statement](#) (January 2012), paras 6.12, 6.16

differed between Forums.³² The Wildlife Trusts, similarly, highlighted such terms being “used interchangeably, ... combined and overlapped, ... [and] double-counted”.³³ RSPB told us that “the *Environmental Statement* wrongly extends the definition of mitigation to include compensation”, so that “habitats to be created to compensate for unavoidable damage to protected [SSSIs] are wrongly identified as mitigation and on that basis ... [the *Environmental Statement*] suggests that there are no residual adverse effects”.³⁴

16. Some witnesses saw such imprecision as an attempt to reduce the pressure to avoid or mitigate environmental damage. RSPB believed that “the mitigation hierarchy has been misapplied in the *Environmental Statement* to gloss over residual impacts on SSSIs and protected species, notably bats”.³⁵ The Woodland Trust also had similar concerns about the treatment of ancient woodland in the *Environmental Statement*, which did not reflect the fact that such woodland is “irreplaceable, and as such any loss cannot be mitigated, only compensated for.”³⁶

17. Buckinghamshire County Council questioned the scientific evidence behind mitigation measures aimed at protecting Bechstein’s bats.³⁷ HS2 Ecology Technical Group (an independent expert advisory group) and RSPB told us that the success of proposed measures was uncertain.³⁸ And the Woodland Trust were concerned about the “relatively new and unproven” proposal of relocating soils from affected ancient woodland, noting that the use of this approach on HS1 had apparently not been monitored.³⁹

18. The ‘mitigation hierarchy’ lies at the heart of the Government’s approach to environmental sustainability. At each successive step down the hierarchy, the degree of environmental protection is diminished. The hierarchy should be followed in developing HS2, but the Government has significant work to do to demonstrate that this approach is being applied, given the environmental damage current plans envisage to ancient woodlands, SSSIs and local wildlife sites, and the possible significant harm for particular species affected.

19. *The HS2 Environmental Statement must be revised to distinguish clearly between ‘mitigation’ and ‘compensation’ measures in respect of biodiversity, and to explain the factors determining in which cases these should be applied. If biodiversity loss is genuinely unavoidable and also cannot be mitigated, compensation measures should be applied to the fullest extent possible.*

32 Q44

33 Wildlife Trusts ([HS2 049](#)), para 25

34 RSPB ([HS2 025](#)), para 6

35 *ibid*, para 17

36 The Woodland Trust ([HS2 021](#)), para 2.4.

37 Buckinghamshire County Council ([HS2 024](#)), para 5.5.1.

38 HS2 Ecology Technical Group ([HS2 027](#)), para 10.4; RSPB ([HS2 025](#)), para 7

39 The Woodland Trust ([HS2 021](#)), para 1.6; Q49

Assessment baselines

20. Any assessment of whether HS2 will be able to meet its objective of no net biodiversity loss depends on establishing a clear baseline of the state of habitats and biodiversity before the project commences. At the very least the Government must catalogue the biodiversity present. As the work envisaged by the Natural Capital Committee unfolds such assessments might in time also be able to take account of what it called ‘unsustainable use’ of aspects of natural capital.⁴⁰ HS2 Ltd told us that because there is no obligation for landlords to grant access to their land, they have surveyed only 60% of the land covered by the Hybrid Bill.⁴¹ They have augmented their own surveys with widely available existing data and aerial photography.⁴² Unsurprisingly, this has led to criticisms that HS2 Ltd’s baseline data is inadequate. The Woodland Trust told us that it had found that “more than half of the woodlands have not been surveyed”.⁴³ The HS2 Ecology Technical Group had found that “a true representation of known and potential biodiversity has not been illustrated on the *Environmental Statement* maps [which] leads to a serious misrepresentation of the potential impacts of the Proposed Scheme”.⁴⁴ As a result, the *Environmental Statement* had not considered some European protected species,⁴⁵ nor local wildlife sites which also often “support habitats of principal importance”.⁴⁶

21. HS2 Ltd told us that further surveys would be carried out, particularly on protected species.⁴⁷ The Department of Transport explained that any significant changes arising from such survey work would require further consultation:

If the survey data identified a new significant environmental effect that is not in the *Environmental Statement* we would have to deposit what is called Supplementary Environmental Information. That would be subject to the minimum of 42 days’ public consultation. The consultation responses would then be summarised by a technical assessor appointed by Parliament, so the whole process would ensure that that information is fully aware to Parliament when it is making its decision about this project.⁴⁸

If the Bill is given Royal Assent and it becomes an Act, the way that the Bill is constructed and the way that the *Environmental Minimum Requirements* and commitments that the Secretary of State gives to the House effectively means that the railway needs to be built within the scope of the *Environmental Statement*, or it does not have planning permission, or further consent has to be sought. If there is an additional environmental effect that is not identified

40 Natural Capital Committee, [The state of natural capital: Restoring our natural assets](#) (March 2014), para 2.12

41 Q147

42 Qq147,148 and 151

43 Q33

44 HS2 Ecology Technical Group ([HS2 037](#)), para 11.3

45 *ibid*, para 11.6

46 *ibid*, para 11.8

47 Q148

48 Q149 (see also Q114)

until after Royal Assent, the nominated undertaker—the organisation building the railway—would be required to get planning permission via the local authority, so there is always a check and a balance.⁴⁹

22. The Government has not been able to establish a full environmental baseline against which the aim of ‘no net biodiversity loss’ can be assessed. *HS2 Ltd must carry out outstanding environmental surveys as soon as possible. It should focus particularly on cataloguing all ancient woodland and protected animal species, and as much as possible of the 40% of the route yet to be examined by involving local wildlife groups where possible.* We discuss below how, as the surveying continues, it should take on board the work of the Natural Capital Committee (paragraphs 39, 43) and well-being considerations (paragraph 44).

3 Biodiversity offsetting

The offsetting metric

23. The *Environmental Statement* contains a detailed metric to “provide a calculation showing what the project has achieved in working towards the goal of seeking no net loss in biodiversity”.⁵⁰ The metric is based on, but differs from, the methodology defined by Defra in its *Biodiversity Offsetting Green Paper*. The HS2 *Environmental Statement* describes this as the “best available basis” to robustly assess biodiversity gains and losses.⁵¹ It states that the Defra metric has been adjusted for use on HS2 “to address feedback that has arisen from use of the methodology within the [Defra] pilot areas, and to ensure that it is suitable for use in support of a landscape-scale project”.⁵²

24. The Woodland Trust considered it “completely inappropriate to depart from Defra’s position, and we are concerned that this will not take account of the advice embedded within Defra’s pilots provided by Natural England”. They told us that “For HS2 to come up with a metric in advance of all the detailed consultation ... is a little premature”.⁵³ Our Defra witness acknowledged that “the two [metrics] are not perfectly aligned”, but that HS2 had “taken the essential parts” of the Defra scheme.⁵⁴ The Department of Transport told us that the proposed metric had been developed in consultation with Defra and Natural England,⁵⁵ and Natural England told us that “we have certainly been sighted on the changes to metrics”.⁵⁶

25. The *Biodiversity Offsetting Green Paper* was clear that Defra’s proposed metric was intended to be suitable for any project, stating that “any offsetting system in England would be underpinned by a standard metric”.⁵⁷ However, Defra’s own guidance for developers using biodiversity offsetting makes it clear that offsetting is designed for dealing with low level biodiversity loss, not in relation to protected sites or species.⁵⁸ Sara Eppel of Defra told us that the metric had needed to be amended for use on HS2 because of “the size of HS2”.⁵⁹ Dave Buttery of the Department of Transport told us

What we are trying to do is sensibly build on what Defra already has to make sure that we are getting the full ambit of a project, a very long, linear project

50 HS2 Ltd, *Environmental Statement*, Volume 5, [Ecology Technical Note](#) – Methodology for demonstrating no net loss in biodiversity (November 2013), para 5.1.2

51 *ibid*, para 1.5.1.

52 *ibid*, para 1.5.1.

53 Q32

54 Q153

55 Department for Transport ([HS2 028](#)), para 5.2

56 Q84

57 Defra, [Biodiversity Offsetting in England Green Paper](#) (September 2013), para 13

58 Defra, [Biodiversity Offsetting Pilots Guidance for Developers](#), March 2012, paras 5; 23

59 Q153

where you have much more scope for things like [habitat] connectivity than you do if you are dealing with a small individual project.⁶⁰

26. We recently received the Government’s Response⁶¹ to our report on Defra’s proposal for Biodiversity Offsetting, which accepted our main recommendation not to finalise any offsetting scheme until the pilots had been completed and evaluated.⁶² Defra’s Sara Eppel acknowledged in evidence to this inquiry that their metric might be further developed, “depending on what comes out of the pilots.”⁶³ She could not, however, speculate whether the HS2 metric might also be revised to take account of the results of Defra’s pilots.⁶⁴

27. The HS2 metric assesses the biodiversity value of ‘habitat parcels’ affected by the proposed route using three factors—‘distinctiveness’, ‘condition’ and ‘the position in the ecological network’. An area of affected land would be rated under each of these factors, with the results multiplied together to create a ‘biodiversity units’ score. Replacement (offsetting) habitats are also scored under these three factors, but with additional factors applied to take account of the time taken for new habitats to become established and for the difficulty or risk involved in providing the offset (Figure 1).

28. A *Technical Note* in the *Environmental Statement* sets out a detailed description of the HS2 metric, highlighting particular changes from the Defra version. These adjustments (shown in Figure 1 below) included⁶⁵:

- i) adding an additional ‘very high’ weighting, under habitat distinctiveness (box A in Figure 1), for existing habitats to take account of those “habitats of principal importance ... which cannot be adequately re-created if lost”;
- ii) ensuring that all existing habitats rated as ‘low’ ‘distinctiveness’ automatically score ‘poor’ condition (box B in Figure 1), recognising that “condition has negligible effect on the overall value of those habitats which are intrinsically of low distinctiveness”; and
- iii) incorporating additional weightings, for both lost and gained habitats, to reflect links to ecological networks (box C in Figure 1) and recognising “the landscape-scale of the project and its impacts”.

60 Q156

61 Environment Audit Committee, Ninth Special Report of Session 2013-14, [Biodiversity Offsetting: Government Response to the Committee’s Sixth Report of Session 2013-14](#), HC 1195, para 15

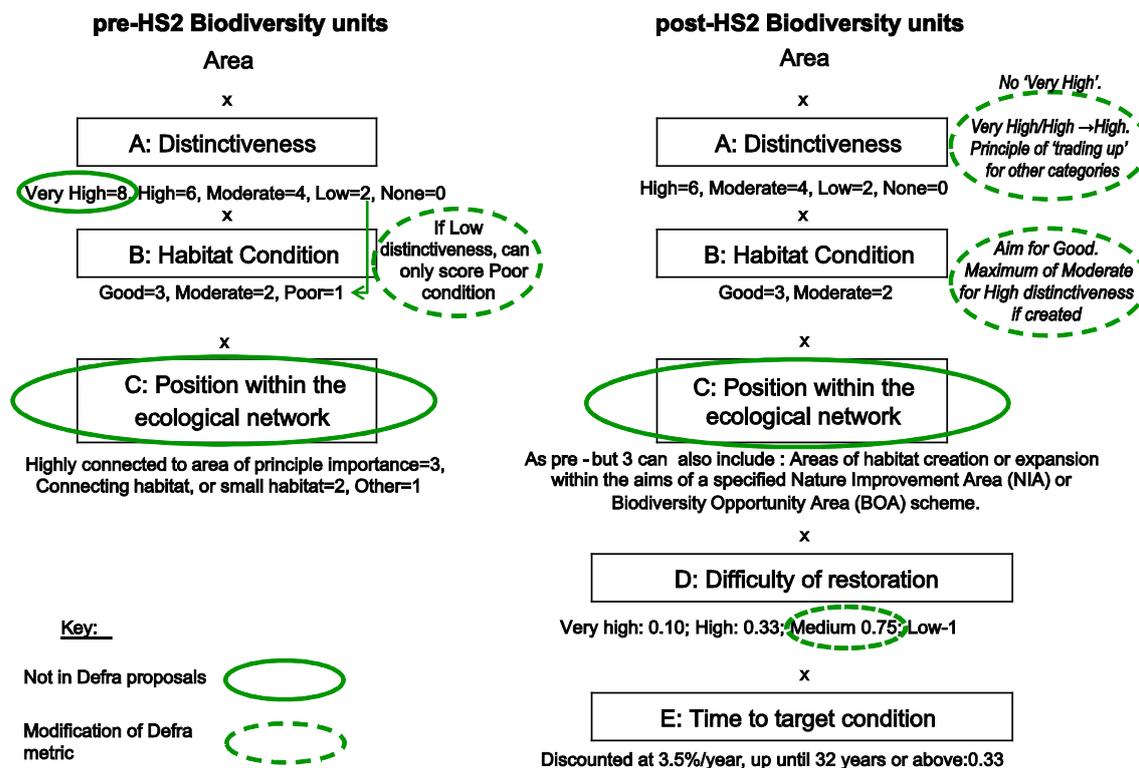
62 Environmental Audit Committee, Sixth Report of Session 2013-2014, [Biodiversity Offsetting](#), HC 750, para 45.

63 Q153

64 Q155

65 HS2 Ltd, *Environmental Statement*, Volume 5, [Ecology Technical Note](#) – Methodology for demonstrating no net loss in biodiversity (November 2013), para 1.5.2.

Figure 1: Offsetting metrics for habitats lost (left-hand side) and habitats gained (right-hand side)



Source: Environmental Audit Committee from Volume V of Ecology Technical Note⁶⁶

29. The detailed descriptions of how the metric will operate also include important stipulations for distinctiveness and condition:

a) Unavoidable losses of ‘very high’ distinctiveness habitats will be compensated through the provision of larger areas of ‘high’ distinctiveness habitat.⁶⁷ For ‘high’ distinctiveness habitats, the offset will usually be like for like, i.e. aiming to create or restore the same type of habitat.⁶⁸ For ‘medium’ distinctiveness habitats, the offset will largely be made up of habitat from the same distinctiveness band or higher; that is habitat from the ‘medium’ or ‘high’ distinctiveness band). ‘Low’ distinctiveness habitats will be ‘traded up’, and be largely made up of habitat from the medium or high distinctiveness band⁶⁹ (box A in Figure 1).

b) The target condition that can be predicted for the *creation* of high distinctiveness habitats is a maximum of ‘moderate’.⁷⁰ However, it also states “where habitat

66 HS2 Ltd, *Environmental Statement*, Volume 5, [Ecology Technical Note](#) – Methodology for demonstrating no net loss in biodiversity (November 2013)

67 *ibid*, para 4.2.3

68 *ibid*, para 4.2.4

69 *ibid*, para 4.2.5

70 HS2 Ltd, *Environmental Statement*, Volume 5, [Ecology Technical Note](#) – Methodology for demonstrating no net loss in biodiversity (November 2013), para 4.3.1

restoration or enhancement is proposed then a habitat condition of ‘high’ can be targeted for habitats of ‘high’, ‘moderate’ or ‘low’ distinctiveness”.⁷¹ The assumption that “all habitats that are to be created for the primary purpose of ecological mitigation will aim to achieve the maximum target condition available (i.e. a score of 3 for habitats of moderate distinctiveness and 2 for habitats of high distinctiveness).” Replacement habitats will therefore not be provided if they would score as being in ‘poor’ condition⁷² (box B in Figure 1).

30. In our report on biodiversity offsetting, we recommended:

If biodiversity offsetting is introduced, its metric for calculating environmental losses and gains must reflect the full complexity of habitats, including particular species, local habitat significance, ecosystem services provided and ‘ecosystem network’ connectivity.⁷³

The proposed HS2 metric includes a multiplier for assessing the connectivity of the ecosystem (box C in Figure 1), but does not explicitly include any consideration of species within the metric. RSPB believed that “the [HS2] *Technical Note* should acknowledge the known weaknesses in the Defra offsetting metrics in dealing with impacts on species in general and specialist species in particular”, and concluded that the metric therefore “under-estimated the impacts on species of conservation concern”.⁷⁴

31. Rob Cooke of Natural England thought that it was difficult to judge whether the weightings attached to the different factors were correct.⁷⁵ The CLA were concerned that the HS2 metric might result in a larger area of land being required for compensation than under the Defra scheme.⁷⁶ Environment Bank, on the other hand, believed that the metric would lead to “deliberate or otherwise under-valuation of existing habitats” and “...over-valuation of proposed habitat mitigation”.⁷⁷ They criticised the assumptions made in the HS2 metric where habitats had not been surveyed, which suggested that only habitats managed for conservation purposes could be scored as in ‘good’ condition:

Classifying all remaining [unsurveyed existing] habitat as ‘moderate’ ‘condition’ is not following the precautionary principle, which would suggest a ‘good’ ‘condition’ score for habitats [instead].⁷⁸

Environment Bank also questioned the implicit assumption in the proposed HS2 metric about the potential achievable ‘condition’ of new (offset) habitats, which did not appear to follow the precautionary principle:

71 *ibid*, para 4.3.2

72 *ibid*, para 4.3.3

73 Environmental Audit Committee, Sixth Report of Session 2013-2014, [Biodiversity Offsetting](#), HC 750, para 16

74 RSPB ([HS2 025](#)), para 13

75 Q84

76 Q38 [Mr Robinson]

77 Environment Bank ([HS2 023](#)), para 5

78 *ibid*, para 20

Should grassland be recreated on previous arable land, it is doubtful without a robust management plan that it will attain high distinctiveness or good condition. If a woodland or pond is created for landscape/drainage purposes there is no information to support its good management and again it may not attain high distinctiveness or good condition. A precautionary principle would be not to allocate any [offset] habitats as good condition at this early planning stage.⁷⁹

32. The *Environmental Statement* identifies a need for the “beneficial effect” of offsetting to compensate for

the “adverse effect” on “habitat types which are considered irreplaceable (e.g. ancient woodland)... In this instance the ‘beneficial’ effect will be included to demonstrate the positive value of the proposed compensation, while acknowledging that the new habitat cannot replace ancient woodland.”⁸⁰

But a number of our witnesses believed that ancient woodland should not be included in the offsetting metric at all. The Ecology Technical Group recommended that such “irreplaceable habitats ... are considered separately”,⁸¹ as did the Woodland Trust⁸² and Buckinghamshire Council.⁸³ RSPB believed that

no matter what multiplier is applied in the case of irreplaceable habitats, new habitat creation cannot overcome our basic inability to compensate for the loss of such habitats. Such net losses should be clearly acknowledged, not concealed by false accounting.⁸⁴

33. In our report on *Biodiversity Offsetting*, we recommended that “for developments not of national significance, offsetting would not be appropriate where environmental loss is irreplaceable within a reasonable timeframe, such as with ancient woodlands.”⁸⁵ We recognised that nationally important infrastructure projects, such as HS2, might be unable to avoid some damage to ancient woodlands and raise a question about how best to compensate for that. The report was clear that compensation should only be a last resort, and there needed to be sufficient safeguards in place to ensure that harm is minimised and that compensation is adequate.

34. Natural England told us that:

... biodiversity offsetting should be given further consideration in the context of providing compensation for unavoidable loss of ancient woodland. The

79 Environment Bank ([HS2 023](#)), para 21

80 HS2 Ltd, *Environmental Statement*, Volume 5, [Ecology Technical Note](#) – Methodology for demonstrating no net loss in biodiversity (November 2013), para 6.1.2.

81 *ibid*, para 8.2

82 Q38

83 Buckinghamshire County Council ([HS2 024](#)), para 5.4.1

84 RSPB ([HS2 025](#)), para 15

85 Environmental Audit Committee, Sixth Report of Session 2013-2014, [Biodiversity Offsetting](#), HC 750, para 16

compensation ratio should reflect the distinctiveness of this habitat type and recognise that for ancient woodland this is an irreplaceable habitat.⁸⁶

Environment Bank questioned whether a ‘distinctiveness’ weighting of eight (box A in Figure 1) “adequately reflect[ed] their biodiversity value”.⁸⁷ Robert Goodwill MP told us that such a weighting would mean that eight times the area of ancient woodland lost would have to be provided through offsetting land.⁸⁸ In fact the distinctiveness score of eight for ‘very high’ distinctiveness habitats would be only double the score (four) for ‘medium’ distinctiveness habitats. The area of offsetting required would depend on other factors (condition or ecological network links), as well as the difficulty of restoration and how long it would take (boxes D and E in Figure 1).

35. The HS2 biodiversity offsetting metric includes some features which provide additional protections to those envisaged in last year’s Defra Offsetting Green Paper, but unlike the Defra approach it also allows offsetting to be assessed and scored for irreplaceable habitats such as ancient woodlands. The HS2 metric for new habitats rightfully aims to create habitats that would be regarded as achieving ‘good’ condition. However, given the uncertainties surrounding the effectiveness of offsetting on HS2, along with the scale of the land to be taken by the project, the metric should be adjusted wherever possible to encompass the precautionary principle. It should for example only allow offset land to be categorised as ‘good’ condition if there is a fully costed long-term plan for the site’s management and independent monitoring. As Defra are still finalising the standard metric for offsetting, HS2 should look to incorporate any additional learning from these pilots into the metric for this project, to ensure it is robust and reflects best available information.

36. If the offsetting metric is used to determine compensation for ancient woodlands on the HS2 route, these habitats should receive the maximum score possible on all criteria (distinctiveness, condition and position within ecological networks) to recognise their irreplaceability and to maximise the extent of the offsetting provided. But ancient woodlands should be treated separately from the overall biodiversity ‘no net loss’ calculation.

The time delay factor

37. The HS2 metric makes assumptions about how long different types of offsetting habitats would need to reach ‘target condition’ (box E in Figure 1), including for example five years for ponds, 10 years for landscaping woodlands and 32 years for mature

86 Natural England ([HS2_051](#)), para 2.32

87 Environment Bank ([HS2_023](#)), para 17

88 Q162

heathland.⁸⁹ The March 2014 second progress report by the Natural Capital Committee, *The State of Natural Capital: restoring our Natural Assets*, concluded that:

Restoration is almost never complete; even after 100 years restored habitats can still be distinguished from their natural un-impacted counterparts. However, there may be significant gains in terms of the benefits provided (when compared to the degraded state).⁹⁰

Accordingly, the Environment Bank believed that some of the estimates of the time taken for replacement habitats to reach the condition anticipated in the HS2 offsetting metric were too low:

Woodland (for ecological purposes) is recorded as 32 years+ which is probably appropriate, but ‘landscape’ woodland is said to reach target condition in only 10 years. At this age, however, such woodland will not be ecologically functional. ... Full habitat establishment of grassland is claimed within 5-10 years; we suggest it is unlikely that 5 years is sufficient and the use of this figure does not adhere to the precautionary principle.⁹¹

38. Natural England pointed out that:

the length of time a habitat will take to establish is dependent both on the habitat type and also where it is put, and then how it is managed. The offset metrics are intended to enable a rapid assessment of that by a ratio, which I would imagine is something of an average.⁹²

The Woodland Trust also pointed out that if there is an interval between one habitat being removed and another reaching a comparable stage of maturity, the damage to the species dependent on that habitat may be long-lasting and potentially terminal.⁹³ The Environment Bank believed that “modifications to temporal risk in the metric should be deployed to reflect this”.⁹⁴

39. The *Environmental Statement* proposes applying the standard Green Book discount rate (3.5% pa) to adjust for the time it will take to restore habitats. A recent report from the Commission on Wellbeing and Policy noted, however, (though in the context of ‘social capital’ rather than ‘natural capital’) that such an ‘economic capital’ discount rate might not be appropriate, as this value reflects both general uncertainty about the future and also an element based on people’s expectations of their future income.⁹⁵ However, for the natural environment there may be significant environmental harm to wildlife and

89 HS2 Ltd, *Environmental Statement*, Volume 5, [Technical Appendices: Scope and methodology report addendum \(CT-001-000/2\)](#): 3.5.0.15.2: Annex D Ecology Technical note – Methodology for demonstrating no net loss in biodiversity: para 4.8.3, Table 9

90 Natural Capital Committee, *The state of natural capital: Restoring our natural assets* (March 2014), Box 2.3, p29

91 Environment Bank ([HS2 023](#)), para 24

92 Q88

93 Woodland Trust ([HS2 021](#)), para 2.7

94 Environment Bank ([HS2 023](#)), para 12

95 Commission on Wellbeing and Policy, Legatum Institute, [Wellbeing and Policy](#), March 2014, p53

ecosystems if there is any delay in new biodiversity offset sites being established to provide compensation for land taken by the HS2 route.

40. It is right that the HS2 offsetting metric includes a discount factor for time, but the rate proposed does not fully represent the extent of the environmental harm from the potential delays. Some species may become endangered by the hiatus. This is a difficult area to measure because the discount factors usually applied in economic appraisal to recognise the value of time are unlikely to capture the impact of delays for the wildlife affected. *The Government should commission research on alternative discount factors for the HS2 offsetting metric, to take into account the damage caused by any delays in compensatory habitats reaching maturity.*

Location of replacement habitats

41. The Government’s plan for HS2 is to include all necessary ecological mitigation and compensation measures within the land identified in the Hybrid Bill. The Department of Transport maintains that “this is superior to seeking arrangements at medium and long distances from the proposed scheme.”⁹⁶ Others disagreed. The Chilterns Conservation Board told us:

Much of the proposed offsetting for loss of woodland is tree planting nearby. At best, this is a crudely presented proposal ... There are many examples of proposed planting of productive agricultural land; where the agreement of the landowner is required and may not be forthcoming; which require long-term agreements to avoid its subsequent removal; and where it is appropriate given the existing landscape and ecological networks. At present the impression given is that it is a numbers game.⁹⁷

42. The CLA saw “no justification for where environmental habitat has been [re]located”.⁹⁸ Henry Robinson from the CLA told us that he particularly opposed land being used for biodiversity compensation where it would be “compulsorily purchased off valuable agricultural land”.⁹⁹ The National Farmers’ Union noted that 250 hectares of forestry land might be permanently removed and offset by planting 650 hectares of woodland, and believed that “it cannot be correct to be planting an extra 400 hectares of woodland on top of the 250 hectares lost on prime agricultural land”.¹⁰⁰ The NFU wanted any replanting to be only on farmland “already out of production or of low inherent fertility”.¹⁰¹

43. Environment Bank expressed concern about the failure to contemplate off-site offsetting, rather than on-site compensation, believing that ‘no net biodiversity loss’ (paragraph 9) would not be possible without the former, which it considered to be “a

96 Department for Transport ([HS2 028](#)), para 5.1

97 Chilterns Conservation Board ([HS2 047](#)), para 27

98 CLA ([HS2 036](#)) para 1

99 Q38

100 National Farmers’ Union ([HS2 032](#)), para 5

101 *ibid*, para 7

serious flaw of the *Environmental Statement*".¹⁰² The Government's approach also takes no account of the emerging work of the Natural Capital Committee which examined woodland planting as a case study and emphasised that the value of the ecosystem benefits derived from such planting would be significantly influenced by their location, in particular by 'non-market values' such as people's ability to take recreational enjoyment from those woodlands.¹⁰³ The Natural Capital Committee's analysis formed a foundation for its recent recommendation for a 25 year plan to embed natural capital considerations into Government policy-making.¹⁰⁴

44. The offsetting metric takes no account of the well-being aspects of the habitats and biodiversity lost and gained. That means that on current plans such factors will not be taken into account in deciding on the location of any offsetting. In our report on Defra's *Offsetting Green Paper*, we emphasised how important it is that offsetting sites are accessible to those affected by a development.¹⁰⁵ In our HS2 inquiry, Robert Goodwill MP highlighted "the natural aspirations of the general public to enjoy some of this land" but noted that there was a need for this to be balanced with reducing the habitat disruption that might come from public access.¹⁰⁶

45. There is a rationale for providing biodiversity compensation along the HS2 route, to facilitate the relocation of the wildlife affected and to provide some compensatory well-being benefits to local people disrupted by the railway and its damage to local landscapes. Nevertheless, the requirement for biodiversity compensation to be provided directly alongside the HS2 route may lead to missed opportunities for better offsetting measures. *The Government should re-examine the scope for such off-site biodiversity compensation, taking on board the emerging results from the Natural Capital Committee's work to strike an appropriate balance between what is best for nature and for the people affected.*

102 Environment Bank ([HS2 023](#)), para 26

103 Natural Capital Committee, [The state of natural capital: Restoring our natural assets](#) (March 2014), pp12, 49-53

104 *ibid*, para 7.3

105 Environmental Audit Committee, Sixth Report of Session 2013-2014, [Biodiversity Offsetting](#), HC 750, para 25

106 Q145

4 Monitoring and management

46. Effective monitoring of environmental losses and gains will be required to ensure that there is ‘no net biodiversity loss’ (Part 2) and that mitigations and offsetting (Part 3) are delivered as planned. HS2 Ecology Technical Group called for:

an effective monitoring framework to inform this and future sustainable proposals (e.g. HS2 phase 2). Such a framework has not been outlined in the *Environmental Statement* and as such there is inadequate assurance that appropriate monitoring standards will be applied, and the response mechanisms that will ensure any issues are remedied effectively and efficiently.¹⁰⁷

HS2 Ltd, however, emphasised the protections contained in the *Environmental Statement* regime:

There are *Environmental Minimum Requirements*. That ultimately is an offer or a commitment that the Secretary of State will make before Parliament. Within that, the *Code of Construction Practice*, among other things, offers up protection and further consideration, a way of working with those knowledgeable others, statutory authorities—like Natural England, the Environment Agency and English Heritage—that we are safeguarding that environment in the right way.

The *Code of Construction Practice* features a wide range of protection in one package. That will ultimately find its way into construction contracts and we will be preparing local *Environmental Management Plans*. ... That will say how we are going to approach local protection as the construction works take place. You need to understand that that does not preclude law like the Control of Pollution Act. It does not exclude the Environmental Protection Act for things like noise. And there are other consenting regimes that we will have to go through, and that we will have to put forward plans to local planning authorities to ensure that best practicable means are applied to that construction to afford protection to local communities.¹⁰⁸

The Environment Agency told us that it was “still working with HS2 to understand and agree what that monitoring timeline might look like, and indeed ... who might be best placed to do that”.¹⁰⁹

47. On offsetting, the *Environmental Statement* suggests that such arrangements will be directly managed under the Hybrid Bill:

107 HS2 Ecology Technical Group ([HS2 037](#)), para 6.2

108 Q127

109 Q86

It is the intention of the project to deliver the new habitats through powers under the Hybrid Bill ... The use of formal offsetting agreements with third parties is not envisaged to deliver any of the required measures at this stage, although such agreements may be required to deliver additional measures should these be required.¹¹⁰

Peter Miller of HS2 Ltd told us:

Where we might end up handing over sites away from the lines—albeit, in part of the Hybrid Bill consideration at this stage—if there is a covenant over land, for example, and the arrangements would then be handed over to a landowner, or perhaps that land being handed on to Wildlife or Woodland Trusts, I think they will have a role and responsibility to ensure that that biodiversity is assured and they will monitor it. They do this sort of thing very well.¹¹¹

The CLA thought that the management arrangements for offsetting were not clear.¹¹² Henry Robinson of the CLA described as “iniquitous” the possibility of HS2 Ltd using compulsory purchase, and the National Farmers’ Union wanted farmers to have “the first offer” on potential offset land.¹¹³

48. The HS2 Ecology Technical Group believed that ongoing monitoring would be required for the time it would take to restore habitats, which would be 32 years or more under the terms of the offsetting metric (paragraph 37). That monitoring must be able to:

inform future sustainable proposals under phase 2. Such a framework has not been outlined in the [phase 1] *Environmental Statement* and as such there is inadequate assurance that appropriate monitoring standards will be applied, and the response mechanisms that will ensure any issues are remedied effectively and efficiently¹¹⁴

They recommended that the *Environmental Minimum Requirements* and the *Environmental Management Systems* clearly define how the delivery of all aspects of the project would be monitored against baseline evaluations, be “evidenced within the *Local Environmental Management Plans* and be publically accountable”.¹¹⁵ The NFU pointed out that soils that were disturbed would need to be managed for up to a decade to restore their productivity.¹¹⁶ Robert Goodwill MP, the Transport Under-secretary of State, told us

The timescale for re-establishing ancient woodland is centuries. It is whether you can establish the habitat that will support the species that were in the

110 HS2 Ltd, *Environmental Statement*, Volume 5, [Ecology Technical Note](#) – Methodology for demonstrating no net loss in biodiversity (November 2013), para 1.5.7

111 Q165

112 Q47

113 Q45; National Farmers’ Union ([HS2 032](#)), para 5

114 HS2 Ecology Technical Group ([HS2 037](#)), para 6.2

115 *ibid*, para 6.2

116 National Farmers’ Union ([HS2 032](#)), para 4

ancient woodland, and establish the habitat that would develop over time into the sort of ancient woodland that was there before, and what degree of management would be needed to do that. It is a long-term project that we need to ensure continues to be managed in a way that will ensure that we get to that final location.¹¹⁷

49. The Environment Bank identified uncertainty, however, over future habitat management:

Where habitats are to be passed on to different organisations to be managed,¹¹⁸ what funding or management plans will accompany the sites to ensure ongoing management is appropriate? There is a need to demonstrate a fundamental understanding of both fiscal and contractual assurance in order to give the relevant confidence that the habitats will be delivered and secured for the long-term.¹¹⁹

It suggested that where “HS2 Ltd intend to manage any site for less than 20 years, the target condition [offsetting metric weighting] should be ‘poor’, and this will increase the amount of compensation offset habitat required”.¹²⁰

50. The prospects for environmental protections, mitigations and offsets being delivered hinges in part on the continued availability of funding for implementing and then monitoring such measures. The Department of Transport told us that:

We have not taken the approach of having a pre-determined budget for mitigation and deciding how many of the significant effects this could avoid. Therefore, there is no fixed budget for environmental mitigation, it has simply been an inherent part of the project’s design and costs guided by the commitments to environmental protection described above. The overall cost of the scheme, which includes these considerations, is set out in the Estimate of Expense.¹²¹

In his March 2014 review, the Chairman of HS2 Ltd, Sir David Higgins, stated that “... I have rejected any thought that the project should cut back on planned mitigation measures, whether noise or environmental”.¹²² Peter Miller of HS2 Ltd explained that there was “no particular line in our budget for monitoring”, but that the cost of “monitoring overall is included in the cost build [of the project]”.¹²³

51. The HS2 *Environmental Statement*, and its associated documents and plans, provide a degree of environmental protection by specifying minimum requirements and

117 Q160

118 HS2 Ltd, *Environmental Statement*, Volume 1, [Introduction to the Environmental Statement](#), para 3.1.1: 9.8.8.

119 Environment Bank ([HS2 023](#)), para 25

120 *ibid*, para 25

121 Department for Transport ([HS2 028](#)), para 4.3

122 Sir David Higgins, [HS2 Plus](#) (March 2014), p2

123 Q167

standards. There is also a plan to appoint a Complaints Commissioner for construction-related matters. But these measures alone are not enough: HS2 Ltd can avoid adjustments if they are not considered 'reasonable' or 'practicable' (paragraph 69) and it has provided no separate budget to meet the cost of environmental protections.

52. The Government should establish a process to monitor all aspects of the environmental protections needed for HS2 for the 60 years following the start of construction and operation of the railway, including biodiversity mitigations, compensations and offsets. This process must be managed by an independent body, which should be tasked with monitoring and publicly reporting progress against the 'no net biodiversity loss' objective (paragraph 9). The Government should also establish detailed costings for monitoring and reporting and for the environmental protections being overseen, and ring-fence those environmental protections and a budget for them separate from the rest of the project.

5 HS2 and emissions

53. The Climate Change Act 2008 contains a binding commitment to an 80% reduction in the United Kingdom's greenhouse gas emissions, as measured against a 1990 baseline, by 2050. It is therefore important that the emissions caused by large-scale infrastructure projects such as HS2 are at the very least no more, and ideally are less, than would otherwise be generated.

54. The *Environmental Statement* asserts that HS2

will play a key part of the UK's future low-carbon transport system and will support the Government's overall carbon objectives. In comparison with most other transport modes, high-speed rail offers some of the lowest carbon emissions per passenger kilometre, and significantly less than cars and planes.¹²⁴

Robert Goodwill MP told us:

HS2 has been a transport project, and it has never been promoted primarily to reduce carbon. However, we are serious about carbon and that is why we have produced a carbon footprint for the project far earlier than any other project of this scale and complexity. ... the majority of the carbon emissions associated with HS2 will be regulated via the European Union Emissions Trading Scheme. This will mean that the majority of emissions associated with HS2 will not lead to an increase in overall EU carbon emissions.¹²⁵

55. In 2011, the Transport Committee concluded that "at best, HS2 has the potential to make a small contribution to the Government's carbon-reduction targets." The Committee considered that while HS2 would not result in reductions of carbon emissions, it could nonetheless produce less carbon than alternative capacity-enhancing solutions such as an expanded network of motorways or increased reliance on domestic flights.¹²⁶ Calculations presented in HS2 Ltd's 2013 *Environmental Statement* suggested that when juxtaposed against the UK's projected carbon footprint for 2030, the emissions from the HS2 scheme would amount to 0.15% of the UK's overall annual emissions.¹²⁷ The *Environmental Statement* further stated that the operational emissions of HS2 during the first 60 years are likely to be lower than emissions from comparable air and road transport schemes, resulting in projected savings of 2.97–3.16 MtCO₂e. However, when emissions from the construction phase are added, there would be an overall net increase of 2.14–2.62 MtCO₂e.¹²⁸ HS2 Ltd attributed the operational reduction in emissions to passengers choosing it over more carbon-intensive forms of transport ('modal shift') and the knock-

124 Hs2 Ltd, HS2 Phase One *Environmental Statement*, [Non-technical summary](#) (November 2013), p157

125 Q130

126 Transport Committee, Tenth report of Session 2010-2012, [High Speed Rail](#), HC 1185-I, para 77

127 HS2 Ltd, Phase One *Environmental Statement*, [Volume 3: Route-Wide Effects](#), para 5.1.16

128 *ibid*, para 5.1.9, Table 1

on effects from freeing up passenger and freight capacity on existing rail networks.¹²⁹ However, given that the scheme would not start operating until 2026 (2032 for the entire Y-shaped network, including phase 2), any savings from its operation would be preceded by an increase in emissions caused by construction.

56. A Network Rail study found that emissions per passenger kilometre were lower for high-speed than for conventional rail, but that this was dependent on higher occupancy rates for high speed trains. As the occupancy levels of conventional and high-speed rail came closer together, it noted, “the advantage high-speed rail has in terms of direct emissions per passenger-km is eroded”.¹³⁰ Some have questioned the forecasts of passenger demand and modal shift used by HS2 Ltd HS2 Action Alliance told us:

The passenger numbers that have been given in HS2’s business case are relying on a huge increase in business passengers. If you look at the evidence that is available it shows that business travel is not increasing by huge amounts. The figures show that inter-city [demand] is plateauing.¹³¹

Greengauge 21, on the other hand, said that the current levelling of business traveller demand was consistent with long-term trends which continue to show overall growth. They concluded that HS2 demand forecasts were in fact “quite conservative” and did not reflect the most likely outcome: “The demand figures are cautious and therefore the carbon figures are cautious as well”.¹³² Peter Miller of HS2 Ltd told us that given the current high demand on the West Coast Main Line and the attractiveness of the proposed line, they were expecting “high loading” on the railway.¹³³

57. The Government’s 2013 *Economic Case* for HS2 forecast that 4% of potential HS2 passengers were likely to come from road and 1% from air.¹³⁴ HS2 Action Alliance and Stop HS2 believed that this would be insufficient to achieve a reduction in emissions, but Greengauge 21 told us:

1% diversion [from air travellers] gives rise to, in the *Environmental Statement*, between 2.2 and 2.8 million tonnes of carbon dioxide equivalent savings. ... Even with a very cautious assumption, ... there is a significant carbon benefit and that is because short distance air travel is very substantially more carbon-intensive than rail, including in that high-speed rail.¹³⁵

129 HS2 Ltd, Phase One *Environmental Statement*, [Volume 3: Route-Wide Effects](#), para 5.1.4

130 Network Rail, New Lines Programme, [Comparing environmental impact of conventional and high speed rail](#) (2009), piii

131 Q1

132 Q8

133 Qq131-134

134 HS2 Ltd, [The Economic Case for HS2](#) (October 2013), Para 5.5.2

135 Q13 [Mr Steer]

58. The elimination of the direct link between HS1 and HS2, proposed in the March 2014 Higgins report,¹³⁶ might affect the size of a modal shift from short-haul flights. Stop HS2 considered that:

The only realistic prospect that you had of significant modal shift from air would have been if you had been able to get on a train at, say, Manchester and get off in Madrid, which of course now you won't be able to do because the HS1 link has been cancelled. That was potentially the only way that you were going to increase aviation modal shift.¹³⁷

The Department told us however that the carbon calculations had not included any modal shift from international aviation:

In both the *Environmental Statement* and the *Economic Case* there is no assumption about carbon savings for international aviation. The only carbon savings that have gone on in terms of aviation are about domestic aviation savings, so the removal of the HS2/HS1 link does not affect the figures in the *Environmental Statement* or the figures in the *Economic Case*.¹³⁸

59. Nevertheless, the *Environmental Statement* acknowledges that any overall reduction in operational emissions would depend on other factors which could not be predicted with precision and which HS2 Ltd could not influence. The most important of these is the rate of decarbonisation of UK energy generation over the decades during which HS2 trains would operate. As we discussed in our latest report on the Carbon Budgets, there may be a review of the Fourth Carbon Budget, covering 2023–2027, in 2014.¹³⁹ And as we noted in our 2013 report on Energy Subsidies, the pace and effectiveness of de-carbonisation remain in doubt.¹⁴⁰ Despite our recommendation for an early binding commitment to the energy-intensity target advocated by the Committee on Climate Change, the Government plans to consider such a commitment only in 2016, when it also has to set a Fifth Carbon Budget for 2028–2032.¹⁴¹

60. The high maximum speed of HS2 trains—360 kph—will contribute to the project's operational carbon footprint if the electricity it consumes has not been decarbonised by then. HS2 Action Alliance estimated that an HS2 train travelling at 360kph would use three times as much energy as an Inter-City train travelling at 200kph.¹⁴² Greengauge 21 calculated that while reducing the top operation speed from 360 kph to 300 kph would result in a 19% reduction in *energy* consumption, this would represent a 7% overall reduction in HS2's *emissions*. The impact of speed on emissions, they concluded, was “not

136 Sir David Higgins, [HS2 Plus](#), March 2014, pp12-14

137 Q13 [Mr Rukin]

138 Q107

139 Environmental Audit Committee, Fifth Report of Session 2013-14, [Progress on Carbon Budgets](#), HC 60, September 2013, para 36

140 *ibid*, paras 22, 26, 27, 29-34

141 *ibid*, para 59

142 HS2 Action Alliance, ([HS2 045](#)), para 2.1

as great as perhaps people make out or have implied”.¹⁴³ HS2 Ltd told us that the possibility of lower train operation speeds had not been considered,¹⁴⁴ and Peter Miller framed the issue as much in economic as in environmental terms:

The greatest expenditure of energy is when you are moving from a standing start to get yourself up to a speed, and there would be a fractional difference between, for instance, a speed of 330[kph] compared to 360[kph]. It is the point about getting up to speed, and then when you are at your cruising speed you are that much more energy efficient. Yes, you will be using more energy at a higher speed, but you are getting the overall benefits of moving that large number of passengers around from place to place as a result.¹⁴⁵

61. There is some debate about whether HS2 will deliver a reduction in emissions by taking travellers off the roads and planes. But at best, the savings are likely to be relatively small. The carbon footprint of the project hinges on emissions from its construction as well as from the operation of the trains, and that raises issues about striking a balance between minimising emissions and minimising disruption to communities and habitats, for example by using cuttings and tunnels which involve greater emissions in construction. Perhaps a bigger issue is the potential effect of the decarbonisation of the generation of the electricity used by the trains; a matter that has been largely absent from the HS2 debate so far.

62. The Department of Transport and HS2 Ltd should put forward proposals for an emissions monitoring system to help resolve, and bring transparency to, the likely effect of HS2 on overall transport emissions. While the impact of lower maximum train speed on reducing emissions is currently not seen as substantial, the legally binding commitment to reduce emissions makes even a small reduction desirable. HS2 Ltd and the Department should therefore examine the scope for requiring a reduced maximum speed for the trains until electricity generation has been sufficiently decarbonised to make that a marginal issue, and publish the calculations that would underpin such a calculation.

143 Q1 [Mr Steer]

144 Q136

145 Q139

6 Consultation and environmental assessment

63. In this Part we examine how well the environmental aspects of the project have been consulted upon, and the robustness of the environmental assessment process that should underpin that exercise.

Consultation and public engagement

64. The Department of Transport told us that the *Environmental Statement* had been “developed in an open and transparent way involving a level of engagement and consultation that goes beyond what is legally required”.¹⁴⁶ HS2 Ltd told us that “the consultation has had teeth”,¹⁴⁷ and highlighted two major adjustments to the route as a result of the consultation on the 2013 *Draft Environmental Statement*.¹⁴⁸

65. However, HS2 Action Alliance described the decisions taken by HS2 Ltd as “inscrutable” and believed that the *Environmental Statement* had not explained the process by which alternatives were assessed and choices made.¹⁴⁹ The Woodland Trust complained that HS2 Ltd had not shared its calculation methodology and had not provided sufficient detail on alternative options.¹⁵⁰ CPRE, similarly, told us that HS2 Ltd had failed to disclose information on why potential alternatives had been dismissed.¹⁵¹ We were told that councils had not been consulted on flooding issues, but the Environmental Agency said that councils would have an opportunity to participate in consultations at a later stage.¹⁵²

66. Local authorities and others noted an absence of mechanisms for appealing against HS2 Ltd’s decisions or for ensuring that stakeholders’ environmental concerns were taken into consideration. Camden Council, before the Higgins report was published in March 2014, complained that:

There does not appear to be any clear system or process in place which a local authority, or other parties such as residents and businesses along the route, can utilise to guide environmental considerations, other than the petitioning process which is a costly and cumbersome mechanism which should not be relied upon as a means of ensuring there is no deterioration to the environmental quality as a result of HS2. ... Better processes and systems should have been implemented at an earlier stage of the project at which interested parties could and should have had an input into the original design

146 Department for Transport ([HS2 028](#)), para 2.1

147 Q 127

148 Q109

149 HS2 Action Alliance, ([HS2 045](#)), para 2.7

150 Q42 [Mr Barnes]

151 Q43 [Mr Smyth]

152 Buckinghamshire County Council ([HS2 024](#)), para 6.1.2; Q92

and methodologies utilised. Such a collaborative approach could have avoided the production of the inadequate proposals we now see.¹⁵³

HS2 Ltd had a different perspective. They told us that:

The Hybrid Bill process will be one avenue of resolving those disputes as petitioners come forward. [We] would expect a lot of that sort of business to be taken care of through that Parliamentary process. In construction we have provision for a Complaints Commissioner and, ultimately, if there is no resolution even with the Complaints Commissioner, it would go back to the Secretary of State. ... [There are] other mechanisms. If you have a consent regime, if we have water quality consents, water discharges and ... noise consents, if we are in breach of those consents, then the law comes into effect.¹⁵⁴

67. Several of our witnesses told us that the *Environmental Statement* had not assessed or facilitated consultation on the cumulative impacts of HS2. The HS2 Ecology Technical Group pointed to “no cross referencing of impacts” in the *Environmental Statement* with “other sections, such as Agriculture, Forestry and Soils, Land Quality, Water Resources or Waste and Material Resources”.¹⁵⁵ The National Trust made a similar point.¹⁵⁶ Camden Borough Council told us, before the Higgins report was published, that:

The layout of the *Environmental Statement* is such that an individual resident is not able to determine the in-combination impacts of the project at their property. For example, the noise, air quality and transport impacts have been reported separately and there is no spatial presentation of the information or basic description of the environmental in-combination impacts at any given location. The effect of this is that neither we as a local authority, or other interested parties, are in a position to understand the scale of impact on the environment, nor assess whether the mitigation proposals are adequate at any given location.¹⁵⁷

Sustainable development

68. Throughout this Parliament we have examined issues against the requirements of sustainable development and how well sustainability—balancing economic, social and environmental considerations together—is being taken forward in the UK and internationally. In the case of HS2, this approach does not seem to have been to the fore. CPRE identified a “lack of integration between HS2 and wider policy; the National

153 The London Borough of Camden ([HS2 035](#)), para 4.1

154 Q129

155 HS2 Ecology Technical Group ([HS2 027](#)), para 10.3.

156 National Trust memo([HS2 029](#)), paras 2.1, 3.1-3.4

157 The London Borough of Camden ([HS2 035](#)), para 3.5.2.

Planning Policy Framework talks about seeking environmental goals simultaneously and jointly with economic and social ones”.¹⁵⁸

69. The *Environmental Memorandum* (part of the *Environmental Statement* set of documents) effectively puts a limit on environmental measures by requiring them to be ‘practicable’ and ‘reasonable’:

... the nominated undertaker ... with the support of the statutory environmental bodies, agree to the following environmental aims for the design and construction stage of Phase One of HS2:

to design and construct Phase One of HS2 such that significant environmental effects are eliminated, controlled or reduced where reasonably practicable; ...

to address sustainability principles in on-going design development, taking opportunities for environmental enhancement and compensation where practicable and reasonable;

and in doing so, recognise that the nominated undertaker will take a responsible approach to balancing the achievement of environmental principles with the overall objectives of Phase One of HS2.¹⁵⁹

Stop HS2 highlighted that the *Environmental Minimum Requirements* (also part of the *Environmental Statement* document set) would impose requirements on the HS2 operator to reduce adverse environmental effects provided that these did not add unreasonable cost or delay to construction or operation. They described this as “hardly reassuring, especially given that ... there is currently a political imperative to control and reduce costs of building HS2, and the obvious areas which give the only real leeway for cost-cutting are compensation and mitigation”.¹⁶⁰ HS2 Ltd noted that it would be up to Parliament to determine, through the Hybrid Bill Select Committee’s consideration of petitions, what was ‘reasonable and practicable’ for particular mitigation and compensation measures.¹⁶¹

70. Robert Goodwill MP told us that “by planning this project sensibly we have sought to reduce adverse environment effects as far as possible”,¹⁶² but he appeared in his evidence to see the environmental, social and economic aspects of the project as distinct, rather than matters to be considered and optimised together:

I do not think we need to make any excuses for building a high speed line and building it as straight as possible, and then ensuring that we minimise the environmental impact. ... It is important that you separate the

158 Q29 [Mr Smyth]

159 Department for Transport ([HS2 028](#)), para 3.10

160 Stop HS2 ([HS2 31](#)), Executive Summary

161 Q168

162 Q99

biodiversity environmental type of issues from the issues of people who live near the line and do not want to look at it. They are two separate things.¹⁶³

That disconnected approach is reflected in how the issue of HS2 trains potentially operating at slower speeds has been addressed by HS2 Ltd in terms of economic rather than environmental or emissions considerations (paragraph 14). And as we have also discussed, the design of biodiversity offsetting measures has overlooked well-being considerations (paragraph 44).

Environmental assessment

71. In this report we have identified a number of areas where concerns have been raised about the way that the HS2 project has identified and dealt with potential environmental impacts. In a major project, such concerns are meant to be addressed through a framework of environmental assessments, as required under EU directives.

72. There are two main processes: a Strategic Environmental Assessment (SEA)¹⁶⁴ and an Environmental Impact Assessment (EIA).¹⁶⁵ An SEA directive applies to certain ‘public plans and programmes’, including some transport projects, and requires that the Government accounts for the way in which the environmental aspects of the proposal are considered when it is adopted. It can potentially influence the choice of ‘strategic alternatives’. An EIA, on the other hand, typically coming after an SEA, should identify the environmental impact of a particular project, but would not be used to make strategic choices or choose between strategic alternatives.¹⁶⁶

73. An SEA requires the monitoring of significant environmental effects and implementation plans in order to identify unforeseen issues and implement appropriate remedies.¹⁶⁷ The EIA Directive does not require such monitoring,¹⁶⁸ although this can be imposed through planning or licensing conditions introduced through the planning consent process. Both SEA and EIA directives require there to be public consultations, and for the results to be taken into account in the development of the proposals.

74. Because HS2 is a major project that potentially affects individuals and businesses along its route, the Government has chosen to implement it through a hybrid bill, leaving Parliament as the ‘relevant authority’ to give planning permission through the passage of the Bill. Clause 19 of the HS2 Hybrid Bill provides that “Planning permission is deemed to

163 Q121

164 European Council and Parliament Directive [2001/42/EC](#)

165 Council directive 85/337/EEC, now consolidated as European Council and Parliament EU [Directive 2011/92/EU](#).

166 Current proposed [amendments](#) to the EIA Directive, Article 5 (2) (COM (2012) 628 final), include the requirement to assess reasonable alternatives, similar to the requirement in the SEA Directive.

167 European Council and Parliament Directive [2001/42/EC](#), Article 10

168 Current proposed amendments to the EIA Directive (Annex IV) include the requirement for monitoring. [COM \(2012\) 628](#).

be granted under Part 3 of the Town and Country Planning Act 1990 for the carrying out of development authorised by this Act.”¹⁶⁹

75. The EIA Directive exempts such Parliamentary decision-making processes from the Directive’s requirements on the assumption that the legislative process already fulfils the public consultation requirements specified by the Aarhus Convention on public participation in decision-making in environmental matters¹⁷⁰ through the involvement of elected representatives.¹⁷¹ The House’s private business Standing Order 27A requires a hybrid bill to meet the requirements of the EIA Directive. The Standing Order requires that for private bills an Environmental Statement is produced and deposited when as the bill is introduced.¹⁷² They also effectively require that Environmental Statements have to comply with the obligation in the EIA Directive for the public to be consulted on a Statement, and the House agreed a revised Standing Order (SO 224A)¹⁷³ in June 2013 to make that requirement explicit.

76. The *HS2 Environmental Statement* set out “a description of the scheme and how it was developed; the alternatives that were considered; assessment of the likely adverse and beneficial environmental effects of the scheme; and proposed mitigation measures to manage or reduce likely significant adverse effects”.¹⁷⁴ Accordingly, HS2 Ltd told us, it reflected “the information that would have to be brought forward through an EIA process”.¹⁷⁵ This followed an *Appraisal of Sustainability* in 2011, which HS2 Ltd told us “looked at a large number of route options” and “took cognisance of the SEA Directive and the sort of things that you would see through SEA”.¹⁷⁶ The purpose of the *Environmental Statement* is to:

... provide Members of Parliament with information on all the significant environmental effects likely to result from HS2 Phase One so that they can be taken into account before Parliament decides whether or not to grant the powers to build the railway.¹⁷⁷

The *Draft Environmental Statement*, consulted on between May-July 2013, noted that:

Consultation on the *Draft Environmental Statement* is not a statutory requirement, but HS2 Ltd recognises the importance of ensuring widespread engagement on the scheme and wishes to offer everybody with an interest the opportunity to:

169 [High Speed Rail \(London - West Midlands\) Bill](#), Clause 19(1) [Bill 132-I (2013-14)]

170 [Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters](#), 1998

171 European Council and Parliament EU [Directive 2011/92/EU](#), Article 1(4)

172 Standing Order 27A, House of Commons, [Standing Orders of the House of Commons—Private Business](#), July 2005, HC 441 (2005-06)

173 [House of Commons Votes and Proceedings](#), 26 June 2013, Item 9

174 Department for Transport/HS2 Ltd, [Draft Environmental Statement: Non-Technical Summary](#) (May 2013), Foreword

175 Q106

176 Q102 (see also Qq111, 126)

177 Department for Transport/HS2 Ltd, [Draft Environmental Statement: Non-Technical Summary](#) (May 2013), Foreword

- Understand what the likely significant environmental effects would be and what mitigation is proposed; and
- Comment on the assessment undertaken to date and the conclusions reached so far.

This consultation may identify issues that result in changes being made to the design of the scheme or the proposals to mitigate significant adverse effects. These changes will be included in the *Environmental Statement* to be submitted to Parliament.¹⁷⁸

Subsequently, on the *Draft Environmental Statement*, the Department of Transport concluded in November 2013 that:

For engineering, environmental or cost reasons it has not been possible to take on board all comments raised. However, the consultation process provided a robust analysis of the content of the draft *Environmental Statement* and draft [*Code of Construction Practice*] and helped to confirm findings and identify areas which required further justification or information. Responses received have influenced the drafting of the *Environmental Statement* and led in part to changes to the *Environmental Statement* and to the design of the Proposed Scheme. The *Environmental Statement* now reflects the results of the analysis of consultation responses. Where a change would be of proven benefit to local communities, the environment and/or the Proposed Scheme these have, where reasonably practicable, been incorporated.¹⁷⁹

Peter Miller of HS2 Ltd described those adjustment for us (paragraph 64).

77. The November 2013 final *HS2 Environmental Statement*, also published for consultation, stated that “HS2 Ltd’s aim has been to avoid adverse environmental effects, where reasonably practicable”, and to mitigate or compensate for adverse effects where they cannot be avoided.¹⁸⁰ The Department of Transport told us that “[we] firmly believe that we have produced a best practice *Environmental Statement* based on national and international best practice that fully complies with all relevant national and EU law”.¹⁸¹ The *Environmental Statement*, it went on, was “developed in an open and transparent way involving a level of engagement and consultation that goes beyond what is legally required”.¹⁸² It said that “the planning permission provided by the Bill is not valid if the

178 Department for Transport/HS2 Ltd, [Environmental Statement: Non-Technical Summary](#) (May 2013), Foreword

179 Department for Transport/HS2 Ltd, [Draft Environmental Statement Consultation Summary \(CT-008-000\)](#), November 2013, p60

180 Department for Transport/HS2 Ltd, *Environmental Statement*, [Non-technical summary](#) (November 2013), p4.

181 Department for Transport ([HS2 028](#)), Executive Summary

182 *ibid*, para 2.1

environmental effects of the railway exceed those set out in the *Environmental Statement*.¹⁸³

78. There have been legal challenges to the process, however, arguing that as a scheme of strategic national importance its environmental impact assessment should have been guided by the SEA directive. The Supreme Court ruled that a January 2012 *Appraisal of Sustainability*, consulted on alongside a *High Speed Strategy* in February 2011, would not have complied with the SEA Directive because it did not consider ‘reasonable alternatives’ and because it covered only Phase 1 of HS2 rather than the two phases covered by the *Strategy*. However, the Court rejected the legal challenges on the grounds that an SEA was not required. The Government’s July 2013 summary of the Court judgments noted that “the Government has explained clearly at each stage of the project why there is no alternative to HS2 which meets strategic objectives and offers the same scale of benefits.”¹⁸⁴

79. The Court noted that the subsequent *Decisions and Next Steps* report in January 2012 was not a plan required by ‘legislative, regulatory or administrative provision’ under the SEA Directive, and which in any case could not set the framework for Parliament (as the competent authority for the Hybrid Bill) because Parliament was sovereign and not able to be influenced by the *Decisions and Next Steps* report. The Court concluded that:

The [*Decisions and Next Steps* report] would have no legal influence on Parliament, which was not obliged to comply with it or even to have regard to it in reaching its decision. Nor was it appropriate or possible for the court to assess the degree of influence the [*Decisions and Next Steps* report] was likely to have as a matter of fact on Parliament's decision-making process.

Parliament is constitutionally sovereign and free to accept or reject statements of Government policy as it sees fit, and the court should not seek to second guess what Parliament will do.¹⁸⁵

80. The Court saw the *Decisions and Next Steps* report as “a very elaborate description of the HS2 project, including the thinking behind it and the Government’s reasons for rejecting alternatives”,¹⁸⁶ but concluded that it did not constrain the decision-making process of the responsible authority—that is Parliament:

The very concept of a framework, rules, criteria or policy, which guide the outcome of an application for development consent, as a plan which requires SEA even before development project EIA, presupposes that the plan will have an effect on the approach which has to be considered at the development consent stage, and that that effect will be more than merely persuasive by its quality and detail, but guiding and telling because of its

183 Department for Transport ([HS2 028](#)), para 3.1

184 Department for Transport, [HS2 Judicial Review Appeals – the appeals ruling explained](#), July 2013; accessed 28 March 2014

185 [Supreme Court Judgment, 22 January 2014](#), paras 31, 56

186 *ibid*, para 38

stated role in the hierarchy of relevant considerations. That simply is not the case here.

Until Parliament has reached its decision, the merits of all aspects of the HS2 project, on economic, environmental and other grounds, remain open to debate.¹⁸⁷

There had been similar issues on the Crossrail project; the most recent hybrid bill before HS2. The Crossrail Hybrid Bill Select Committee noted in October 2007 that:

... two issues have arisen before us in the context of environmental assessment concerning either: the alleged inadequacy generally of the environmental assessment process for the Bill and the Environmental Statements produced for Crossrail, and the failure to consider alternatives. ... We have been frequently assured by Counsel to the Promoter that what has been produced in the Environmental Statement meets the legal requirements of providing an outline of the main alternatives studied by the developer and an indication of the main reasons for this choice, taking into account the environmental effects. We understand that there was no requirement to set out full information on alternatives. ...

The Promoter also told us that the environmental assessment process adopted for the Bill complies with the Environmental Assessments Directive and we see no reason to dispute their conclusions.¹⁸⁸

Hybrid Bill select committee

81. As noted above, in its ruling the Supreme Court saw all aspect of HS2 open to debate until Parliament has reached its decision (paragraph 80). There is, it seems to us, a clear expectation that Parliament will ensure that the HS2 Hybrid Bill process delivers the requirements of the EIA Directive. It is clear that the *Environmental Statement* and EIA process is far from complete. There are still gaps to be filled, including an environmental survey of the 40% of the route still not covered (paragraph 20) and of the ancient woodlands affected (paragraph 20), as well as details of how environmental impacts will be mitigated, compensated or offset (paragraph 23) and a full assessment of the cumulative impacts of different environmental and community factors (paragraph 67), including those likely to occur with Phase 2,

82. Standing Order 27A allows those affected by a proposal to petition against specific elements of a hybrid bill, and SO 224A effectively requires 'supplementary environmental information' also to be consulted on.¹⁸⁹ The Minister foresaw a challenge in that process in

187 [Supreme Court Judgment, 22 January 2014](#), paras 96, 49

188 Select Committee on the Crossrail Bill, First Special Report of Session 2006-7, [Crossrail Bill](#), HC 235-I, paras 239, 240

189 Qq113-114

distinguishing between “vexatious [petitions] trying to gum up the process” and those “that would have very real environmental benefits”.¹⁹⁰

83. Such petitioning reflects the normal planning system, where those affected by a planning application can object to the planning authority. In a normal planning process, that ‘competent authority’ is also able to request further environmental information until it is satisfied that it has the necessary material to be able to make a decision. In the case of HS2, Parliament, as the competent authority, had no role in the earlier *Appraisal of Sustainability* and *Decisions and Next Steps* processes that preceded the Hybrid Bill, and therefore had no formal engagement in the process that led up to the choice of preferred route.

84. In the absence of a formal SEA process for HS2, it is incumbent on the House to keep the scope of the continuing environmental assessment process sufficiently broad, within the ‘principles’ of the Hybrid Bill, to allow full consideration of the environmental impacts of options still available within a project described in the Hybrid Bill as “a high speed railway between London and the West Midlands”. The House will have to ensure that HS2 Ltd does not rely on its ‘practicable and reasonable’ caveat (paragraph 69) to readily dismiss essential environmental protections.

85. The House’s instructions in July 2005 to the Hybrid Select Committee on Crossrail specified the ‘principles’ of the Bill in terms of only the terminals and particular intermediate stations identified in that Bill, and not other stations or the Crossrail routes.¹⁹¹ Those instructions also tasked the Crossrail Select Committee to:

*... without comment, report to the House for its consideration any issue relating to the environmental impact of the railway transport system for which the Bill provides that is raised in a Petition against the Bill, but which the Select Committee is prevented from considering by the practice of the House ... [emphasis added]*¹⁹²

86. It is important that if HS2 proceeds, the House is able to demonstrate that it has at least fully followed the purposes and processes, to address environmental risks and to prevent or mitigate them, that would be expected of any other development of this scale. The Government should therefore couch its intended instructions to the Hybrid Bill Select Committee accordingly. It is vital that, when the HS2 Hybrid Bill is given its Second Reading and referred to the Select Committee to consider petitions, the House’s instructions to it:

(i) do not overly constrain the ‘principles’ of the Bill approved at Second Reading. The motion should list only the key fixed features of the project such as terminals in Birmingham and London. This would allow the Select Committee to request

190 Q100

191 Select Committee on the Crossrail Bill, First Special Report of Session 2006-7, [Crossrail Bill](#), HC 235-I, p58 (which reproduced entry from Votes and Proceedings for 19 July 2005, item 19)

192 *ibid*

information on measures that could avoid, reduce or remedy environmental damage (an EIA process) of potential modifications to the route and its infrastructure and consequential environmental protections that might result, for example, from the trains being required to operate at marginally slower speeds than currently planned (paragraph 14).

(ii) require it to consider and report on the environmental impacts of the project. Unless the Government or others in the House do so, Members of our Committee intend to table a motion requiring the select committee “to comment and report to the House for its consideration any issue relating to the environmental impact of the railway transport system for which the Bill provides that is raised in a Petition against the Bill, including whether any reasonable or practicable environmental protections and mitigations are not adopted”. As modifications are subsequently introduced, as a result for example of the Higgins report or further environmental surveying (paragraph 20), additional instructions to the Select Committee to deal with these should be couched in similar terms.

Conclusions

1. The 'mitigation hierarchy' lies at the heart of the Government's approach to environmental sustainability. At each successive step down the hierarchy, the degree of environmental protection is diminished. The hierarchy should be followed in developing HS2, but the Government has significant work to do to demonstrate that this approach is being applied, given the environmental damage current plans envisage to ancient woodlands, SSSIs and local wildlife sites, and the possible significant harm for particular species affected. (Paragraph 18)
2. The Government has not been able to establish a full environmental baseline against which the aim of 'no net biodiversity loss' can be assessed. (Paragraph 22)
3. The HS2 biodiversity offsetting metric includes some features which provide additional protections to those envisaged in last year's Defra Offsetting Green Paper, but unlike the Defra approach it also allows offsetting to be assessed and scored for irreplaceable habitats such as ancient woodlands. The HS2 metric for new habitats rightfully aims to create habitats that would be regarded as achieving 'good' condition. (Paragraph 35)
4. It is right that the HS2 offsetting metric includes a discount factor for time, but the rate proposed does not fully represent the extent of the environmental harm from the potential delays. Some species may become endangered by the hiatus. This is a difficult area to measure because the discount factors usually applied in economic appraisal to recognise the value of time are unlikely to capture the impact of delays for the wildlife affected. (Paragraph 40)
5. There is a rationale for providing biodiversity compensation along the HS2 route, to facilitate the relocation of the wildlife affected and to provide some compensatory well-being benefits to local people disrupted by the railway and its damage to local landscapes. Nevertheless, the requirement for biodiversity compensation to be provided directly alongside the HS2 route may lead to missed opportunities for better offsetting measures. (Paragraph 45)
6. The HS2 Environmental Statement, and its associated documents and plans, provide a degree of environmental protection by specifying minimum requirements and standards. There is also a plan to appoint a Complaints Commissioner for construction-related matters. But these measures alone are not enough: HS2 Ltd can avoid adjustments if they are not considered 'reasonable' or 'practicable' and it has provided no separate budget to meet the cost of environmental protections. (Paragraph 51)
7. There is some debate about whether HS2 will deliver a reduction in emissions by taking travellers off the roads and planes. But at best, the savings are likely to be relatively small. The carbon footprint of the project hinges on emissions from its construction as well as from the operation of the trains, and that raises issues about striking a balance between minimising emissions and minimising disruption to communities and habitats, for example by using cuttings and tunnels which involve

greater emissions in construction. Perhaps a bigger issue is the potential effect of the decarbonisation of the generation of the electricity used by the trains; a matter that has been largely absent from the HS2 debate so far. (Paragraph 61)

8. In the absence of a formal [Strategic Environment Assessment] process for HS2, it is incumbent on the House to keep the scope of the continuing environmental assessment process sufficiently broad, within the 'principles' of the Hybrid Bill, to allow full consideration of the environmental impacts of options still available within a project described in the Hybrid Bill as "a high speed railway between London and the West Midlands". The House will have to ensure that HS2 Ltd does not rely on its 'practicable and reasonable' caveat to readily dismiss essential environmental protections. (Paragraph 84)
9. It is important that if HS2 proceeds, the House is able to demonstrate that it has at least fully followed the purposes and processes to address environmental risks and to prevent or mitigate them that would be expected of any other development of this scale. (Paragraph 86)

Recommendations

10. On HS2 the Government should aim higher than simply striving for no net biodiversity loss. As it further develops its processes and metrics for biodiversity offsetting, it should seek to weight these to be more likely to produce biodiversity gains and take explicit account of local communities' well-being. (Paragraph 12)
11. The HS2 Environmental Statement must be revised to distinguish clearly between 'mitigation' and 'compensation' measures in respect of biodiversity, and to explain the factors determining in which cases these should be applied. If biodiversity loss is genuinely unavoidable and also cannot be mitigated, compensation measures should be applied to the fullest extent possible. (Paragraph 19)
12. HS2 Ltd must carry out outstanding environmental surveys as soon as possible. It should focus particularly on cataloguing all ancient woodland and protected animal species, and as much as possible of the 40% of the route yet to be examined by involving local wildlife groups where possible. (Paragraph 22)
13. Given the uncertainties surrounding the effectiveness of offsetting on HS2, along with the scale of the land to be taken by the project, the [HS2 offsetting] metric should be adjusted wherever possible to encompass the precautionary principle. It should for example only allow offset land to be categorised as 'good' condition if there is a fully costed long-term plan for the site's management and independent monitoring. As Defra are still finalising the standard metric for offsetting, HS2 should look to incorporate any additional learning from these pilots into the metric for this project, to ensure it is robust and reflects best available information. (Paragraph 35)
14. If the offsetting metric is used to determine compensation for ancient woodlands on the HS2 route, these habitats should receive the maximum score possible on all criteria (distinctiveness, condition and position within ecological networks) to recognise their irreplaceability and to maximise the extent of the offsetting provided. But ancient woodlands should be treated separately from the overall biodiversity 'no net loss' calculation. (Paragraph 36)
15. The Government should commission research on alternative discount factors for the HS2 offsetting metric, to take into account the damage caused by any delays in compensatory habitats reaching maturity. (Paragraph 40)
16. The Government should re-examine the scope for such off-site biodiversity compensation, taking on board the emerging results from the Natural Capital Committee's work to strike an appropriate balance between what is best for nature and for the people affected. (Paragraph 45)
17. The Government should establish a process to monitor all aspects of the environmental protections needed for HS2 for the 60 years following the start of construction and operation of the railway, including biodiversity mitigations, compensations and offsets. This process must be managed by an independent body,

which should be tasked with monitoring and publicly reporting progress against the ‘no net biodiversity loss’ objective. The Government should also establish detailed costings for monitoring and reporting and for the environmental protections being overseen, and ring-fence those environmental protections and a budget for them separate from the rest of the project. (Paragraph 52)

18. The Department of Transport and HS2 Ltd should put forward proposals for an emissions monitoring system to help resolve, and bring transparency to, the likely effect of HS2 on overall transport emissions. While the impact of lower maximum train speed on reducing emissions is currently not seen as substantial, the legally binding commitment to reduce emissions makes even a small reduction desirable. HS2 Ltd and the Department should therefore examine the scope for requiring a reduced maximum speed for the trains until electricity generation has been sufficiently decarbonised to make that a marginal issue, and publish the calculations that would underpin such a calculation. (Paragraph 62)
19. The Government should couch its intended instructions to the Hybrid Bill Select Committee [so as to be able to demonstrate that it has at least fully followed the purposes and processes, to address environmental risks and to prevent or mitigate them, that would be expected of any other development of this scale.] It is vital that, when the HS2 Hybrid Bill is given its Second Reading and referred to the Select Committee to consider petitions, the House’s instructions to it:

(i) do not overly constrain the ‘principles’ of the Bill approved at Second Reading. The motion should list only the key fixed features of the project such as terminals in Birmingham and London. This would allow the Select Committee to request information on measures that could avoid, reduce or remedy environmental damage (an EIA process) of potential modifications to the route and its infrastructure and consequential environmental protections that might result, for example, from the trains being required to operate at marginally slower speeds than currently planned.

(ii) require it to consider and report on the environmental impacts of the project. Unless the Government or others in the House do so, Members of our Committee intend to table a motion requiring the select committee “to comment and report to the House for its consideration any issue relating to the environmental impact of the railway transport system for which the Bill provides that is raised in a Petition against the Bill, including whether any reasonable or practicable environmental protections and mitigations are not adopted”. As modifications are subsequently introduced, as a result for example of the Higgins report or further environmental surveying, additional instructions to the Select Committee to deal with these should be couched in similar terms. (Paragraph 86)

Formal Minutes

Wednesday 2 April 2014

Members present:

Joan Walley, in the Chair

Peter Aldous
Neil Carmichael
Martin Caton
Zac Goldsmith

Mike Kane
Caroline Lucas
Caroline Nokes
Simon Wright

Draft Report (*HS2 and the environment*), proposed by the Chair, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 86 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Thirteenth Report of the Committee to the House.

Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

Written evidence was ordered to be reported to the House.

[Adjourned till Wednesday 9 April at 2.00 pm]

Witnesses

The following witnesses gave evidence. Transcripts can be viewed on the Committee's inquiry page www.parliament.uk/eacom/

Tuesday 18 March 2014

Question number

Joe Rukin, Campaign Manager, Stop HS2, **Councillor Nick Rose**, 51m, **Emma Crane**, Campaigns Director, HS2 Action Alliance, and **Jim Steer**, Director, Greengauge 21.

[Q1-26](#)

Ralph Smyth, Senior Transport Campaigner, Campaign to Protect Rural England, **Richard Barnes**, Conservation Adviser, Woodland Trust, and **Henry Robinson**, President, Country Land and Business Association.

[Q27-52](#)

Rob Cooke, Land Use Director, Natural England, and **Roy Stokes**, HS2 Project Manager, Environment Agency.

[Q53-98](#)

Wednesday 26 March 2014

Robert Goodwill MP, Parliamentary Under-Secretary of State, Department for Transport, **Peter Miller**, Head of Environment and Planning, HS2 Ltd, **Sara Eppel**, Head of the Rural Communities Policy Unit, Department for Environment, Food and Rural Affairs, and **Dave Buttery**, Deputy Director of High Speed Rail Legislation, Department for Transport.

[Q99-168](#)

Published written evidence

The following written evidence was received and can be viewed on the Committee's inquiry web page at www.parliament.uk/eacom HS2 numbers are generated by the evidence processing system and so may not be complete.

- 1 Richard Crow ([HS2 0001](#))
- 2 Chris Eaglen ([HS2 0003](#); [HS2 0012](#); [HS2 0061](#); HS2 0072)
- 3 Christopher Prideaux ([HS2 0005](#); [HS2 0068](#))
- 4 Aylesbury Park Golf Club Limited ([HS2 0006](#))
- 5 Richard Graham Rosser ([HS2 0007](#))
- 6 Peter Delow ([HS2 0008](#))
- 7 Historic Houses Association ([HS2 0009](#))
- 8 Aylesbury Vale District Council ([HS2 0010](#))
- 9 Primavera Boman Behram ([HS2 0011](#))
- 10 Marjorie Fox ([HS2 0013](#))
- 11 Chiltern District Council ([HS2 0014](#))
- 12 Chiltern Society ([HS2 0015](#))
- 13 Clare Thorpe ([HS2 0016](#))
- 14 Twyford Parish Council ([HS2 0017](#); [HS2 0069](#))
- 15 David Mumford ([HS2 0018](#))
- 16 Marilyn Fletcher ([HS2 0048](#); [HS2 0056](#); [HS2 0067](#))
- 17 Canal and River Trust ([HS2 0020](#))
- 18 Woodland Trust ([HS2 0021](#))
- 19 London Borough of Hillingdon ([HS2 0022](#))
- 20 The Environment Bank ([HS2 0023](#))
- 21 Buckinghamshire County Council ([HS2 0024](#))
- 22 RSPB ([HS2 0025](#))
- 23 Andrew Cordner ([HS2 0026](#))
- 24 Department for Transport ([HS2 0028](#))
- 25 National Trust ([HS2 0029](#))
- 26 Stop HS2 ([HS2 0031](#))
- 27 National Farmers' Union ([HS2 0032](#))
- 28 David Turner ([HS2 0033](#))
- 29 Carol Elizabeth Rainsford ([HS2 0034](#))
- 30 The London Borough of Camden ([HS2 0035](#))
- 31 CLA ([HS2 0036](#))
- 32 HS2 Ecology Technical Group Phase 1 ([HS2 0037](#))
- 33 HS2 Chalfonts and Amersham Community Forum ([HS2 0038](#))
- 34 Hyde Heath Village Society ([HS2 0040](#))
- 35 Richard Wolfe (HS2 0041)
- 36 Vincent Nolan ([HS2 044](#))
- 37 HS2 Action Alliance ([HS2 0045](#))
- 38 Residents Environmental Protection Association ([HS2 0046](#))
- 39 Chilterns Conservation Board ([HS2 0047](#))

- 40 The Wildlife Trusts ([HS2 0049](#))
- 41 Packington Estate Enterprises Limited ([HS2 0050](#))
- 42 Natural England ([HS2 0051](#))
- 43 Environment Agency ([HS2 0052](#))
- 44 Campaign to Protect Rural England ([HS2 0053](#))
- 45 British Geological Survey ([HS2 0054](#))
- 46 Heathrow Hub Ltd ([HS2 0057](#))
- 47 Greengauge 21 ([HS2 0058](#))
- 48 Stephen Plowden ([HS2 0060](#))