



Overview

MAIN ARGUMENTS AGAINST HS2 – QUESTION 1

Introduction

1. 51m is a consortium of Local Authorities between London and Birmingham on the HS2 route. The Group is called 51m because £51m is the cost to each Parliamentary constituency in the UK of the HS2 project.
2. This document is 51m's response to Question One, and will set out the overall arguments against HS2. It will cross refer to the supporting evidence, which form the chapters of this report and which in turn cross-refer to the TSC's questions, although not in the same order, so that the Committee can see where we have dealt with the relevant issues.
3. HS2 is an enormously expensive (£30bn Net Present Value) and environmentally damaging piece of infrastructure, which requires £17bn (NPV) of public subsidy. Even on the DfT's own case, the Y has a benefit cost ratio ("BCR") of only 2.2 (excluding Wider Economic Impacts – WEI) and 2.6 (including WEI) and this reduces to 1.6 and 2.0 respectively for Phase 1, and these are based on some over optimistic assumptions. HS2 should only be given the go ahead if there is a clear case in the national interest, which has been robustly and independently scrutinised. The DfT case is fundamentally flawed in a large number of respects and has not been adequately scrutinised and tested.
4. 51m is not against high speed rail per se, but it must be the right project and properly justified. The Government should not spend £billions, simply because HSR is a modern and glamorous form of infrastructure, particularly where smaller and less expensive transport schemes would give far greater benefits in environmental, social and transport terms. As Sir Rod Eddington said in his 2007 Transport Study;

"because the UK is already well connected, the key economic challenge is therefore to improve the performance of the existing network... There are very high returns from making best use of existing networks [with...]large

projects with speculative benefits and relying on untested technology, are unlikely to generate attractive returns.”

5. The evidence shows that HS2 would largely be used by those in the highest income brackets (and many of those for leisure purposes). In essence HS2 is a massive public subsidy to the well off, with at best some doubtful economic benefits.
6. There is a long history of over optimistic forecasting by the rail industry, both in terms of passenger forecasts and costs. The Committee should bear in mind that schemes such as this are developed by those who have a strong interest in them, as is recognised by international studies.
7. The issues which arise on the DfT's case are:
 - a) There are much cheaper incremental alternatives, which can meet the forecast demand, but in a quicker and more responsive manner.
 - b) Demand forecasts are optimistic.
 - c) The rail industry has a poor record on passenger forecasting.
 - d) HS2 service provision of 18tph is undeliverable.
 - e) It won't reduce overall air travel and will have no climate change benefits
 - f) The benefits assumed are too high, particularly as assumptions about time spent on trains being wasted are out of date.
 - g) The scheme will have little impact in rebalancing the regional economy, in contrast to local and regional schemes that offer practical benefits.
 - h) It creates large disbenefits to many existing rail users.
 - i) Major construction impacts at Euston.
 - j) No justification for Heathrow and HS1 links.
 - k) HS2 is critically different from the European examples DfT rely upon.

Unrealistic Comparators/Better Alternatives – Chapters 1 & 10

8. Probably the most fundamental problem with the DfT's economic analysis is that they have not used the best alternative as their comparator with which

to test the business case, instead using a wholly unrealistic “do-minimum” comparator with almost no changes over 30 years. The DfT’s principal alternative, Rail Package 2 “RP2”, fails to optimise the opportunity for extending and reconfiguring trains; includes unnecessary and costly infrastructure; and fails to apply a consistent approach to the infrastructure which is needed between it and HS2. This is contrary to basic principles on carrying out a business case such as this, and has led to a wholly distorted picture as to the need for, and benefits of, HS2.

9. DfT have used different do minimum cases for their evaluation of HS2 and their alternative RP2 which results in the overestimation of the benefits of HS2.
10. Issues about the level of passenger growth, how time is spent and the value of time saved are inevitably open to subjective judgement, and ultimately guesswork. But it is a simple fact that huge increases in capacity can be produced on the relevant parts of the rail network, with relatively simple and far cheaper steps than HS2, and which address crowding issues earlier.
11. There are a series of incremental improvements to the existing network which can deliver more than sufficient to meet the forecast demand. These steps have 4 major advantages over HS2. Firstly, they can be introduced incrementally so that if the massive demand increases forecast by HS2 do not materialise there is no wasted investment. Secondly, they are far cheaper than HS2. Thirdly, they can be introduced much more quickly than HS2, so can deal with existing overcrowding issues, rather than having to wait until 2026 (at the earliest). Fourthly, they are very low risk.
12. In summary the incremental ways to increase capacity over the DfT base case are:
 - a) Take account of Evergreen 3 (line speed increase from London Marylebone- Birmingham), which will be completed this year and provides journey speeds to Birmingham only a few minutes longer than those on Virgin trains, thereby reducing demand from Euston and

increasing capacity including at peak times. This scheme was deliberately ignored in the DfT business case.

- b) Change the train configuration on Pendolinos to change at least one carriage from first to standard. The overcrowding issues only arise in standard class;
 - c) Lengthen existing Pendolinos, all to 11 car and then most to 12 car. The combination of (b) and (c) produces 9 standard cars per train, in contrast with 5 at the moment;
 - d) Introduce “smart” ticketing and demand management, to reduce peak demand, for example eliminating the artificial peak on Friday after 7pm at Euston;
 - e) Carry out a series of relatively “minor” infrastructure capacity improvements at pinchpoints, including a grade separated junction south of Milton Keynes, to allow improved separation between fast and slow lines.
13. The cumulative capacity increases of these measures over the 2008 base case demand would be in the order of trebling (211%), see table below, at a total capital cost in the region of £2bn. Of course these steps would not provide the journey time improvements of HS2. But once it is understood that the majority of the benefits from the journey time reductions are dependent on the assumption that business people do not work on trains, it can be seen that spending £30bn (NPV) for this gain is a very poor use of public money.

Interventions	Daily trains	Daily standard class seats	% increase above 2008 base	Comments
Train investment with no/little infrastructure investment				
HS2 2008 Base		59,298		Base used by DfT for evaluation of HS2. Predates full WCML upgrade timetable
Current timetable	286	81,924	38%	Includes Voyager services (30 daily)
Evergreen 3	[68]	[28,900] ¹	[55%]	Committed scheme – complete in 2011
Committed lengthening project	286	105,924	79%	Committed scheme – implemented from 2012
December 2013 additional services	306	113,769	92%	Additional hourly off-peak train each way
First class reconfiguration	306	134,379	127%	One car converted from first to standard
12 car sets (except Liverpool)	306	166,908	181%	Major physical constraints at Liverpool
Infrastructure Investment				
Additional services	336	184,326	211%	30 additional daily trains following investment to relieve pinchpoints

14. These improvements would cause no disruption at Euston, as opposed to HS2's disruption which will be massive for 7-8 years. It is also important to stress that the alternative would cause minimal disruption to the WCML and is in no way comparable with the WCML upgrade which took place a few years ago.

Demand Growth²- Chapter 2

15. DfT forecast is for 102% "background" demand growth to 2043, and 209% including the additional growth generated by HS2. The DfT describe this as "conservative", but that is misleading. They justify this by reference to high

¹ Illustrative Evergreen 3 figures assume Chiltern trains currently 4 car class 168 units (275 seats), lengthened to 6 car class 168 (425 seats) and this capacity increase is not included in 211%

levels of growth on long distance rail travel in the last 15 years and a very strong relationship between increased wealth and increased long distance rail trips. But this must be seen in the context of overall long distance trips on all modes per person remaining constant since 1995; no rail growth in the period 1952-1995; and rail travel being strongly influenced by investment (including public subsidy) post privatisation. It is wholly unsound to assume that the factors which led to rapid growth post 1995 will continue to 2043.

16. The DfT have used assumptions on growth derived from the rail forecasting manual (PDFH) for the period up to 2043, even though this is contrary to their own normal forecasting practice; to Sir Rod Eddington's recommendations and to Network Rail's position. To take a period of exceptionally high growth, based on very particular factors, extrapolate it forward for 35 years, and then to suggest that this is a conservative approach is not justified.
17. Forecasting is inherently uncertain, and in recognition of this DfT's own Guidance imposes a cap of demand growth in 2026. DfT in its original evaluation extended this to 2033, because of the long lead in time for HS2. However, they have now extended the forecast period to 2043 and then capped the forecast at double the current levels. The DfT has therefore applied its high growth figures for 35 (2008-2043) years. This leads to a highly uncertain forecast. The failure to carry out any proper sensitivity testing exacerbates the inadequacies of the forecast.
18. Even if one were to take a half way point between the growth forecast by the DfT and the work carried out on behalf of 51m, the Benefit Cost Ratio would fall to below 1.5 (excl. WEI), and therefore fails any normal test for Government supported projects.

Rail Industry history of poor forecasting – Chapter 3

19. 51m's concern that the passenger forecasts are seriously over optimistic, is strongly supported by the rail industry's very poor record on forecasting

demand for major rail projects. CTRL (now HS1) predicted demand in 2006 of 25 million passengers, whereas the actual traffic is around 9 million. The Public Accounts Committee in 2006 reported that the DfT had told them that they had learnt from their mistakes and next time would factor in more severe downside assumptions, but they have notably failed to do so, on HS2.

20. Comparisons with HSR internationally are often cited, implying that we are a long way behind other countries, however there are fundamental differences between virtually all HSR networks and the UK: elsewhere their rail journey times were much slower pre-HSR than in the UK, where WCML is a modern 125mph railway; post-HSR their journey times are all more than halved; and with the exception of Frankfurt - Cologne the distances are much longer. The table below sets out the impact of HSR routes on journey times for a number of international networks.

	Distance	Pre – HSR	Post – HSR
Tokyo – Osaka	515km	6hrs 30mins	3hrs 10mins (now 2hrs 30mins)
Madrid – Seville	472km	6hrs 30mins	2hrs 45 mins (now 2hrs 30 mins)
Paris – Lyon	431km	4hrs	1hrs 55 mins
Frankfurt – Cologne	180km	2hrs 20 mins	1hr 2 mins
London – Manchester	296km	2hr 08mins	1hr 13 mins proposed (from 2032)
London – Birmingham	182km	1hr 24 mins	49 mins proposed

21. On the face of it, the Cologne – Frankfurt route appears to be equivalent to London – Birmingham, at essentially the same distance. However, Cologne – Frankfurt is part of a much wider network, with almost all trains going to or coming from somewhere else, as part of longer distance routes such as Amsterdam – Basel and Dortmund – Munich. The HSR route also gives proportionately much greater time savings than HS2 to Birmingham, with Cologne – Frankfurt times of 62 minutes, compared with timings on the tortuous classic route of 140 minutes. But London – Birmingham is only 84

minutes today, and Virgin Trains say that they could deliver 70 minutes on the existing track.

22. The DfT has placed great reliance on international examples to support its case, however the evidence does not support this conclusion. The Dutch HSR has financial problems, the President of SNCF has stated that the network is decaying as investment is focused on TGV lines, distances between stations on TGV lines are much greater than in the UK, and in Germany the classic network is slow and not comparable with the UK mainlines.

HS2 Service Provision – Chapter 4

23. The DfT passenger forecasts are reliant upon their assumptions about the number of trains that can be provided, their speed and reliability. However, their entire case rests on assuming 18tph for the full network, which is a figure that has never been achieved anywhere in the world for high speed infrastructure. High speed rail worldwide only has 12 -15 tph maximum. Industry experts place no reliance on being able to achieve 18tph in the foreseeable future.
24. In terms of reliability, the DfT assume a very high level of reliability, although even on the full “Y” scheme many of the high speed trains will be coming from the classic network and will be using train paths shared with other users. This raises major doubts over the robustness of the assumptions about reliability.
25. The entire forecasting exercise is therefore based on untried (indeed un-invented) technology and unjustified assumptions about other train operators.

Modal Shift from Air – Chapter 11

26. The DfT forecast only 6% of HS2 passengers are switching from air. Domestic demand to all London airports has fallen by 26% since 2004 and it is therefore very difficult to reconcile this with DfT predictions of 128%

growth to 2043. Journey times from Glasgow/Edinburgh to Paris/Brussels will remain over 6 hours and therefore no modal shift can be assumed.

27. It is interesting to note that even on Madrid-Barcelona, where the high speed rail link reduced journey times from around 6 hours to 2 hrs 40mins hours, there remain 25 flights per day, each way, on the route.

Benefits - Chapter 2

28. The key benefit of HS2 in its economic case is the value of shorter journey times, which accounts for £18bn of the £44bn benefits. £14bn of this depends on the assumption that time savings translate into greater productivity for business travellers. This is because in the economic case the DfT have assumed that time spent on trains is wasted, and have taken no account of modern technology which allows business travellers to use train time productively. This is considered in detail in "*51m Economic Case*".
29. The DfT seek to rebut this by saying that if one does assume that time on trains is used productively then that is simply recovered by the benefits of reducing overcrowding. But this is flawed. The much cheaper alternative proposals reduce overcrowding more than HS2 (HS2 predicts load factor of 58% in 2043, whereas the Optimised Alternative has about 52% and even the DfT alternative RP2 has 51%) , and can provide additional capacity sooner.
30. Given the above concerns, if you undertake a 50% downside sensitivity test on the benefits in the business case (between DfT's and work done for 51m) the BCR falls to less than 1.0 (excl. WEI) for Phase 1 and about 1.2 (excl. WEI) for the Y.
31. Importantly the DfT in the business case has ignored price competition from the classic network which post HS2 will have much spare capacity. It is difficult to see why those who are getting the benefit from high speed rail should not be paying premium fares for those benefits, or to believe that this will not happen in practice. But the DfT business case rests on there being no premium fares, and the shortfall being made up by public subsidy.

Without this assumption the business case would fall much further because the passenger forecasts would reduce significantly.

Economic Rebalancing and Regeneration – Chapters 3 & 5

32. The DfT now places great emphasis on the desirability of “rebalancing the economy”, and “reshaping the economic geography” of the UK. It is well established in the academic literature that the benefits of high speed rail between regional centres and a dominant capital city are likely to accrue significantly more to the capital than to the regions. Essentially the argument is that if you provide very good transport links from the hub to spokes, there is some benefit to spokes but most benefit to the hub. So regional centres will gain something but most of the gain will fall to London and SE, as by far and away the strongest areas of the national economy. Even on the DfT’s case 7 out of 10 jobs are created in the South East and twice as many new trips are generated to, compared with from London.
33. If Government wishes to prioritise rebalancing the economy, and regenerating the Northern cities, then the way to achieve this is through significant investment in transport between the northern cities, and within their travel to work areas. This has been the clear aspiration of those regions as set out in the Northern Way strategy and transport priorities.

Impacts Carbon – Chapter 6

34. In terms of carbon emissions the DfT’s own case is that HS2 will only be carbon neutral. Given the massive public investment in the scheme, and the overall contribution of transport to carbon emissions it seems odd that the Government should support a scheme with so little carbon benefit. HS2 also generates a very large number of new trips, i.e. people who are not currently choosing to travel, and only achieves 7% of HS2 passenger shifting from car use. Emerging Government policy is to encourage people to travel less, and to prioritise schemes which achieve a reduction in carbon emissions. HS2 does neither.

35. But in any event the forecast of HS2 being carbon neutral is itself extremely optimistic. This forecast rests entirely on high assumptions about modal shift from air see above, and most critically on making the assumption that airport slots which are freed up by the reduction in domestic flights would not be re-used. In reality it is quite clear that those slots, particularly at Heathrow will be filled with long haul flights, which are both more profitable for the airlines and much more carbon emitting. Aviation growth is constrained by the number of runways in the SE of England. If HS2 frees up slots at those airports then the inevitable consequence will be a growth in carbon emissions.

Impact on Freight – Chapter 7

36. The current Network Rail freight strategy does envisage freight tonnage growing in the next 30 years with the highest growth in containerised traffic from the ports of Felixstowe, Southampton and Thames Gateway. The current Felixstowe – Nuneaton freight upgrade project will take some 20 trains per day off the southern part of the WCML releasing capacity for freight growth. Other investments are being made in the freight network including Southampton – West Midlands gauge enhancement.
37. Freight almost exclusively uses the slow lines on WCML, so has little impact on fast lines services and capacity except when it has to cross the fast lines on a flat junction or there are short 2 or 3 track sections. This happens at certain pinch points: south of Nuneaton, Colwich and Stafford Infrastructure works currently being delivered or proposed in alternatives would in any event address the pinchpoints for freight.

Impacts on the Classic Network – Chapters 8, 9 & 10

38. The HS2 case is based on no investment beyond those already committed by 2015 on the WCML, MML or ECML, until the completion of HS2, even though they are predicting major growth on these routes in the intervening years. This will lead to major overcrowding issues and is an unsustainable position. Overcrowding currently exists on the commuter route between

Northampton/Milton Keynes and London and will not be addressed until 2026 at the earliest when Phase 1 of HS2 is proposed to open.

- a) HS2 results in the WCML only having an average load factor of 31%. £9bn has recently been invested in this route to make it the most modern in the UK.
 - b) There will be capacity and/or frequency reduction to some cities, for example Coventry, Wolverhampton, Stoke-on-Trent, Leicester, Chesterfield, Peterborough and Doncaster. These reductions are included in the business case, because there is an assumed saving of around £5bn (NPV) in operating costs. Any promises to maintain existing service levels to these cities would have serious impact on the business case.
 - c) As Heathrow Express (HEX) trains to stop at Old Oak Common, all GWML services will also have to stop otherwise capacity on the route will be reduced. This would add approximately 5mins to all journey times to/from the West and Wales.
39. There will be massive disruption throughout the construction period at Euston station, for about 8 years. The scheme involves the reconstruction and lowering of all the existing platforms and major changes to the approach tracks. It is inconceivable that this can be achieved without extensive track closures.
40. The creation of a station at Old Oak Common will have significant impacts on the operation of the GWML, HEX and Crossrail services. The paucity of detail on the Old Oak Common proposals make it impossible to predict what will happen there, but both the Crossrail services and its depot are likely to suffer major disruption.
- Links to Heathrow and HS1 – Chapters 11 & 12***
41. The DfT proposal involves linking HS2 to Heathrow and HS1. It is beyond any possible doubt there is no economic case for providing such links, a view

held by the rail industry as well – the passenger forecasts are far too low. Further, there are no train paths available for these services in any event.

42. This merely provides an example of how poorly thought out HS2 is, and how proposals for expenditure of £billions of public funds have not been properly appraised.

Environmental Impacts – Chapter 13

43. HS2 have provided little detail on the environmental costs, benefits and mitigation (apart from saying there will be some and allocating funding) for London to Birmingham (Phase 1). No details have been provided for the Y (Phase 2) and the route has not even been identified, although HS2 have indicated that this will be divulged at the end of this year after the consultation has been completed. This is the only opportunity for the benefits and drawbacks to be understood and considered, before the principle is fixed. The lack of information makes any valid consultation or assessment impossible.
44. Any project of this magnitude will inevitably have significant environmental impacts and HS2 will be no different, indeed its Appraisal of Sustainability scores all aspects negatively. Due to the lack of information and the fact that HS2 has not offered any mitigation measure, two authorities south of Birmingham have undertaken their own initial investigations to reach an initial understanding of the impacts. Buckinghamshire have major concerns about impacts upon the AONB, local hydrology, habitats, heritage assets and the wider landscape. Similarly Hillingdon and South Bucks have significant concerns with regard to the Colne Valley Park, a vital local resource.
45. Given that the route goes through four other rural counties, as well as densely populated urban areas, it would not be unreasonable to assume that the number of adverse impacts on environmental assets would be very substantial.

46. It is also important to remember the impact on people's lives, both in terms of noise and disruption, but also the 100s of dwellings to be demolished.
47. HSR has specific noise characteristics compared with classic rail and although HS2 have focused a lot on noise in their road shows with the noise booth, it is clear that this does not provide a true reflection of the impacts. They have provided little detail on the real impacts in the areas either side of the route. Fundamental to understanding the impact of noise on dwellings, business, schools, AONB etc is the production of noise contours.
48. For these reasons it is not possible to understand the real environmental costs and benefits of HS2 as little or no information has been provided.

Government Transport and Environmental Policy – Chapter 14 & 15

49. In the most fundamental aspects this proposal appears to be contrary to key parts of Government policy
 - a) It involves a major subsidy into rail transport at a point in time when the Government is seeking to reduce subsidy to the rail industry.
 - b) It encourages people to travel more, indeed relies upon them doing so, when Government policy is moving towards encouraging less trips and more use of alternative technology.
 - c) It involves a relatively small modal shift, when Government transport policy is supposed to be focused on sustainable development.
 - d) It has neutral or negative carbon impact.
 - e) It produces highly speculative regeneration benefits and will be far less effective in achieving the policy objective of rebalancing the economy, than would far less expensive regional investments. This is contrary to the policy priorities of the Northern Regions Development Agencies.
 - f) Although the capital costs of HS2 will fall outside this spending review, £750m is to be spent in this parliament simply on achieving the Hybrid Bill.

Conclusions

50. For all these reasons 51m is of the view that the case for the HS2 scheme does not begin to be made. Not only are there serious doubts over the validity of the HS2 case but there is a real practical and low risk alternative, which can meet the need as it arises and relatively cheaply. This is not as exciting or high profile as HS2 but far better value for money. The Committee is asked to request the DfT to undertake a fundamental reappraisal.

51. *“the risk is that transport policy can become the pursuit of icons. Almost invariably such projects – ‘grand projects’ – develop real momentum, driven by strong lobbying. The momentum can make such projects difficult – and unpopular – to stop, even when the benefit:cost equation does not stack up, or the environmental and landscape impacts are unacceptable”.* Sir Rod Eddington – The Transport Study.