

*"The UK doesn't need a 400kph railway."*

-Rob Holden, Former Chair, HS1.

*"I've found it quite hard to find an economist who thought it was a great idea."*

-BBC Economics Editor, Stephanie Flanders.

*"HS2 is a huge mistake. The fact is, it is a crazy grandiose vanity project which doesn't stack up economically at all. We know from experience these projects always turn out to cost much more. There is a strong case for improving the transport infrastructure, particularly the railroad, but we can do a far better job for far less money on the existing rail structure."*

-Former Chancellor, Lord Nigel Lawson.

*"HS2 will not benefit the economy as claimed."*

-Lord Digby Jones,  
former CBI  
Director General.

# The HS2 Paradox

*"The analysis behind High Speed 2 is fundamentally flawed."*

-Institute of Engineering & Technology.

*"HS2 is meant to bridge the UK's North-South divide, yet will merely boost London's power... there are better, cheaper ways of regenerating the North... a ludicrous, unaffordable scheme."*

-Allister Heath, Editor, City AM.

*"HS2 is not the infrastructure project Britain needs, nor that British business wants. Not enough businesses stand to benefit from it."*

-Andrew Silvester, Senior Parliamentary Affairs Officer, Institute of Directors.

*"High-speed rail proposals are high cost, high-risk megaprojects that promise little or no congestion relief, energy savings, or other environmental benefits."*

-The Cato Institute.

*"Despite endorsing the strengthening of Britain's infrastructure, this newspaper struggles with the case for the line. To govern is to choose. Would the benefits of a shiny new high speed line outweigh the less visible but valuable things that could be done with the limited funds available?"*

-The Financial Times.

*"I think the sheer cost of it will suck the very life blood out of the rest of the country's rail system."*

-Lord Peter Mandelson.

*"At no point in the process have alternative ways of spending the HS2 budget even been considered, let alone properly appraised against the scheme's objectives."*

-New Economics Foundation.

*"A group of powerful special interests appears to have had a disproportionate influence on the government's decision to build HS2. The high-speed-rail lobby includes engineering firms likely to receive contracts to build the infrastructure and trains for HS2, as well as senior officials of the local authorities and transport bureaucracies that expect to benefit from the new line."*

-Institute for Economic Affairs.

*"HS2 never made any financial sense. There are many better and quicker schemes to improve rail capacity across the country that could be brought forward. The government should consider removing HS2 from the spending side, as this is a poor value project which could be replaced by better transport investments for the North at lower costs."*

-John Redwood MP.

*"Parliament and the public are still in the dark about crucial details – not least when the railway will open and how much it is expected to cost and precisely where it will go."*

-Meg Hillier MP, Chair,  
Public Accounts Committee.

*"The business case for HS2 is not yet proven, and at best marginal. The risks are overwhelmingly on the downside. There is likely to be a significant opportunity cost in relation to the existing rail network."*

-Chris Stokes, former director of  
British Rail and the Strategic Rail Authority.

*"The case has not been made. The data on which these claims are based isn't just sparse - in some cases it's non-existent. Where it does exist, it starkly contradicts other government figures."*

-George Monbiot, The Guardian.

*"It's a folly and the Government should think again."*

-The Sunday Times,.

*“HS2 has the weakest economic case of all the projects within the infrastructure programme, yet it is being pushed through with the most enthusiasm.”*

**-Andrew Tyrie MP, Chair, Treasury Select Committee.**

In September 2016, Andrew Tyrie MP perfectly summed up the situation regarding HS2: that the case for the project continues to deteriorate, but ministerial support for it seems to be unflinching in the face of all the facts.

Originally, HS2 was nodded through in early 2010 by a Labour Cabinet preoccupied by the General Election. It was immediately picked up by the new Coalition Government, although there were significant differences between the Labour proposal which was adopted, and the plan originally put forward by the Conservatives.

Since then numerous reports, organisations and public bodies have criticised HS2, whilst the project has been beset by continual delays several descope exercises and cost increases which have almost doubled the initial price estimate to an official cost of £56 billion.

Organisations critical of HS2 include the Bow Group, the Institute of Engineering and Technology, the New Economics Foundation, the Institute of Directors, the Tax Payers Alliance and a long list of others. Parliamentary Committees which have criticised HS2 include the Public Accounts Committee, the Environmental Audit Committee, the Treasury Select Committee and the Lords Economic Affairs Committee. Even the Transport Select Committee had issues with it.

But all this well-founded criticism is continuously and summarily dismissed by Ministers and Civil Servants, and why this project was prioritised over all the issues facing the future transport and communication needs of the UK has never been satisfactorily explained, despite a plethora of ever-changing ‘reasons’ for building HS2 over the last six years.

This problem stems from the fact there was never an assessment into what was needed in terms of UK rail infrastructure. The original decision to go ahead with HS2 was made in a policy vacuum, with the arguments to support it retrofitted to justify a decision which had already been made. The arguments do not fit the evidence or stand up to any scrutiny, as evidenced throughout this paper, and countless independent analyses.

This situation was foretold by Sir Rod Eddington in his 2006 report for the Department for Transport, which stated:

*“It is critical that the government enforces a strong, strategic approach to option generation, so that it can avoid momentum building up behind particular solutions and the UK can avoid costly mistakes which will not be the most effective way of delivering on its strategic priorities.”*

*“The risk is that transport policy can become the pursuit of icons. Almost invariably such projects – ‘grands projets’ – 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. The resources absorbed by such projects could often be much better used elsewhere.”*

*“The approach taken to the development of some very high-speed rail line options has been the opposite of the approach advocated in this study. That is, the challenge to be tackled has not been fully understood before a solution has been generated.”*

## A Crescendo of Criticism

One constant throughout the saga of HS2 is repeated criticism of the project from respected independent bodies, all of which has been dismissed by Government. In September 2016, the Public Accounts Committee concluded that:

*“Parliament and the public are still in the dark about crucial details – not least when the railway will open and how much it is expected to cost and precisely where it will go.”*

This was after they had previously found in April 2012 that the DfT were using; unrealistic pricing, exaggerated demand, untenable values on journey time savings, and had conducted insufficient analysis of non-rail alternatives.

Also in September 2016, the Lords Economic Affairs Committee reminded the Chancellor that their investigation into HS2 had concluded the case for HS2 had not been made. The Adam Smith Institute described the high speed link as 'economically irresponsible' and said 'the numbers simply do not stack up' and a 'reckless waste of £80bn'.

This followed on from research from the Tax Payers Alliance, which similar themes coming out of independent reports on HS2. They found:

- Projected costs are rising and are likely to be almost £90 billion.
- The business case is flawed and hugely overstates the case for HS2.
- Demand for travel on HS2 is uncertain.
- Timely delivery of the project is very unlikely.
- Other proposals would provide greater value for money than HS2's Phase One.
- HS2 is unlikely to help develop the economy of North England to the extent that has been suggested.
- The need for increased travel capacity could well be met by new technologies.

In 2013, the National Audit Office issued a devastating charge, taken up by the Commons Treasury Select Committee, that officials were using *“Fragile numbers, out-of-date data and assumptions that do not reflect real life”*. The committee also spoke of *“Serious shortcomings”* in HS2's cost-benefit analysis.

Even the Transport Select Committee, when they produced a report supportive of HS2 in 2011, raised significant questions about the claimed ability to provide 18 trains per hour, concluded that claims of substantial carbon-reduction benefits do not stand up to scrutiny, and called for clarity on; the policy context, the assessment of alternatives, the financial and economic case, the environmental impacts, and the justification for the particular route being proposed, before the Government should decide to go ahead with HS2. None of those concerns were ever adequately addressed before the Government made the decision to go ahead.

One of more unexpected sources of criticism of HS2 has come from within the rail industry.

In 2013, Virgin Trains CEO Tony Collins said: *“HS2 has become a vanity project”*, after the then HS1 Chair Rob Holden had commented: *“Britain does not need a 400kph railway”*.

Chris Stokes, former director of both British Rail and the Strategic Rail Authority concurred, adding: *“Inter-City routes from Euston are far from being a high priority. HS2 is a misconceived vanity project.”*

*“The economic case for the new line just isn't credible and ministers still aren't being honest about the hidden costs, or the consequences for towns getting a worse service and passengers paying higher fares under their current plans. There has never been a proper consideration of strategic alternatives.”*

-Matthew Sinclair,  
Director, Taxpayers' Alliance.

*"I am a railway historian and naturally a strong rail supporter. But even I have to recognise the compelling evidence that HS2 cannot be justified."*

-Christian Wolmar, Rail Expert.

Possibly the most consistent criticism of HS2 has actually come from within Government, from the Major Projects Authority (now the Infrastructure and Projects Authority), which has rated HS2 as 'amber-red' since 2011.

An 'amber-red' rating means *"Successful delivery of the project is in doubt, with major risks or issues apparent in a number of key areas. Urgent action is needed to ensure these are addressed, and whether resolution is feasible"*.

Perhaps the worst result was in November 2014, when HS2 Ltd Chair sir David Higgins admitted the MPA had highlighted 75 serious concerns over HS2, which were never made public.

Whenever HS2 gets an 'amber-red' rating, Government and HS2 Ltd simply say things have improved since the review, yet next time, the project gets rated 'amber-red' again.

In 2015 it was revealed that another report from the MPA, 'Review Point 1', which HS2 Ltd were required to pass before tendering could start, had been delayed as it was certain to fail. When RP1 took place in 2016, HS2 Ltd did indeed fail, with the National Audit Office report stating: *"By May 2016, HS2 Ltd had the capability it had originally planned to reach by July 2015, but did not pass the first review point due to concerns about cost and schedule."*

Despite this, HS2 Ltd were allowed to start tendering anyway, with DfT permanent secretary Philip Rutnam contradicting the NAO, telling the Public Accounts Committee that RP1 was a 'positive assessment' and that: *"The message coming out of Review Point 1 was that the company was fit and ready to proceed with the tenders; there was no doubt about that."*

This perfectly sums up the attitude around HS2, that there is collective denial within government when it comes to any criticism. With this being the prevailing attitude, HS2 Ltd has become have become a law unto themselves, as it simply does not matter what anyone else thinks. This led former MP Dan Byles to comment that:

*"Anybody who has had to deal with HS2 Ltd will have found it a terrible, terrible organisation whose conduct towards many ordinary people has been nothing short of scandalous."*

Again, this sentiment has been backed up by independent reports. In November 2015 a Parliamentary and Health Service Ombudsman report concluded:"

*"I found that overall HS2 Ltd's actions fell below the reasonable standards we would expect, so much so that they constituted maladministration."*

In March 2016, the Public Administration and Constitutional Affairs Committee followed this up, with Chairman of the Committee, Bernard Jenkin MP, saying:

*"There is still a culture of defensive communication and misinformation within this public body and that is not acceptable."*

A third independent report concluded:

*"Residents experienced administrative delay, prevarication, and a lack of candour...I can see that behaviours like this are influenced by the working culture and they can reflect the cues which staff receive from the top leadership."*

*"Looking at the economics issues dispassionately, the sums don't add up."*  
-Centre for Economics and Business Research.



## HS2 and the 'Northern Powerhouse'

One of the most-cited reasons for building HS2 has been to promote regional regeneration and 'rebalance the economy', which has more latterly seen an insistence that HS2 is 'essential' to the 'Northern Powerhouse'. The problem is that this is that all the experts concur that when high speed rail connects two cities, the economic benefits flow to the dominant city.

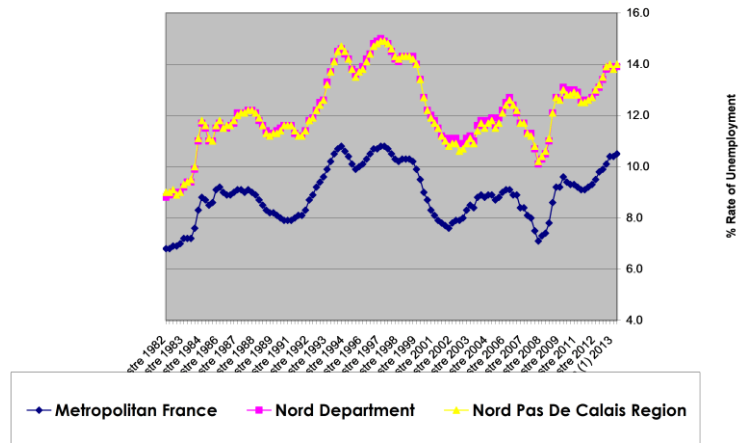
Looking at the international evidence, there is no question that London will be the greatest beneficiary from HS2. Even when the DfT paid KPMG £250,000 to invent a brand-new, untested methodology to in an attempt to bolster the case for HS2, they also came to this conclusion.

So now HS2 is touted as if it were a magic wand to cure the North-South divide, when the reality is it will most likely make it worse. While some Northern council leaders have previously described HS2 as 'essential', this is no longer the consensus amongst Northern politicians, academics, and business leaders. Many of them agree that East-West links are more important.

Most notably, the Labour candidate for Mayor of Liverpool City Region, Steve Rotheram, MP, recently said that he is not in favour of HS2. Andy Burnham, MP, Labour candidate for Mayor of Manchester, is a long-time skeptic. HS2 will not reduce journey times between Manchester and Leeds. If a 'Northern Powerhouse' is to be created, most business leaders believe it is the links between those cities which need to be improved. The very last thing which should be done to regenerate the North of England is to make it easier to get to London.

Redevelopment along the route is not reliant on HS2. Existing plans in the Curzon Street area of Birmingham had to be scrapped to give way for the HS2 station in Birmingham city centre, as have plans for the former LDV site at Washwood Heath.

Trends in Quarterly Unemployment Rates 1982 to 2013



With stations proposed for green belt areas in the East Midlands, Crewe and near Birmingham Airport, development here is likely to mainly consist of residential developments to feed even more commuters into London, rather than genuine regeneration.

In the UK, HS1 has not led to a great deal of regeneration in Ken. A government report on the economic impact of HS1 published in 2015 said that regeneration around the HS1 stations had been limited, that "HS1 has had little impact on underperforming towns" and that along the HS1 corridor, regeneration "effects could not be considered significant to date".

The perfect example of this is the HS1 station at Ebbsfleet. This connection was supposed to deliver economic development, but as of yet has only delivered a large, under-used car park. In 2015, George Osborne effectively waved the white flag on economic development at Ebbsfleet, stating his intention to build a 'Garden City', or more rightly a dormitory town, next to the station. This is in line with the most significant impact of HS1, that property prices in Ashford have increased due to London commuters moving there.

A standard approach for proponents of HS2 is to use soundbites which imply positivity with no facts to substantiate them. One such example is "Look what High Speed Rail has done for France". This implies it must be a good thing, until you actually look at what the TGV has done for France.

When the TGV got to Lille, unemployment in Lille and the surrounding areas jumped relative to the rest of France by about 2%, and has stayed there ever since. The same thing happened in Lyon as many businesses closed their regional offices or moved to Paris.

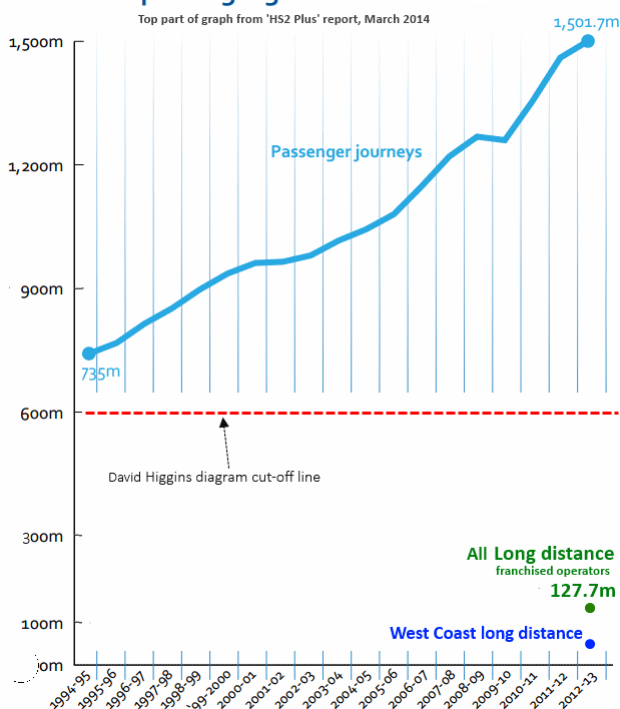
Other noticeable impacts of the TGV in France can be summed up by Guillaume Pépy, the president of the SNCF, who stated that passenger numbers were declining in following the reduction of passenger subsidies:

*“We risk having longer and longer high-speed lines which are used less and less. The whole basis of the high-speed rail revolution – that the TGV should be the “normal” means of travel, not just something affordable by the business elite – is under threat.”*

He has also gone on the record saying that the costs of the TGV have left other French railways heavily underinvested and that they are: *“Decaying... facing a financial impasse... and heading for the wall.”*

In Spain, the think tank FEDEA concluded: *“None of the high speed lines should have been built and that none has a chance of being profitable.”*

### Overall rail passenger growth



### The 'Need' for capacity

The 'high speed' argument for HS2, that faster journey times between our biggest cities would boost the economy in a way that only high speed rail could, has been criticised by a host of diverse organisations. In particular, that the economic case completely depends on the assumption that passengers never do any work on trains.

As a result, the Government has shifted emphasis back to the argument that HS2 is needed for capacity reasons: superficially compelling as everyone who uses trains regularly has been on a busy train. HS2 Ltd point to overall rail growth to illustrate this, ignoring the realities of long distance train usage.

It is true that any new railway will increase capacity, but unlike alternative rail programmes, HS2 would not deliver any incremental gains: it is all or nothing with no additional capacity being delivered until Phase 1 is expected to be completed in 2027. But the reality is that overcrowding is worst on commuter and regional trains and other major rail corridors into London are closer to their capacity limits. The bottom line is that HS2 would deliver capacity where it is least needed at a far higher cost than alternative ways of increasing the number of both seats and trains.

A key assumption of HS2 is that the only way it can 'free up capacity' for passenger services and freight is by cancelling existing trains. Once HS2 services are operating between London and Birmingham, Sheffield, Manchester and Leeds, traditional intercity services between those cities would be reduced – leaving intermediate stations with a poorer service. Many towns and cities, including Coventry, Stoke-on-Trent, Doncaster, Chesterfield and Wakefield, would have fewer intercity services to London.

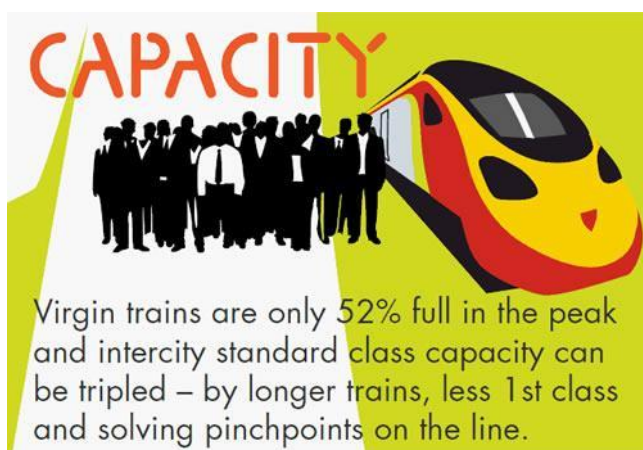
The assumed saving from reducing existing rail services, totalling £8.3 billion, is a fundamental part of the HS2 economic case. Yet whenever pressed, iHS2 Ltd claimed rail service patterns would be decided by a future Secretary of State.

'Britains Busiest Train' of 2013 from London to Crewe was heralded as the perfect example for why HS2 was needed: however by the time passenger figures had been published in 2014, it was no longer crowded, having been extended from 4 to 8 carriages. Adding more carriages, and reclassifying first-class carriages would add significant capacity across the network

Then the Government argue that there is no room for more trains on the track. In October 2013, the DfT published a supplement to the new strategic case for HS2, making it clear that the case for HS2 now rests on "capacity and connectivity" and that "The West Coast Main Line, on current projections, will be full in the near future", with a new line needed to provide sufficient capacity for passengers and freight.

This is in spite of the DfT's own data showing that even in peak hours, most long-distance trains on the West Coast Main Line are barely half-full. They continued, that if a new line is to be built, it should be high speed as that is not an excessive additional cost and it will maximise the potential benefits.

However, since then, London Midland changed their timetable and adding seven trains in peak hours out of Euston in 2014, showing that there was space. Permission was given in 2015 year for new London-Blackpool services and only around half the freight paths on the line are currently used.



*"The argument that the capacity of the trunk main lines will soon be exhausted is based on flawed data, hyper-optimistic forecasts of growth and a failure to understand the potential for improving the productivity of existing lines."*

-Jonathan Tyler, Rail Expert.

The DfT has gone on to undermine their own case, stating that between 7-8pm, just after peak fares end, the West Coast fast lines out of Euston have a current capacity of 15 to 16 trains per hour, despite the fact that during that period there are only 11 or 12 trains using the fast lines.

A capacity analysis from Network Rail goes further than this, demonstrating that Virgin Trains artificially suppress capacity on the West Coast Mainline for commercial reasons:

*"The entire WCML timetable is effectively dictated by the 20-minute even interval service pattern between London Euston and each of Birmingham New Street and Manchester Piccadilly. This pattern is inherently incompatible with maximum utilisation of key route sections. There is, therefore, effectively a cap below 100% by virtue of this passenger presentation and marketing led timetable structure to maximise revenue."*

Undeterred, in 2015 the DfT said that without HS2, crowding on inter-city West Coast 'could' become particularly acute on Friday evenings between 7-8pm. However, the Autumn 2014 data showed there were only 24 out of 1000 passengers standing on Fridays and 7 out of 1000 on other weekdays, highlighting the fact that capacity out of Euston is hardly the urgent capacity crisis on the rail network.

The reality is that in terms of solving overcrowding, the only likely thing which HS2 might do is solve the commuting problems of Milton Keynes, which could be done by spending £260m on a flyover at Ledburn Junction.



## If we need to build a new railway, it 'might as well be high speed'

Whilst arguing that HS2 is really for more capacity, the Department for Transport justify the 250mph design speed by saying that if a new railway is needed, 'it might as well be high speed, as it only adds about 10% more to the cost'. At the current budget, that decision adds £5bn to the cost of HS2: but as this comparison was arrived at by comparing HS2 to a traditional speed railway along an identical route, the additional cost is significantly higher in reality.

Defending this, the DfT say a conventional speed railway doesn't have as many benefits. However most of the claimed benefits from HS2 come from the cash value time savings, based on the concept that no-one ever works on trains. In essence the DfT are arguing that a new railway has to be ultra high speed because a conventional high speed railway is not high speed. The ultra-high design speed of 250mph (400kph) was intended to be the fastest steel wheel railway in the world.

The ultra-high 250mph design speed of HS2 dictates everything about the scheme. So when the DfT say any new railway 'might as well be high speed', what they are actually saying is; it might as well not be able to carry freight, it might as well not have any intermediate stations, it might as well not be able to properly interface with the existing railway, it might as well have the greatest environmental impact possible, and it might as well use about three times the electricity as existing high speed railways in the UK.

The construction of HS1 led to the establishment of the 'Kent Principles', that new railways should be sympathetic to the environment and follow existing transport corridors, so they would miss communities and even lead to ecological benefits. These principles have been completely abandoned with HS2, purely because a 250mph design speed was seemingly plucked out of the air.



The geology of many parts of the proposed route for HS2 do not suit such a high speed railway, or indeed any railway. For example, when the M6 was built, engineers came up with a longer design to avoid going over the unstable Cheshire brine fields. However, for unknown reasons HS2 Ltd engineers decided to route HS2 over active sinkholes in this region, yet three years after that part of the route was announced, no ground surveys have taken place. The same is true in former mining areas which are prone to subsidence in the East Midlands and Yorkshire.

## Escalating Costs, and Endless Cuts and Delays.

The costs have spiralled since high speed rail was first proposed in 2009, when the entire route to Scotland was estimated at from £29 billion. When officially announced in in 2010, the budget for HS2 was £32 billion, but it would only get as far as Manchester and Leeds. It then rose to £43 billion in 2013, then quickly to £50 billion when it was admitted the previously announced cost did not include the trains.

The official cost is now £55.7 billion at 2015 prices. It was claimed this latest increase was purely down to inflation and putting the costs into 2015 prices, but FOI responses show this not to be the case, with the cost of rolling stock inexplicably cut to mask massive increases in construction costs.

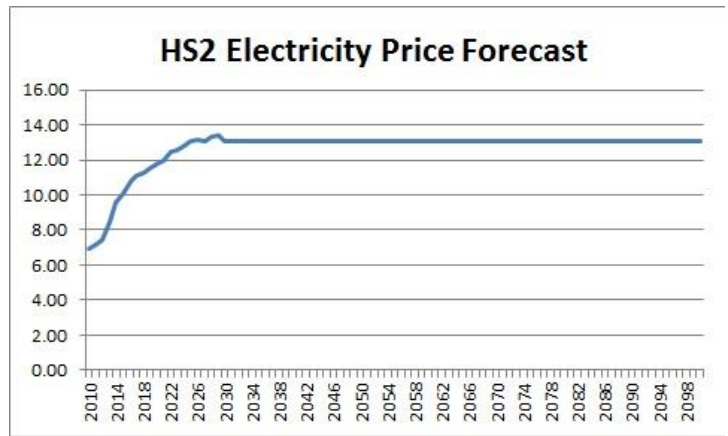
In 2016, the National Audit Office found that HS2 Ltd identified a £9bn overspend on HS2. HS2 Ltd claimed they found a £9bn saving to cancel this out, which led to the Public Accounts Committee saying this had been ‘plucked out of the air’. In the end, HS2 Ltd admitted that not all of the savings were certain, leading to the PAC saying there was still £7bn up in the air. This suggests the official cost of HS2 should currently stand at £63bn.

There are massive irregularities within the costings of the HS2, most obviously the fact that whilst HS2 Ltd and the Government say they want a new station near Crewe, but this is not costed. Additionally, the £1.3bn worth of changes to HS2 ordered by the Commons Hybrid Bill Committee have not been added to the overall cost.

There are many other discrepancies, such as the fact that normally all estimates for rail projects include financing costs, but HS2 does not. This has been justified by saying that HS2 will be funded out of taxation, not borrowing. Treating HS2 the same as any other project would add an additional £2bn/yr.

Other anomalies, which seem to have been designed to reduce costs and inflate benefits. For example, according to the HS2 business plan, wages for railway staff will stop going up in 2036, even though they assume real average earnings growth in the wider economy (which are the basis of the benefits) continues forever.

Similarly maintenance cost and electricity costs stop going up about the same time. A consistent approach to these costs adds £6.6bn to the overall bill for HS2. Other real-world factors do not seem to be taken into account. For example, it was reported in 2015 that rail construction wages had risen by 74% in three years, a factor which has not incorporated into the cost forecasts. These inconsistencies and others have led some forecasters estimate the overall cost of the project as high as £138bn.



While the costs of HS2 have increased, the scope of the project has been reduced: the spur line to Heathrow Airport has been dropped, as has the link to HS1 and the Channel Tunnel. Most recently, plans for a new station at Sheffield have been dropped. None of these departures from the fundamental justification for HS2 have been accompanied by a reduction in costs, or an update to the Benefit-Cost Ratio.

When David Higgins was appointed Chair of HS2 Ltd, David Cameron tasked him with finding ways of cutting the cost of HS2. Instead, when his ‘HS2 Plus’ report came out in 2014, Higgins had failed to find any savings in an “exhaustive review” of costs: instead he has presided over a regime of rising costs and cuts to the project, and there are increasing delays to the HS2 programme.

Despite the continual insistence that ‘HS2 is on time and on budget’, on top of all the cost increases, construction was originally timetabled to have started in 2015 just after Royal Assent for Phase 1, which was meant to have happened before the General Election. In spite of years of claiming that the delay to passing the Bill will not affect the opening date, it has recently been revealed that the Department for Transport are considering delaying the opening of Phase 1 to December 2027.

Phase 2 is even further behind the original schedule. In 2014, it was promised that the final route would be published in ‘Autumn’. The same promise followed in 2015 and 2016.

## A Back-of-a-Fag-Packet Business Case

When HS2 was first adopted by the Coalition Government, then Transport Secretary Philip Hammond was insistent that HS2 had a good business case, but closer inspection shows models have been manipulated in a failed attempt to give a favourable outcome.

The DfT has persistently used an outdated model to forecast future growth in long distance travel. This model hasn't been used by the rail industry since August 2009 and even the Department's own guidance says the newer approach should be used. The latest HS2 business case however still uses the old model which exaggerates future demand.

The simple fact of high speed railways all over the world is that they rarely succeed in achieving the passenger forecasts which were used to justify their construction. For example, in 2015 HS1 celebrated hitting the mark of 10 million passengers per year, but the original forecast stated they should have had over 25 million per year by then. The Public Accounts Committee were very clear that in respect to this issue, that the DfT have not learnt from the mistakes of HS1 when planning HS2.

Unlike other high speed projects across the globe, HS2 is not intended to replace air travel or road journeys. HS2 Ltd say that only 1% of HS2 passengers will switch from air travel, and just 4% from cars. Over a quarter of the passengers are expected to be travelling on HS2 simply because the Government built a railway.

*The decision to build High Speed 2 is not justified by an analysis of the costs and benefits of the scheme. Even the government's own figures suggest that HS2 represents poor value for money compared with alternative investments in transport infrastructure.*

-Institute for Economic Affairs.

Over-optimistic passenger forecasting could have a significant impact on the ongoing cost of HS2, as lower passenger numbers mean HS2 would not make a profit, requiring on-going subsidies. In reality only two high speed railways in the world, Tokyo-Osaka and Paris-Lyon make a profit.

The likelihood is that HS2 will need a massive ongoing subsidy, prompting 35 economists, academics and transport planners to write to David Cameron in 2015 saying:

*"The subsidy required from Government for the capital and operating costs of HS2 over two decades risks placing in jeopardy the economic recovery and weakening the economy in the longer run, at a time when public debt needs to be reduced. By the time HS2 is fully operational, there is a serious risk that technological advances will render the demand forecasts obsolete."*

In terms of the Benefit-Cost Ratio the vast majority of the benefits of HS2 come from the incorrect assumption that all time on trains is wasted. Even before the advent of laptops, smart phones and tablets, this was an outdated view. Now it is fundamentally flawed as many executives say that they find time on trains can be some of their most productive.

In September 2011, whilst still at the DfT Mr Hammond said he would put HS2 under 'serious scrutiny' if the official Benefit Cost Ratio dropped below 1.5. The last published version of the BCR from October 2013 put the Phase 1 BCR at 1.4 and the full project at 1.8. Since then, billions have been added to the cost of the project, but the BCR has not been updated.

This led to the Treasury Select Committee to report that the Treasury should not allow HS2 to proceed *"Until it is sure the cost-benefit analysis for HS2 has been updated to address fully the concerns raised by the National Audit Office"*. At the time the NAO reported there was a £3.3bn funding gap for the project. Since then, this gap has increased to £7bn.

# HS2 & Carbon

HS2 is presented as part of the effort to reduce greenhouse gas emissions  
*but the reality is different.*

2011 official estimate of carbon emissions from constructing Phase 1 of HS2

**1.2 million tonnes**

2013 official estimate of carbon emissions from constructing Phase 1 of HS2

**5.3–6.46 million tonnes**

These 2013 figures are equivalent to

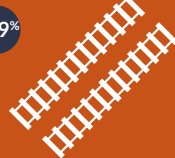
2.4% UK's annual carbon footprint of 650 million tonnes



10% of the total carbon emissions associated with private motoring

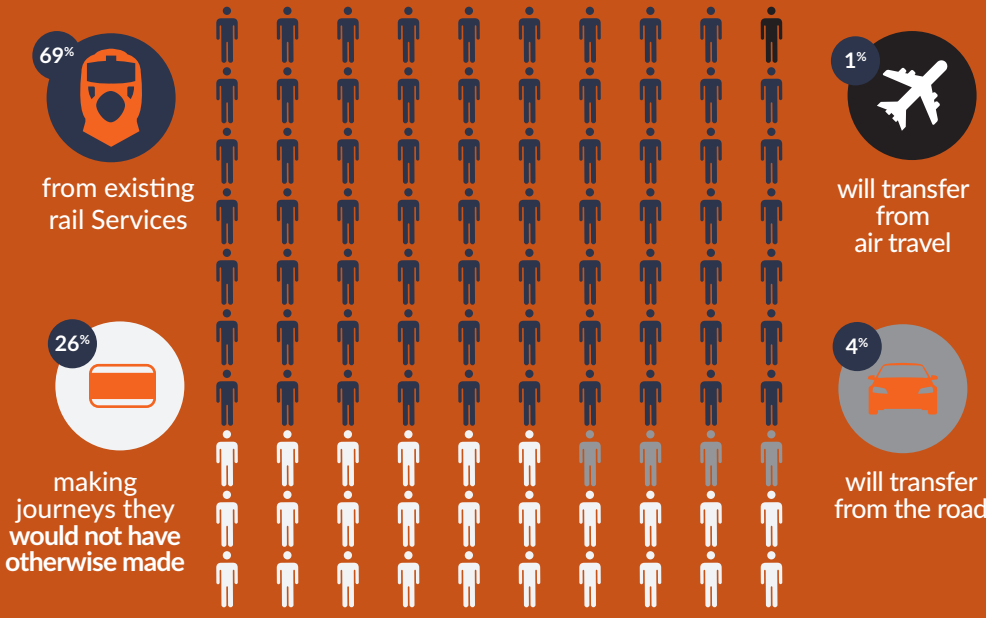


109% of the current carbon emissions associated with rail transport.



Official estimates by HS2 Ltd conclude 95% of passengers are forecast to move from less polluting modes of travel or wouldn't otherwise travel at all.

Where will the new passengers for HS2 come from?




True Carbon Impact

Official figures are optimistic and it is probable that the final impact will exceed the current forecasted figures.

x4.5 2011 factor by which estimates have been rising since scheme was announced

27 gaps in data from HS2 Ltd's own modelling



The modelling has not included the carbon emissions arising from

Construction waste




Constructing concrete



Steel required for the line



Machinery needed to operate HS2 stations



*include these and the carbon emissions increase considerably.*

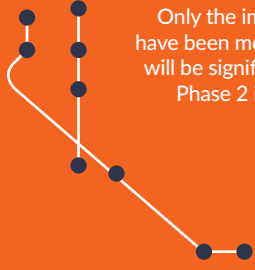
Misleading forecasts

120 Years

HS2 Ltd's own forecasts confirmed that emissions from construction and operation would result in a positive carbon impact. It got round this issue by extending its forecasting horizon from the normal 60 years to 120 years into the future.

Phase 1 centric

Only the impacts of Phase 1 have been modelled, the impacts will be significantly worse once Phase 2 is also assessed





## Environmental Condemnation.

HS2 is not an alternative to airport expansion, which was one of the drivers of the project early on: the debate is no longer HS2 or more runways, but whether to build a new runway at Heathrow or at Gatwick. The proposed "Heathrow Spur" from the HS2 route was dropped on the grounds it would cost too much and was not needed for Heathrow expansion.

HS2 will not lead to a reduction in carbon emissions, according to HS2 Ltd's own analysis. With most passengers transferring from conventional speed rail and the huge amount of embedded carbon from building HS2, it is not a carbon-friendly option. Only by extending the modelling to 120 years of operation (or until about the year 2146) might the carbon costs of building HS2 be offset.

More importantly for the environment, HS2 will cause immense damage to sensitive wildlife sites. Due to the design speed, the tracks can't curve round these sites or communities, but instead blast through them.

The Woodland Trust says that on Phase 1, HS2 will damage or destroy 63 ancient woods and a further 35 on Phase 2. Ancient woodlands are unique, with ecosystems that have developed over centuries. In addition to the ancient woodlands, 10 Sites of Special Scientific Interest and over 150 Local Wildlife sites will be directly damaged by HS2 as well as numerous other sites which will be indirectly affected.

This has led the Campaign for Better Transport, Greenpeace, Friends of the Earth, Woodland Trust, The Wildlife Trusts, and The Ramblers to come together and say:

*"Commitments to mitigate and compensate fully for the impact of HS2 have not so far been guaranteed, leading to concerns that these could fall victim to cost-cutting. A project of this magnitude should be a showcase for high environmental quality."*

*"When construction is taken into account, high-speed rail journeys from London to Manchester will produce 60% more carbon than conventional rail and 35% more carbon than car journeys."*  
-George Monbiot.

It is clear in many areas that flooding has surpassed what HS2 Ltd claim is the 1000 year flood level more than once in living memory. More worrying is the fact that after the environmental statement, which was meant to assess flood risk, was published in 2013 the then Floods Minister Dan Rogerson MP admitted in February 2014 that the scale of flood risk associated with HS2 had not been assessed.

As is typical, the Department for Transport have dismissed possible alternatives to travel which would have environmental benefits. They routinely dismiss digital technologies, such as videoconferencing, ignoring the fact that these are in routine use today and will be the business imperative tomorrow. In particular today's youth – the managers of tomorrow - are growing up with applications such as Skype as a standard way of being in touch with people all over the world.

Today, businesses are investing in electric driverless cars, which will transform transport. But this is ignored in the case for HS2. Passenger numbers on HS1 are far lower than originally predicted in part because possible alternative choices for travel were ignored by the people promoting it.

*"Too much is being spent on these big vanity projects and not enough on local schemes that will offer practical benefits in people's daily lives."*

-Sustainable Development Commission.



## Useless at Euston

Possibly the greatest example of how badly the HS2 project is being managed is the debacle at Euston station. HS2 Ltd are now on the fourth, and almost certainly worst, iteration of plans for the station, and this does not include redeveloping the existing station for conventional trains.

The current plans from HS2 Ltd would see them develop parts of Euston station as an extension concurrently with building Phase 1 and 2 of HS2, but this would only provide the platforms for HS2 trains.

The original assumption was that the changes would take 8 years, but HS2's current plans will take at least 17 years. The rest of the redevelopment of Euston for passengers on conventional trains and commuter services would be left for someone else at a later date at an unknown cost, and an unknown timescale.

*It is just possible that some new high-speed track makes sense somewhere, but it remains to be proved by independent, rather than interest-dominated, analysis*

-Simon Jenkins, The Guardian.

*"Politicians are always excited by 'visionary' schemes. One thing I have learnt is that transport, rather like banking, is at its best when it is boring. That is when it tends to work. Political visions can easily become nightmares. The facts have changed. The case for HS2 was just about stateable in 2010. I don't believe it is today."*

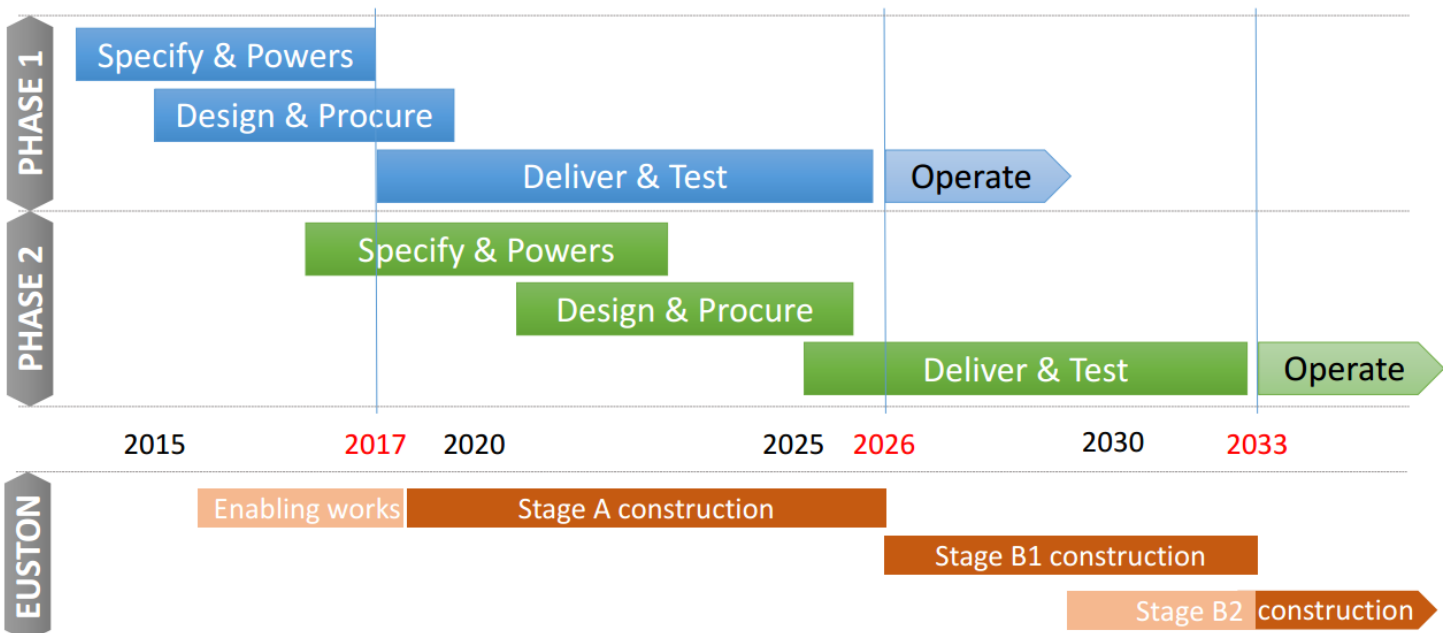
-Lord Alistair Darling, former Chancellor.

The leader of Camden Council, Sarah Hayward, said:

*"The new plans being put forward by HS2 Ltd amount to a shed being bolted on to an existing lean-to. Euston stands to have all of the blight with none of the benefits."*

If HS2 goes ahead, services all along the West Coast Mainline will be disrupted by around 20 years of construction at Euston. This work includes closing 2 of the 6 approach tracks for existing trains. No information about this disruption has been published, but the ORR has said some trains would have to terminate at Queens Park during construction.

## Timescales



*"Do we really want to tell our constituents, our taxpayers, that we're going to spend £50bn of their money on a rail line that doesn't need to be built, and that money can be spent on any number of areas far more effectively?"*

-Tom Harris, former Rail Minister.

*"At present the costs of HS2 - both to the environment and the public purse - are simply too great to justify."*

-Countryside Alliance.

*"We believe that any transport system that destroys irreplaceable habitats such as ancient woodland can never truly be called 'green'."*

-The Woodland Trust.

*"It's time the government abandoned its plans to proceed with HS2. The evidence is now overwhelming that this will be unbelievably costly to the taxpayer while delivering incredibly poor value for money."*

-Dr Richard Wellings.

*"At a time of painful cuts elsewhere, spending such a large sum on a single project that will only benefit a portion of the country is a criminal waste of scarce resources."*

-The Sunday Telegraph.

*"We seem to be committing ourselves to an eye-wateringly expensive railroad for the few. This high speed plan is madness."*

-Mike Rutherford, The Telegraph.

*"There could be much better ways to meet our national goals than HS2. We urge the government, as custodians of our scarce public resources, to step back from blindly pushing this one flashy, train project and assess our options fully."*

-New Economics Foundation.

*"Rail makes its case for more support... Whether this growth in the popularity of rail travel boosts the case for costly 'grands projets' such as the high-speed connection to the Midlands is open to question."*

-The Independent.

*"We struggle with the case for HS2. Would the benefits of a shiny new line outweigh the less visible but valuable things that could be done with the limited funds available?"*

-The Financial Times.

*"We should be spending to create jobs in our cities, not making it faster to get to London to get jobs."*

-Phil Redmond, Writer.

*"HS2 is unlikely to have a positive impact on regional inequalities."*

-Professor John Tomaney.

*"The burning need in public transport is not for sexy, pointy nosed high speed super-trains, whose economics and green credentials simply don't stack up."*

-Andrew Gilligan,  
The Sunday Telegraph.

*"Businesses still need convincing of the merits of the project. In all regions, IoD members think that improvements to existing intercity services are more important to their businesses. It's true that you can't add capacity to current lines indefinitely, but there are still a lot of uncertainties about the business case for HS2."*

-Graeme Leach, Director of Policy,  
Institute of Directors.

*"Environmentally damaging and bafflingly irrational."*

-Professor John Whitelegg.

*"If it's ever built, which I doubt, HS2 will be the biggest white elephant since Nellie packed her trunk and trundled off to the circus."*

-Paul Routledge,  
Daily Mirror.

*"An effective lobbying campaign in favour of HS2 was initiated and funded by concentrated interests expecting to make economic gains from the project. This effort appears to have been effective at marshalling support for the scheme among policymakers."*

-Institute for Economic Affairs.

*"The main economic case is dependent on business time savings. By the mid 2030s when HS2 comes in, high tech teleconferencing will make much business travel unnecessary. This seems a major waste of money when spending is being cut and taxes raised. If the project goes ahead it will be a triumph for spin over economic good sense."*

-Douglas McWilliams, Chief Executive,  
Centre for Economics & Business Research.

*"Ask any transport planner how they would spend £50bn in an effort to improve both transport and the environment, and HS2 will not be the answer."*

-Christian Wolmar, Rail Expert.

*"I supported HS2 because I was conned by the spin until I looked at the research. I am a great believer in evidence based policy and all the evidence shows London will benefit at the expense of the North."*

-Barry Sheerman MP.

*"In 2010, when the then Labour government decided to back HS2... we were focusing on the coming electoral battle, not on the detailed facts and figures of an investment that did not present us with any immediate spending choices.... I now fear HS2 could be an expensive mistake."*

-Lord Peter Mandelson.

*"HS2 is gesture spending dressed up as growth."*

-Simon Jenkins,  
The Guardian.