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Geraldine Barker,
National Audit Office

Dear Ms Barker

High Speed 2 (HS2): Investigation by the National Audit Office

Thankyou for your letter of 3 October concerning our request to provide evidence for your investigation into HS2.

As you will be aware from our summary paper (that has now been updated) we believe that there are numerous deficiencies in the case for HS2, and that DfT and HS2 Ltd failed to perform an unbiased assessment. I appreciate that you may already be aware of many of the points so I have set them out in brief, by topic, with references to relevant supporting material, focusing on those aspects that might be most relevant to your study.

Some of the issues have only recently emerged, while others are long standing and were made before or during the 2011 public consultation. You will have received a copy of a letter I sent to DfT (Jill Adam) last week on one matter that has emerged (concerning the unit value used for valuing business travellers time).

We hope that you can give us the opportunity to take you and your team through the material. While HS2AA are taking a judicial review, the matters we are raising here are quite apart from the judicial review. Here we are concerned with the substance of the Government's economic case rather than their failure to properly consult.

Our view is that correctly considered the economic case for HS2 is very weak and has a real Benefit Cost Ratio well below 1: not only does it require a substantial subsidy (over £26bn NPV) but the economic and social benefits that the subsidy would purchase are of lesser value than that subsidy. We recognise that there are also important non monetised elements. But far from the weakness in the economic case being redeemed by HS2 making other forms of contribution to environmental and social objectives (on jobs, equity, landscape, rebalancing the economy etc), HS2 acts broadly in the opposite manner. As I'm sure you are aware, not only are these views increasingly widely held, but reputable survey

evidence shows that shorter long distance journey times are not a priority for travellers¹, and catching up with Europe is a myth when the evidence on journey times is actually assessed².

DfT claim to us, and most recently to the Select Committee, that the approach that they have adopted in their assessment of HS2 is based on the best available evidence. We feel that in many areas this is simply inconsistent with the facts. This is very concerning given the large sums of public money at stake.

The key issues and where further information may be found (primarily in our summary of ‘*why the case for HS2 is flawed*’, our 2011 consultation response and recent letters) are set out below :

	Issue	Further material
1 Demand		
a	Rail forecast model. DfT continue to knowingly base their forecast on an outdated model with unsustainable assumptions. The income elasticities are from an obsolete version of the forecasting model (PDFHv4.1) – despite DfT having issued revised guidance that replaces them (with PDFHv5), and DfT knowing this has a big effect on the BCR (0.4 on Phase 1).	Current position is at <i>Why the case for HS2 is flawed</i> – page 3 & refs. More detailed position (but as at July 2011) is in <i>HS2AA’s consultation response</i> – Sect. 2.2.1 Recent letters to Sec of State eg 15/09/12 and DfT eg 19/10/12
b	Fixing demand. DfT cap demand in background growth at doubling, despite this being baseless (beyond being the optimum solution for HS2). Normal practice is to cap the period the forecast applies to eg 18 yrs, reflecting the credible shelf life of key assumptions in what is inherently a short term rail forecasting model.	Current position is at <i>Why the case for HS2 is flawed</i> – top of page 4. More detailed position is at <i>HS2AA’s consultation response</i> – Section 2.2.2 In letters, as above; and when Oxera criticised it
c	Premium pricing. DfT do not consider premium pricing although this would be the inevitable consequence of creating surplus capacity on the route (unless price regulation is imposed), and would result in fewer travellers on HS2. Using a ‘competition-free’ model, means demand is allocated between different routes on the basis of journey time and crowding, but not price. This is unrealistic	Current position is at <i>Why the case for HS2 is flawed</i> – page 3 Public Accounts Committee (<i>Completion and sale of HS1</i>) June 2012, Recommendation 5 Letters eg 28/08/2012 to Chair Transport Select Committee (TSC) and 20/08/12 to Sec. of State
d	Demand saturation. DfT have ignored the mounting evidence that long distance domestic demand by all modes is saturated, (so rail growth depends on modal shift and it’s not credible this continues indefinitely) and that business travel overall is actually declining	Current position is at <i>Why the case for HS2 is flawed</i> – page 5. More detail is at <i>HS2AA’s consultation response</i> – Section 1.3.2 & 3 (later data now available)
2 Value of time (VoT) savings		
a	Time on trains treated as unproductive. DfT continue to use the base case of all travel time being unproductive (ie wasted), despite compelling evidence it is untrue, and becoming ever less so (eg by 2026/33 when HS2 applies). This single assumption accounts for over 55% of HS2 scheme benefits.	Current position is at <i>Why the case for HS2 is flawed</i> – page 2/3 More detail at <i>HS2AA’s consultation response</i> – Sect 2.1.1 (but predates several papers being published, as prior source notes).
b	Sensitivity case. DfT use sensitivities that ignore the evidence that business users’ productivity is unaffected by crowding (as they travel first class or book seats). The crowding benefit also only arises because of the flawed comparison basis (4 below)	Current position is at <i>Why the case for HS2 is flawed</i> – page 2/3 DfT Strategic Unit Paper Letter to DfT of 19/10/12

¹ Eurobarometer and NPS survey findings. See Annex 1.1 of our HS2AA consultation response

² Updated Eddington study of journey times. See Appendix 1.2 of our HS2AA Consultation response

c	£70k/a salary. DfT use (what equates to) an average business traveller salary of £70,000/a despite it being unsustainably high for the levels of additional business travel they forecast. The VoT sensitivity test that DfT use to justify retaining past assumptions on VoT takes no account of the £70k issue. DfT claim the £70k does not represent earnings. Our paper provides evidence to show it is earnings based and too high	Paper justifying £70k figures 'Overestimation of value of business travellers time – the facts'. Sept 2012 Letters to DfT eg 19/10/12 and Sec of State 15/09/12 More detail at <i>HS2AA's consultation response</i> – Sect 2.1.2
d	Route choice model. Overvaluing the time savings meant the route selection process was defective eg in satisfying the legal obligations on Areas of Outstanding Natural Beauty (where it must be proved there is no alternative route). The compensating crowding benefits in the sensitivity case (2b) would not apply when comparing HS2 with alternative routes. Since VoT accounts for 55% of HS2 benefits an alternative route might easily be better than HS2	More detailed position is at <i>HS2AA's consultation response</i> – Section 4.3 Letter to DfT of 19/10/12
e	Revised GDP deflators: The latest economic update increases the value of time benefits by applying the new GDP deflators. It is not clear that the increases in future productivity (and hence future values of time) that result are a proper consequence of a technical adjustment ie using CPI instead of RPI.	Current position is at <i>Why the case for HS2 is flawed</i> – page 3 with ref 18
3. Costs		
a	Financing cost. DfT failed to take account of the cost of finance in the way required by their guidance (that assumes it treated as Network Rail's regulatory asset base)	Current position is at <i>Why the case for HS2 is flawed</i> – page 4
b	Exaggerated cost savings. DfT apply optimism bias to increase the value of projected savings in operating classic rail. This acts in the opposite direction from the guidance (ie to prevent underestimating costs not inflate savings). It increases savings by £2.2bn (NPV) for the Y (or 0.2 on the BCR)	Current position is at <i>Why the case for HS2 is flawed</i> – page 4 Letter to Sec of State of 15/09/12
c	Inconsistent and unexplained costings. DfT assessed HS2 and the strategic alternatives on inconsistent bases eg taking into account the additional cost of financing rollingstock for the alternatives (where they were costed on a leased basis), but not for HS2. The revised 2011 costings for Rail Package 2 were also inexplicable.	Current position is at <i>Why the case for HS2 is flawed</i> – page 4 More detailed position is at <i>HS2AA's consultation response</i> – Section 2.3.2 (page 39) and Appendix 2.4 (pages 98 -100)
d	Excluded costs. The costs of the necessary dispersal arrangements for passengers on HS2 arriving in London (Crossrail 2) have been excluded. Blight costs are also excluded (only taking into account the compensation scheme element). So while social benefits are included, social costs are not.	More detailed position is at <i>HS2AA's consultation response</i> – Section 2.5
e	Landscape costs. The impact of HS2 on the natural environment is indisputably negative. The landscape value was substantially reduced in the January 2012 case, but seems to be entirely omitted from the latest economic update	Current position is at <i>Why the case for HS2 is flawed</i> – page 4 Letter to Sec of State of 15/09/12 and DfT of 19/10/12
4. Comparison base		
a	'Do minimum' comparator. This is methodologically incorrect for the current stage of project assessment. Cost benefit analysis requires a best alternative as a final comparator. Comparison against the 51m alternative greatly reduces HS2's assessed benefits eg the sensitivity test of reducing the value of time (see 2b) but increasing the crowding penalty would not then offer off-setting increases in crowding benefits for HS2.	Current position is at <i>Why the case for HS2 is flawed</i> – page 4 More detailed position is at <i>HS2AA's consultation response</i> – Section 2.3.1 In letter to Sec of State of 20/08/12
b	'Do minimum' and crowding: DfT use a 'do minimum'	As above

	comparator that results in unrealistic levels of crowding (75% loading) on their demand forecast assumptions. This leads to attributing artificial crowding benefits to HS2 that (as at 4a) would not exist if HS2 were compared with the best alternative to HS2. HS2 is actually more crowded than the alternatives	And at <i>HS2AA's consultation response</i> – Section 2.1.3
b	Alternatives. DfT dismiss the 51m alternative unreasonably, on the base that it does not address potential growth in London commuting requirements. Network Rail (NR) accepts that the 51m alternative provides the required long distance capacity. The 51m solution would involve much less disruption to rail and road travellers to be implemented.	Current position is at <i>Why the case for HS2 is flawed</i> – page 5 More detail at <i>HS2AA's consultation response</i> – Section 2.3.3 & 6 (but predates NR report) Letter to Sec of State of 15/09/12
4	HLOS: DfT have persistently excluded committed plans eg only after our complaints was Evergreen III included (although pricing effects are still ignored). Currently none of the HLOS improvements (for 2019) are in the latest update even though they encroach on HS2 benefits eg electrification of MML, ECML improvements, new Great Western link to Heathrow.	Current position is at <i>Why the case for HS2 is flawed</i> – page 4 Letters eg 20/08/12 to Sec. of State, and 28/08/12 to Chair TSC
5	Non-rail alternatives: inadequate investigation of the non rail alternatives to HS2 eg in high speed broadband, local transport	Public Accounts Committee (<i>Completion and sale of HS1</i>) June 2012 (lessons for HS2 eg para 15)
5. Risk		
a	Scenarios. DfT have failed to properly assess risk, in not developing proper scenarios for testing the robustness of their case (as their own guidance commends)	More detailed position is at <i>HS2AA's consultation response</i> – Section 2.4.1
b	Incremental assessment. A proper assessment of risk would recognise the value of the ability to implement the strategic alternatives and the 51m alternative incrementally against emerging demand – rather than the all or nothing approach of HS2 and its consequential exposure to demand risk	Current position is at <i>Why the case for HS2 is flawed</i> – page 4 (and ref 29)
c	Learning from HS1. DfT are repeating the mistakes of HS1 in demand forecasting and failure to take account of competition, but doing even less to take into account these risks (for HS1 the assessment used high, central and low demand cases – albeit demand proved to be the below the low case)	As above Also Public Accounts Committee (<i>Completion and sale of HS1</i>) June 2012
5 Other non monetised areas (not included in the business case)		
a	Capacity. Far from a new railway being the only means of meeting DfT's forecast rail growth the 51m alternative of uprating the existing WCML is able to more than meet all the demand DfT forecast. In fact WCML has, according to First Group, exceptionally high spare capacity	Current position is at <i>Why the case for HS2 is flawed</i> – page 5 More detail at <i>HS2AA's consultation response</i> – Sect 2.3.3 Letters 28/08/12 and 4/10/12 to Chair TSC
b	Environment. The impact of HS2 on the natural environment is indisputably negative, carving through the Chilterns AONB and tracts of as yet unspoilt countryside	Current position is at <i>Why the case for HS2 is flawed</i> – page 8 See also 3e above
c	Emissions. HS2 will increase carbon emissions: DfT's own figures show that induced demand exceeds the intermodal transfer, with the prospect of any spare runway capacity being used for more carbon emitting longer haul flights. The majority of HS2 travellers transfer from classic rail, and running trains at higher speed requires more energy	Current position is at <i>Why the case for HS2 is flawed</i> – page 7/8 More detailed position is at <i>HS2AA's consultation response</i> – Section 6.1
d	Jobs. The level of job creation ascribed to HS2 is derisory for the sums involved – and even those jobs are not net of losses elsewhere eg on WCML, and most jobs are unlikely to be genuinely new jobs but shifted from elsewhere	Current position is at <i>Why the case for HS2 is flawed</i> – top of page 7 More detailed position is at <i>HS2AA's consultation response</i> – Section 3.2 (3.2.1 and 3.2.2)
e	North/South divide. Far from bridging the North South divide	Current position is at <i>Why the case</i>

	as David Cameron aspires, the academic evidence suggests HS2 will tend to re-enforce the dominance of London – with a reduction to a barrier to competition (travelling time) favouring London’s more efficient services industry	<i>for HS2 is flawed</i> –page 6 More detailed position is at <i>HS2AA’s consultation response</i> – Section 3.2 (3.2.3)
f	Equity. In terms of equity, there is no doubt that rail travellers are amongst the more affluent members of society, and that an additional subsidy for rail travel is inherently regressive. This might be justified if there were concomitant general social and economic benefits, but the economic case has failed to demonstrate this	Current position is at <i>Why the case for HS2 is flawed</i> – page 1 More detailed position is at <i>HS2AA’s consultation response</i> – Section 3.3 and 6.3

We would appreciate the opportunity to take your team through the above summary in person.

We would also be pleased to provide further evidence on any of the areas raised.

Yours sincerely



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