House of Commons

Transport Committee

Oral evidence: HS2—progress update, HC 487

Thursday 24 February 2022, Leeds

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Watch the meeting

Members present: Huw Merriman (Chair); Mr Ben Bradshaw; Simon Jupp; Karl McCartney; Grahame Morris; Gavin Newlands; Greg Smith.

Questions 73 to 114

Witnesses

I: Mark Thurston, Chief Executive, High Speed Two.

Examination of witness

Witness: Mark Thurston.

Chair: This is the Transport Select Committee's evidence session on HS2. As always with HS2, we look at it every six months and try to go on the line of route. We are in Leeds today and delighted to be here. We are also going to be visiting Bradford in the afternoon. As well as covering HS2, the Select Committee has an ongoing inquiry on the Integrated Rail Plan and that will feature today as well.

We have one witness here with us in the room at Leeds. I will ask him to introduce himself for the record.

Mark Thurston: Good morning, Chair. I am Mark Thurston, chief executive of HS2 Limited.

Q73 **Chair:** Mr Thurston, thanks for being with us here in Leeds. We were with you six months or so ago viewing progress of HS2 in Birmingham. We have a whole range of questions to ask you about the HS2 project and how it has been going. Since we last met you in Birmingham there have been further announcements on where HS2 will be going and indeed not going, which is why we are here in Leeds.

The first section we want to talk to you about is costs and construction. Perhaps as an opener you can give us a bit of a summary as to how things are and an update on the progress and the future schedules for the construction of HS2, Phase 1.

Mark Thurston: Thanks for having me again at the Committee. As you say, it is a useful process for us to go through every six months, recognising that we go on the record for Parliament. The other point on that is that the Minister's next report to Parliament is due out in a matter of weeks, so a lot of what we might talk today will be in reference to his last report that came out in the autumn, recognising his next report is just a matter of weeks away.

Phase 1: since we saw you last, we have made very good progress through the last 12 months and particularly the second half of last year. On Phase 1, about 90% of all our enabling works is now complete. In fact, only this week our five-year powers of compulsory purchase expired, but we have issued all our notices so we have secured all the notice we need for the land, which has been an important milestone for us this week.

As you might have seen at the back end of last year, I was in the north-east and we appointed Hitachi/Alstom as manufacturers of the rolling stock of the trains, so a big contract for us at the end of a very long procurement process. That is a big step forward. A lot of work is underway on tendering all the systems and of course the big push last year—and we pushed on again this year—is really on main work civils now. That is the big effort and main effort with the four civils contracts.

Three of our tunnelling machines are now in the ground and the fourth one will go in later this spring.

Across the whole programme now, of which Phase 1 dominates, some 22,000 people are working on the project nationally, some 2,100 tier 1 businesses we are working with. We are now north of 800 apprentices on the programmes, so we are well on our way to our target of 2,000.

Seven hundred thousand trees were planted just before the planting season closed at the end of last year, so the green corridor that we have referred to is making good progress. Some £10 million now has gone into community and business funds right along the Phase 1 route and again not very many weeks ago we released our carbon net reduction action plan. That is very much at the heart of the Department’s work on reducing carbon in transport and the transport infrastructure.

It has been a busy six to 12 months. We have great momentum and of course the push for us this year now is to almost treble the volume of work on civils, which is as we finish the enabling works and of course the stations are now coming out of the ground. We are onsite at all four stations with three of the contractors now appointed. The interchange station, which is the fourth station, just south-east of Birmingham, the tenders are now back for that and we would expect to appoint the interchange contractor over the summer, so we are on all fronts now on Phase 1.

Q74 **Chair:** Thank you for the update. Perhaps picking on just a couple of the matters on Phase 1, the tunnelling through the Chilterns—how does that look in terms of scheduling?

Mark Thurston: Yes, it is going very well. If anything, the production rates of the two machines are more advanced than we would wish at this point. We have had to slow one of the machines down.

One of the important technical factors is—and Mr Smith will know this, among others—of course we are having to put shafts in and there is a point where you need to break the tunnelling machine through each of the shafts. The work on the shafts is progressing very well and we are very confident that we will be on time for the first two machines, the ones that go under the Chilterns.

The third machine is going under the ancient woodland at Long Itchington, and again I was there with the Minister only a couple of weeks ago for National Apprenticeship Week. That is quite a small drive, so effectively we take that machine out and bring it back and use it to do the second drive. Both of those drives will be done within the next year.

For the three machines we have going we are off to a good start. We have secured the resource and the contractors did a good job getting all the materials and the specialist resources into the country before some of the legislation changed around Brexit. We have 10 drives to do it in all. We are off to a good start but there is still plenty to do.

Q75 **Chair:** I was also going to ask you about Curzon Street. We came and visited that with you and your team. The site had been floored so there was a lot of pipes and plumbing being messed around with underground, an incredibly complex job. How does that look now six or seven months on?

Mark Thurston: I was onsite the first week in January. It is mostly around utility diversion still. As you saw yourself last time, it is a very complex site. The enabling works contractor, LM JV, is still present. We have appointed Mace Dragados as our Curzon Street construction partner and we are working through the first stage of the two-stage contract with it. That means we are refining the design, we are refining the costs and we will get to a point with it hopefully in the coming months where it effectively takes ownership of the site in full. The enabling work contractor would demobilise and then we are into full stage construction effectively once the platform is created by LM JV.

Q76 **Chair:** One of the conversations I remember having with you, or you had with the whole team, was that in a way Covid had been an assistance for the project because other matters have been stood down to allow your team to crack on onsite because they were out in the open air. Overall, how has Covid impacted? You obviously had issues back in December as well.

Mark Thurston: I think at a macro level the construction industry did a very good job very early on working with the Health and Safety Executive to put new control measures in place to keep the sites safe. We had somewhere around 2,000 cases, I think, across our workforce, which sounds a lot but in percentage terms is relatively modest. If you go to one of our sites they continue to have mask wearing and distancing measures, but in the overall scheme of things, to your question, it has not really had a significant impact on production.

We have had to spend money protecting the workforce but there are inherent consequences in making sure we have kept the job safe, which has been our primary concern, but with the wider ripple effect of Covid we are still trying to put some boundaries around the cost impact of that. We put something in the Minister's last report to Parliament and we continue to work through those. Inevitably it is quite difficult to pick out the specific impact of Covid costs in terms of the schedule. We are trying to hold that as best we can.

Q77 **Chair:** Turning to costs, what is your latest estimate of the cost of construction for HS2, breaking it down to Phase 1, 2a and the overall envelope?

Mark Thurston: Let's take each of them in turn. Phase 1, as the Minister reported last time—and I would expect him to report the same—we are still confirming a forecast within the funding envelope. That has not changed. We continue, as you can imagine, to see volatility in our costs, recognising the scale of what we are doing. We are seeing cost pressures emerge in some areas but at the same time we are seeing opportunities in savings in others.

Phase 1 we are within the funding envelope. The spend to date as of the Minister's last report was just under £14 billion, which will be confirmed in his new report. We are getting through somewhere between sort of £350 to £400 million a month on Phase 1 alone. My expectation is it will be somewhere near £15 billion-plus when his new report comes out.

As you can imagine, we have a ministerial taskforce and lots of interaction with Treasury, the IPA and the Department to ensure there is transparency and visibility about costs. We are in pretty good shape. We are using the contingency for the things we expected to use it for and that drawdown of contingency to date is proportionate to where we would expect to be at this point in time.

Phase 2a we have really just started. We set a funding envelope of between £5.2 and £7.2 billion for Phase 2a. Again, just literally in the last week or so it has been a year since Royal Assent, so we are a year into what is a 10-year programme so the costs are quite modest. It is early days and there is not much to say about it other than we expect to be certainly within the funding envelope for Phase 2a.

The issue we are more exercised on and faced with is the schedule and getting the railway between Birmingham and Crewe built in a way that then obviously we can connect the high-speed service on to the existing West Coast Main Line. There has been a lot of work done and there continues to be work done between ourselves, the Department and the West Coast partner as to what the opening state of the railway would look like as we get reliability built up on the new railway and how we interface to the existing railway.

Phase 2b: we have just deposited the Bill. As you know, with the section between Crewe and Manchester, a notional funding envelope has been set and agreed between the Department and Treasury and, frankly, we will inevitably refine those numbers as the Bill comes out the other side of Parliament. We expect that to take, based on our experience of the two thus far, three to three and a half years. There is a long way to go there yet.

Q78 **Chair:** With the news that the Phase 2b eastern leg will not be as ambitious as some may have thought, what does that do to the overall cost envelope? The last part was the overall HS2 project. What is that going to cost? What is it going to cost now that it does not go as far north in terms of new asset?

Mark Thurston: If you think about the three sections I have talked about, doing the maths in my head, we have set a funding envelope for Phase 2b west of between—bear with me; I will just get the number—£15 billion and £21 billion. It is quite a wide range on the Phase 2b west cost to date, which would be appropriate at this point.

We have to work out what the eastern leg is going to cost. In light of the IRP announcement, we have started discussions now with the Department on what it will mean to prepare the environmental statement and all the legislation to go into the House for the eastern leg, from the West Midlands to East Midlands Parkway. Frankly, that is a piece of work we have yet to put some boundaries on. We obviously did some work previously on the full 2b sections all the way to Manchester, all the way to Leeds, so it is just disaggregating that now and working out what it would mean to put funding bookends on the shorter eastern leg.

Q79 **Chair:** It is quite interesting. The 2b eastern leg was the very expensive leg to build compared to the 2b on the western side, and there is a feeling that the reason why this has been scaled back is that it would be so expensive. The figures do not seem to exist as to what the new project is going to cost. You do not know yet what that will look like?

Mark Thurston: We have more work to do. There was a notional estimate for the whole of what was called Phase 2b, so both legs of the Wye route. That eastern leg in its totality, as was between Birmingham and Leeds, was about 120 miles and the section to East Midlands is about 30 miles so we have to work out that. Of course, originally the route was going to go up to Toton so the alignment has changed at the north of the route and we are going to route the new railway into East Midlands Parkway.

Frankly, we have work to do now that we have the IRP announcement to work out what that costing will be. That is work the Department will lead on, but clearly we provide quite a lot of input there.

Chair: Thank you. We will stay on costs and I will hand over to Greg Smith.

Q80 **Greg Smith:** Good morning, Mr Thurston. On the cost point, both from where we are on a more progressed stage of Phase 1, but coming in on what you have just said about the impacts of the IRP and changes, when we look at the cost to build, is the way we do infrastructure in this country driving the volatility you spoke about in an earlier answer? It seems to be to agree something in principle and then design it later.

Mark Thurston: No, not at all. Let's just expand on what I said. We have agreed a fixed budget for Phase 1. We know exactly what we need to do for that in terms of the outputs we need to deliver under the agreement with the Department and we have now set out all the projects and contracts we need to let.

My point around volatility is this is a £45 billion scheme. In terms of its scale and complexity it is unprecedented. As you know, it goes through a big part of the country, very dense urban areas in London and Euston, then into Birmingham and then through some significant rural areas through your own constituency. Just the sheer complexity of the construction, getting access to sites, getting all the designs complete, getting interfaces between all the packages and dealing with all the third party issues, that inevitably drives some uncertainty for cost, which is why we have a contingency.

As I said, we are certainly very confident on delivering the project within the overall funding envelope. Thus far we have drawn down some contingency to deal with some of the issues like Covid, protester action, delays to design consents and some delays to land access. All of these things are in the mix. It is not that we have set a budget and then we design it later. Inevitably the scheme is developed to a certain level of definition at the point that we fix the envelope for the funding, but of course there is much more detailed design that follows. That is perfectly normal and what we expect to have done anyway.

Q81 **Greg Smith:** When you talk about the funding envelope, of course you mean the more recent funding envelope, not the original funding envelope when Lord Adonis first mooted HS2 under the last Labour Government.

Mark Thurston: Yes, we reset the funding envelope for Phase 1 in late 2019, early 2020 with the Government and that is what we are now working towards.

Q82 **Greg Smith:** Let me just unpack this a bit. Looking through the lens of cost, let's just talk about Phase 1 for a minute because from personal circumstances that is what I am most familiar with.

Let's take the Calvert area. When the envelope was set at the petition stage, a green tunnel was ruled out there on the basis of certain parameters. Now we are into the detailed design. For example, the line height is now 3 metres higher past Calvert than it was originally designed to be; the track spacing is reduced; and the line is now fundamentally built on something different—it is now going to be built on concrete compared to the original design. How can that still fit within the same funding envelope when you are building something fundamentally different?

Mark Thurston: That would be one of many examples where what we are now in the throes of, detailed design and construction planning, inevitably will be to some extent at variance to what came out of the House when the Bill was passed in Select Committee.

Two things that the Bill does for us: first, it absolutely defines the geographic boundaries of the railway, what we call the red line. We have to work within that. It set certain parameters around the height and topography of the route.

The other thing of course that the Bill does is set a whole series of undertakings and assurances that we need to meet. They equally provide constraints and requirements that we need to meet, but at the same time absolutely it would be a very legitimate thing for us to expect our supply chain partners to take the scheme as agreed in Parliament and then value-engineer that to give the most optimum value for money solution. That value for money solution is not just driven by cost; it is about railway performance and impact on the local environment.

Of course when we get on the ground and physically do the ground investigations and understand some of the other local constraints, the final design could well be different from that that was agreed at quite high level at the point of the Act being passed.

Again, that is totally legitimate. There are lots of examples of that right along the route. Your personal experience of Calvert is one of many where we have looked to improve the final solution for a range of reasons from that much more coarse and high-level option that was developed through the House.

Q83 **Greg Smith:** Again, keeping this on a cost focus, so much has changed in that example that I gave you in Calvert. I could give many others, not least the tunnelling under the Chilterns that has changed, not in my constituency. You are saying that there is still scope to stay within an envelope of spend and make subsequent changes, therefore how can it be that it is very common for communities, parishes and local authorities involved to get a very quick no when they propose something positive like revisiting a green tunnel at Calvert, but that so much can change within HS2 zone design?

Mark Thurston: Yes, there are lots of examples. As you and I have discussed, we will take the specific aspirations of local people at Calvert away and make sure we have taken all of their requirements into consideration. There will be a range of reasons why we currently have the scheme that we have. Again, there are lots of examples where we are on the ground now with our designers and contractors finding solutions to building the railway that were at odds with what was originally agreed, but within the overall confines of the Act—certainly within the confines of what we have agreed from a funding point of view. Invariably it is to make a more optimum scheme for the final railway.

As a case in point, we have a fairly significant conveyor system to move material away in Buckinghamshire. That wouldn’t necessarily have been in the thinking. I think that particular conveyor system, which will move a lot of material around Great Missenden, will take somewhere north of 70,000 trucks off the road because we are using mechanised means to move what will ultimately be thousands of tonnes of material. There are lots of issues like that where not just the final scope but the methodology for building it will inevitably develop and change as we get more into the detail.

Q84 **Greg Smith:** My last point on this cost question. You referenced in your earlier answer that your powers for land acquisition have now lapsed, but you have taken quite a lot of land—certainly through Buckinghamshire and along Phase 1 in the last 12 months—where there is certainly a sense on the ground that not all that land is needed. I give you the example of Stoke House in Stoke Mandeville just outside my constituency in Aylesbury, where for 18 months there has been some level of negotiation going on that didn't reach a conclusion and they then got notice—"Well, we will just take all of the land".

There are these vague assurances saying it will be all right, but when we see examples like that of what seems, from a community perspective, excessive land take, compared to what can possibly be ultimately needed for the railway, surely there is a huge cost impact and cost uncertainty on this "take the land, ask questions later" approach that is what we are seeing on the ground.

Mark Thurston: It is not a case of taking the land and asking questions later; in every case we would only want to try to take the land we actually need. In some cases the amount of land we need is determined by the design. In lots of instances, the detailed design is not sufficiently developed to allow us to understand exactly the land that we need to take, so the right thing for the project to do is take, in some cases, more land than might seem apparent to local people.

The other important point is that we only need a lot of this land permanently to build the railway—a lot of the land we take only on a temporary basis. One of the pieces of work we will do with the DfT this year is what we have called the land disposal strategy. In that respect, a lot of that land will get returned to local use. What we will look to do is try to get as much of that back away out from under the auspices of the project and into local ownership as soon as we can. There are a lot of examples like that.

Yes, our powers have expired and we have issued all the notices. We have not acquired all the land yet, but under the Act we need to make sure we have issued the notices for the land that we need, which we have now successfully done. There is quite a long tail of acquisition still to complete. Of course that is what the Act does: it gives us the powers to get the land to build the railway, both to permanently host the railway, but also land to allow us to build the railway.

If you look, for example, at the tunnelling site at South Portal, there is huge area there that we have taken to build both the viaduct over the Colne Valley going south and the tunnel going north. In its final form the actual railway will take a relatively thin sliver of land, probably only 50 to 60 metres wide, and all that land will be returned to natural actual use. We are reinstating some very rare grassland habitats.

Another good example of what we take in to build the railway versus what we will leave behind will be very different. There are specific examples in your constituency where if you would like us to try to take you through what we think the legacy land take will be relative to the temporary land take, we can certainly do that.

Greg Smith: Okay. I am mindful of time. We could certainly talk about that for many hours but I am mindful we only have an hour so I will hand back to the Chair.

Q85 **Chair:** A final point on costs. You have slightly alluded to it, but what would be your biggest concern for cost escalation? Is it inflation? Is it the project hitting unforeseen problems under the Chilterns?

Mark Thurston: On Phase 1 now, we are in a window on civils. We have a lot of design and consents to get through, something like 1,200 consents. The risks that are going to impact costs, to your question, will move over time. That is going to be an issue for us now. We continue to see some protest action on the route but we have worked hard with security forces and the various police forces along the route to limit the impact of that to protect the schedule.

Clearly as we go through civils, I think the stations have their own complexities, but as we get the stations awarded we can be a bit more certain of the cost there. Of course all the time that we are letting more contracts, we can be retiring risk around some of our estimated uncertainty that was in the original budget that we agreed.

As Crossrail has shown us, there is a lot of risk still in bringing railway system projects and a railway into service and, as you can imagine, there is a lot of work going on in the company to understand how we are going to integrate all the systems to make sure we provide an operational railway. There is inevitably some risk at the back end of the programme.

These are also known risks to us and we are working those through. Certainly as we move through the next two or three years and get the main civils behind us, there is a lot of risk we can retire around that. That is going to be probably for the next 24 to 36 months, where we hit peak activity. Clearly it is just like inflation, available resources and commodities—all those things are in play for us. But again, the supply chain have done a good job in making sure we have secured what we need to hold the plan for the next three years.

Q86 **Chair:** Thank you. Moving on to the next section: the cancellation of the eastern leg, which is very pertinent to the residents around Leeds. Before I hand over to Ben, do you regard it as a full cancellation of the eastern leg or is there a different terminology?

Mark Thurston: I do not recognise that. As you said in your earlier remarks, the eastern leg originally was all the way from Delta Junction Birmingham to Leeds. The IRP has concluded that we are going to build a new route between West Midlands and East Midlands, which is about 30 miles from what was a 120-mile route. It is anything but a full cancellation.

I also understand that the Government have committed £100 million—and we will contribute to this work—to look at what is the best way to get high-speed trains from the East Midlands all the way here into Leeds.

Chair: On that basis, Ben Bradshaw, I will leave you to decide whether to amend your terminology.

Q87 **Mr Ben Bradshaw:** You said a bit earlier that it was too soon for you to make an assessment of the impact of the cancellation—whatever we want to call it—or the downgrading of the eastern leg of Phase 2b on your financial plans. Would the same be the case on your engineering plans? I assume that, if you have not been able to make an assessment of the financial implications, you have not made an assessment of the engineering impact either.

Mark Thurston: Just to make sure I understand your question, we were doing work on the whole 2b route up until when Government effectively suspended that and commissioned the NIC, National Infrastructure Commission, to do the work around the wider rail needs assessment. That work informed the Integrated Rail Plan.

We have done some work on route alignment. We started to understand what it would mean all the way from the West Midlands to Leeds and so all that work has been in suspense until now. We are now just starting to talk to the Department about resurrecting that work.

To your question, understanding some of the technical and other logistical and practical issues around building a new 30-mile railway from the West Midlands into the East Midlands, particularly at the top end, we now have to get on to the existing network and get into East Midlands Parkway. That will be work that I would expect to play out over the next couple of years.

We have to do a review. We have to dust off some of the work we started to do on the environmental statement, which is the most important piece of work. It informs the hybrid Bill we need to deposit and we have to sit down with the Department and, I guess, be guided by Ministers as to what the viable timetable for a Bill deposit will be as well.

Q88 **Mr Ben Bradshaw:** If it is not possible yet to make an assessment of the impact of the scrapping of the eastern leg of 2b on the financial and engineering programme, what about the work on the rest of the HS2 programme? Will it enable you to move quicker on the rest of the HS2 programme?

Mark Thurston: Not really. We have been focused for 18 months or so now on the bits that we are being commissioned to do. As we have already heard, we are making good progress on Phase 1 to Birmingham from London. We are a year into section 2a to Crewe and there has been a lot of work, certainly over the last year, to get the hybrid Bill ready for deposit, which we did on 24 January. That has been our focus and that is where our resources have been.

We had consultants working with us on the eastern leg and we have stood all those down. Again, as I have said, we are talking to the Department about what it would mean to recommission some of that work, get some of the corporate knowledge that exists in some of those consultants stood back up again, and we can resurrect the work that has been, frankly, in suspense for 18 months or so.

Q89 **Mr Ben Bradshaw:** Did the Government consult you on their decision to scrap or downgrade Phase 2b?

Mark Thurston: We were consulted on a handful of very small bits of the IRP, because our job is to provide advice as the delivery body. The expectation was that for any new routes that were going to drop out of the IRP—like the eastern leg, like the section either side of Manchester—HS2 Limited would be the entity that the Department would turn to to develop that scheme and promote it and take it forward in delivery. They were the parts of the document that we were sighted on and were consulted on. The rest of it was really for the Department and Ministers.

Q90 **Mr Ben Bradshaw:** Were you given an explanation for the decision?

Mark Thurston: No more than anyone else is in the public domain. The Government have clearly taken a view—based on the NRC advice and other advice—on what the rail needs of the north need to be, and clearly they have had to make a decision around where to invest. We stand ready now to work with the Department to bring forward the scheme on the eastern leg to the East Midlands.

Q91 **Mr Ben Bradshaw:** The business leaders we were speaking to earlier said they had not really been given an explanation by the Government as to why they scrapped the eastern leg.

Mark Thurston: I guess that is a question for Ministers and the Department.

Q92 **Mr Ben Bradshaw:** Your understanding is that it is because the Government believe that what they are doing instead is better overall for rail or because it is a money issue, a Treasury money issue?

Mark Thurston: This Committee is well aware of some of the other wider macroeconomic constraints the Government have in the current climate, and the rail sector generally has been drawing on funds. We have kept the railways going through a difficult period. It is good to see again in this morning's press that passenger numbers are starting to get back to pre-pandemic levels. Governments have to make difficult decisions about where to invest in infrastructure. As I say, we are well on our way in getting the route built all the way to Manchester now with three phases live. My expectation is that in the next few months we will start thinking about the fourth phase between the East and the West Midlands.

Q93 **Mr Ben Bradshaw:** Are you confident that the Treasury is taking zero carbon into account when it makes these decisions? We heard again from business leaders earlier that they think the impact of this is going to be catastrophic in zero carbon terms for this particular bit of the region.

Mark Thurston: I cannot comment about this particular region. What I do know is we have targets for no net loss of biodiversity in the first two Bills, so 1 and 2a. My expectation is that as the 2b west Bill passes through the House we will look for biodiversity net gain, so there will be an expectation we will improve the impact on the natural environment. We are doing a lot of work. I mentioned earlier one of our key milestones—since I was in front of this Committee last time—is to issue our own carbon reduction action plan.

Q94 **Mr Ben Bradshaw:** It is not so much about loss of biodiversity. It is about modal shift from car to the train.

Mark Thurston: We do know from the analysis we have done, some of the business case work, and certainly if you look at where countries around the world have invested in high-speed rail, they have seen that shift. If you look at carbon, even in Kent with High Speed 1, and seeing the removal of cars and lorries off the motorways as people are increasingly using the rail network, we know that train travel is seven times greener than driving and it is 17 times greener than flying. Certainly I think once the route from London to Manchester is connected and you can make that journey in just over an hour, then you would expect—as you have seen, for example, getting from London to Paris—that you would see a shift in time.

That in turn has an impact on the Government's wider commitment for net zero in 2050, because the transport system now is the biggest generator of carbon in our economy, bigger than our energy system. I think train travel has an important part to play to decarbonise our broader economy.

Q95 **Mr Ben Bradshaw:** You said a moment ago that you had not had any Brexit-related problems because you had done a good job at getting stuck in before the new post-Brexit rules came in. Are you experiencing any Brexit-related labour or supply problems now or do you envisage doing so in the next few years?

Mark Thurston: Just to be clear, we have seen some problems. We have had to work around some new legislation. For example, our civil contractors all have European partners. Not unreasonably, their expectation was that some of the capability in Europe would be able to come into the UK, and a lot of that we secured before some of the legislation changed, but there are still some further issues.

We are working closely with the Department and the Home Office to make sure we can get specialist resource. It is quite a niche specialist resource. Clearly we have built up a big UK workforce now, so there are lots of apprentices and graduates on the programme, and we are working with lots of businesses who are investing in local people in a way that the value of the project is flowing into the economy.

Inevitably, there is some capability that our partners are wanting to bring from Europe, and we are navigating our way through those. We are taking them on as they come towards us, and we are focused on those issues as we are some of the wider labour and resource issues.

Mr Ben Bradshaw: It would be helpful if you could get a bit more detail on that in writing from you after this.

Mark Thurston: Yes. There are some specifics that we have worked through that we could share with the Committee.

Q96 **Mr Ben Bradshaw:** On the material and raw material side?

Mark Thurston: Yes, it has been a mix, because there were global issues around wood, for example. They seem to have stabilised now. There were concerns around lime. That has stabilised. Steel has definitely gone up because the cost of energy has gone up, so steel prices have gone up. We are trying to hedge some of that.

We have done a lot of work with the supply chain to find ways of offsetting some of those costs. Again, aggregate: when there was a big issue around cement going back a few months ago, a lot of that was Covid-related because a lot of the production was suspended, and then there was a hockey-stick effect of activity around the wider construction sector. HS2 was somewhat involved in the media coverage around cement supply in the country.

Again, one of the things that our supply chain has done is come together. We have run a very collaborative approach with our tier 1s and they have worked together as a club to make sure we have sourced what we need to deliver the railway. Touch wood, we continue to hold the line there.

Chair: We will continue on the eastern leg with Simon Jupp.

Q97 **Simon Jupp:** Good morning, Mark, and thanks for coming along and speaking to us this morning. Looking at the technical aspect of HS2 Phases One and 2a and the Integrated Rail Plan, now those plans have changed. You have more certainty. You mentioned the 18-month suspension of some of the work, consulting on how some of these plans work. Does it pose any technical or engineering challenges for your team, trying to integrate these two or three projects?

Mark Thurston: Of course. There were lots of lessons emerging from Phase 1, inevitably. In terms of the challenges around building a new railway in isolation—

Q98 **Simon Jupp:** I am talking more about the integration of the two different projects, so the IRP and HS2 itself.

Mark Thurston: Apologies. I think that is to come towards us, that problem. One of the things we are having to do around Phase 2a is to work out how we interface the new network to the existing network. It is a problem that Crossrail has had, much more complex than ours, at either end. Of course we have to make the high-speed line connect into the West Coast Main Line around Crewe. I think there will be some technology challenges around that that we are working through. It will serve us well when we come to deal with your point, which is as the wider Integrated Rail Plan and all the Northern Powerhouse Rail projects start to come to fruition.

A genuine challenge to the Department that we are talking to it about is how it takes a holistic view of all these different projects and keeps the network whole, recognising you have a mix of new and existing. They are known problems, but history would say that they are things we should be pretty vigilant about how we go about them.

We have not really got into what it means to bring the new high-speed route into the East Midlands yet, but again, from a technology perspective it is not unproven. We are going to have to work out the physical and technical challenges around flighting high-speed trains into a conventional station, and that will be issues around power, gauge and access. They are things we know about, but they are all things we are going to have to work through in the coming months and years.

Q99 **Simon Jupp:** How is that affecting your bandwidth when you are thinking about the current phases of HS2 and the amount of work already involved? Basically, the Government have landed you with a whole new load of work, haven't they?

Mark Thurston: What has not been determined fully yet is who is going to take responsibility for what. Frankly, the Department has two vehicles by which it can get the work of the IRP done: us and HS2 Limited for what we call new routes, because that is the bit we understand and have done a lot of work on, and Network Rail in its current form for work on the existing railway.

Inevitably, there are shades of grey in those two points where we are going to have to work closely with Network Rail to make sure that the integrated railway system hangs together where you bring new and existing into play—and we have examples of that already, as I say. Euston, for example. We are doing a lot of work on Old Oak Common. We are doing a lot of work with the Department. Crewe is another case in point. Equally, on the western leg, we will have to work out how we are going to get high-speed trains into Manchester Piccadilly. Again, there are pretty complex civil and railway engineering challenges there.

To your point on bandwidth, one of the things I am thinking about—I was with my board only yesterday—is how we create capability for the organisation in the north-west. That is going to be the next bit we need to think about for delivery, once the 2b west Bill passes through the House. As I say, we need to think about our capability to start developing and promoting the scheme on the eastern leg. These are resource challenges for the company and that is where we are putting our minds now and certainly this year.

Q100 **Simon Jupp:** Are you confident you have the skilled workforce required and in training to deliver these projects across the board across HS2? We heard earlier from business leaders that there are various different courses available locally in places like Doncaster and Leeds training up new engineers, but we know we do not have an endless supply of people with that expertise.

Mark Thurston: Yes, and I think that is a challenge for the sector, not just HS2. With projects like Hinkley Point C and Sizewell C and the wider investment in the roads network, as well as what Network Rail is doing, resource is a key issue for the sector. That is why we have what we think is a very ambitious skills and education strategy with HS2.

We have done a lot of work with academia and schools right around the country; the work we have done with what is now the University of Birmingham, which absorbed what was the high-speed rail college; we have our apprentice and graduate programme. All of our supply chain have requirements in their contracts to invest in future skills.

If you think about Phase 2b west as a case in point, by the time there is an outline, that railway is going to get into Manchester in probably the second half of the 2030s. It is the right thing to do for us and the wider sector to invest in skills now, because some of our apprentices could spend the lion’s share of their careers working on HS2 because you have this pipeline of projects that go further north. We will never be fully confident on that, because I think you raise a point that is high on our agenda.

My personal experience is that when projects get the momentum we now have, they draw resources in. We work respectfully with National Highways, Network Rail, the Department and with other agencies to make sure that we are not driving wage inflation into the system, because that is not helpful for the public purse. Nevertheless, projects that have momentum are where people want to work to further their careers. We have been pretty successful in having a good team at HS2.

Q101 **Chair:** Just coming back to the eastern leg project, you touched on the challenge of working out how to get the trains into Leeds. The station is currently running at 101% capacity, so what were your initial thoughts as to how the HS2 trains can be brought into Leeds Station?

Mark Thurston: Candidly, if you go back to the original scheme, there was quite a redevelopment of Leeds Station when we brought the high-speed trains on a dedicated route. That £100 million that I referred to that the Government committed to: we will undoubtedly be part of the debate with them and Network Rail as to what is really the answer to that question.

There is quite a lot of what I call feasibility work that we need to do to work out what is the right way to flight trains from the East Midlands into Leeds, and then to your question, how we physically get trains in and out of Leeds as a sort of termination point. That is work for the next couple of years. There is a not an insignificant amount of work to do.

The technical challenges and the rail operations challenges are all known issues for us, but the reality is working that out in practice between ourselves and the Department and Network Rail is the task in front of us. I do not want you to be under any illusion as to how complex that would be, but, having talked to the Minister, I am very clear that the Government have committed to get high-speed trains into Leeds.

If you think that you will run a high-speed train from London to the East Midlands in not much more than an hour, then to get further on to Leeds will have a significant impact on not just the journey time to Leeds. Of course in the long run it will put much greater capacity on to the existing routes—the East Coast Main Line, for example.

Q102 **Chair:** The business panel we had the roundtable with beforehand were talking about the difficulties with Leeds Station and the inefficiencies. One of them referenced it as the third most delayed station in terms of knock-ons. That is only going to get worse for Leeds residents rather than better, with HS2 trains coming into the existing station.

Mark Thurston: Again, I am not sufficiently familiar with some of the idiosyncrasies and challenges of running Leeds Station in its current form. That will be part of the work that we will need to work through in the fullness of time.

Q103 **Chair:** Just to bring that section to a conclusion, you are a passionate advocate for what HS2 can do. If you look at the community here, the eastern leg would have improved connectivity for 13 million people, so that is 20% of the population. Currently 72% of all journeys are undertaken by car in this area that I am referring to. It just feels like a massive missed opportunity. Does it sadden you that the great project that you thought would be the Y connection all the way up to two big cities in the north, Manchester and Leeds, is now not going to occur?

Mark Thurston: As I set out, the Government made a decision—and a difficult decision—around the IRP. The work that we need to do around Manchester will mean that the journey time between Manchester and Leeds will significantly reduce in the fullness of time. Clearly the journey time between the West Midlands to Leeds—having travelled it yesterday—will be significantly reduced when we build the eastern leg. As I have said, we need to work out how we flight trains all the way to Leeds.

That is a decision for the Government. They have made that decision. Our focus now is Mr Jupp's question, which is how we organise ourselves and resource ourselves to support the Department for delivering the eastern leg.

Chair: Thank you. Obviously all of this has a knock-on to the business case, and I will hand back over to Greg Smith for that.

Q104 **Greg Smith:** Picking up where we left off last time, you said that Phase 1 was going to be within the funding envelope and that you were doing the necessary work on the remaining phases. Bear in mind that this project started with a budget of £37.5 billion, which quickly rose to £72 billion, then £98 billion. Probably the most accepted number at the moment is £106 billion. Lord Berkeley has numbers—if you read through them, they do make a lot of sense to me—that are considerably higher than that. The benefit-cost ratio for Phase 1 has only ever been 1.2, which in governance speak equates to "low".

Having taken a leg out of HS2, what is the new BCR of the whole project? Through that lens, how can it still be justified as value to taxpayers, who are the sole funders of this project, that it is worth carrying on with?

Mark Thurston: That is a decision for Government, and Government made that decision. Let's just look at one of the points you made. The funding thus far is for the three routes, so we have no funding for anything other than the three routes: the notional funding for 2b west, 2a and Phase 1. That is about £70-odd billion all in. The bit that we have locked with Treasury is the £44.5 billion for Phase 1. We have a range for Phase 2a.

If you take the business case in turn, the modelling that the Department did, which we supported it on, for Phase 1, 2a and 2b west gives you a BCR of 1.2. I think we need to look beyond the straight business cost ratios in this project and look much more strategically about what this project is going to do for the economy.

If you think about the points that the Chair just made about people's disappointment in Leeds and the fact that the north needs much better connectivity, completing HS2 in the way that Government have committed to in the IRP, looking at further ways through the additional funding that Government are going to make available to find a way of getting high-speed trains into places like Leeds will profoundly change the connectivity of the northern cities and put massive capacity into the existing system. To the earlier point, it will make a significant contribution to the reduction of the carbon footprint of the area because of the car use and seeing a migration from cars on to trains.

I think we need to look at those wider strategic issues as to why this project is so compelling. If you look at just the BCR for a lot of transport projects, the Jubilee Line Extension is a case in point. It was not even 1 at the time, I think, but it profoundly changed that part of London. You could never imagine we had never hosted the Olympics; you would not have seen the expansion of places like Stratford and beyond without extending the Jubilee Line out to Canary Wharf and Stratford.

For me, to the point the Chair made, I am absolutely convinced this is the right project for the country. If we are seeing what it is doing now to drive the investment in skills, investment in innovation, what it will do in the long term for connectivity between the major cities in this country, then that for me is the compelling case.

Q105 **Greg Smith:** If I can come back on that, BCRs have been the mechanism by which Government have been held to account on making decisions over taxpayer-funded projects for some considerable time. The overall BCR on HS2 previously, before the eastern leg was scrapped, was low. It was 1.2. Just so that we can have it for the record, what is the BCR now that the eastern leg has been scrapped?

Mark Thurston: To my knowledge, that has not been modelled. The business case for the eastern leg is a stand-alone piece and it will not be modelled until we understand what the costs are. We have only just had a decision on the IRP. To the other question, until we understand what we think the eastern leg will cost to build, we cannot feed that into the model that calculated the BCR.

The BCR we do have is for the section between London, Birmingham and Manchester. The last time that was modelled it was 1.2, which under Treasury guidance, as you say, is undeniably low, but my point is that the Government made the strategic decision to invest in this railway. The Government must believe and Ministers must believe that this project ultimately is value for money in the long run.

The other point I would make is the way that transport modelling in particular works. It is done over a 60-year life in terms of return on that investment. We are building a railway here that is going to last over 100 years. Again, it is perspective on the numbers for me, which sometimes gets lost when we get fixated on the benefit-cost ratios. There is a much broader, more strategic issue, and frankly Government have made that decision.

My job is to respond to that with the company to make sure we deliver the project and we make it value for money. That is where I am very much focused. We will work with the Department to help them understand the business case for the eastern leg and the other parts of the route in the fullness of time.

Q106 **Greg Smith:** Let's look at it in another way. In its 2019-20 annual report, the Infrastructure and Projects Authority gave the full HS2 project a red rating, which again, to translate that out of Government-speak into real language, means "successful delivery of the project appears to be unachievable". In the 2021 annual report the project was broken up into its three phases, and Phase 1 was still amber and red.

It seems that whoever looks it at, whether it is the National Audit Office, the Infrastructure and Projects Authority or independent scrutiny from very good Peers—this is me, a Conservative MP, saying that Tony Berkeley, a Labour Peer who is doing very in-depth scrutiny, is very good—it always seems to come out that this project is not delivering value to the taxpayer and potentially is not achievable within the budgets set.

When the Government's own mechanism, the BCR, for judging such projects is low, and now with the eastern leg scrapped and, as you said in a previous answer, not even known, how can you continue until you know the real value—out of the subjective judgment of people in Leeds who are disappointed? I get that. Talking to northern colleagues, I know they want that interconnectivity between towns and cities in the north, not necessarily north-south. How can we proceed when the established mechanisms of judging are just not known?

Mark Thurston: A couple of things. One is we do not recognise any of the work that Tony Berkeley has done. All our work has been independently verified. We do not recognise any of that work. That for me, in light of the question, is slightly almost irrelevant.

The second point I would make is we have just been through on Phase 1 another review by the IPA. They granted Phase 1 as amber and said, bar a couple of issues, it was green. The opening remarks in their report were, "It is clear that the management team at HS2 is a very competent, very experienced team who have a grip of the costs of the programme". We have a grip of the costs of the programme and my costs are fully transparent. We have a ministerial taskforce every month. We are subject to quarterly deep dives by Treasury and IPA. I will stand to defend what we are doing today on Phase 1 because that is the bit we are charged with doing.

I will come back to the BCR point. For me, the Government have made the strategic decision. Your question is, for me, a question for Ministers and Government. There is no point in me trying to continue to play that answer back. Of course we are subject to—rightly so—peer review and challenge from the likes of the National Audit Office, among others. We have had our accounts audited.

Just to put context around this, I have been in this job nearly five years. In the last three years, the turnover of HS2 as an enterprise has gone from about £1.8 billion to £5.4 billion. We have now let £23 billion worth of contracts into the supply chain. There is an economic value to HS2. We are now talking to the NAO about auditing our accounts for this year.

The Government and Cabinet should have confidence in the scrutiny and the rigour and the controls environment that we have established in HS2. Whether it is the right project for the country is an issue for Ministers and Government, and as far as I am aware they have made that decision.

Q107 **Karl McCartney:** Mark, you were involved with Crossrail in the past, and that is another project that had a tortuous conception, pregnancy and early life, shall we say. Just moving on from the questions asked by my colleague, Greg Smith, are there any lessons learned from that you have brought to HS2? Yes, it has been a tortuous process, but as you said, there are benefits in the wider economy as well as obviously the actual result when the project is completed and delivers what it was meant to deliver right from the very start. As I say, Crossrail had a very tortuous life. In fact, a Transport Select Committee back in 1991, I think, put the block on it for a fair few years before it was allowed to move forward as we progressed in 2000. Just your thoughts on that.

Mark Thurston: I think the most profound thing for us around Crossrail is what has played out over the last two or three years. Again, only yesterday we took the board through the work we are doing around programme and systems integration, which is an absolutely crucial part of bringing a railway into operation.

Although much of the activity going on in HS2 today is civil engineering in a more conventional sense, we need to have one eye on what it means to open the railway and work left to right, if you can imagine, and work back from what we call the configuration stage. How are we going to bring this railway into service? There is a huge amount of learning coming out of Crossrail, Mr McCartney. That is not just learning around how you manage the integration between contracts, between the various systems, but how the organisation—we, as HS2 Limited—organise ourselves as the programme integrator and make sure we bring all the component parts together.

It has been painful for Mark Wild and his team in Crossrail. I think they are nearly there in getting Crossrail open. For us all, seeing what a 21st century railway looks and feels like when Crossrail is open will be found, and it will clearly change the way people travel around London. We absolutely expect to learn and we have a very open dialogue with the team there, making sure that some of the lessons they have painfully had to come to terms with are fed into HS2 now at the right time, recognising we are eight or more years away from opening HS2, the first phase. Nevertheless, these are not things you can do at the back end of the project, as Crossrail found to its cost. It has been a sobering but nevertheless very powerful lesson for us all.

Q108 **Karl McCartney:** You have been involved in project management. You have a big team involved in that. Have you been able to learn lessons from the critical path analysis of what happened with Crossrail? I am sure it would probably take up all four walls of this room if you printed it out. Is there anything you could let us know? We are looking at big projects as well as another investigation, so it is interesting to delve into that.

Mark Thurston: As you say, we could consume another hour of this Committee, which would be inappropriate.

There are a couple for me. One is seeing the project as a system from the outset. There is almost a mindset that it is a system of systems. Think about all the civil engineering, bringing the stations in, the way we connect the signalling and the power, and the fact that we have to introduce the trains. The trains have a whole set of issues themselves around how we bring the drivers in, where you are going to put the depots, because you have to feed the railway, looking at all the component parts.

In a big complex project like ours, if we treat all those as discrete projects and do not think about how they all join together—not just in time but physically—and how we connect all the railway systems, recognising they are very software-led systems, you find yourself where you are trying to engineer all that at the back end of the job. As we have seen on Crossrail, that is both very time-consuming and very expensive.

One of the things we are doing is, as I say, almost thinking right to left, is, "What does day one of operations look like?" and working backwards. We are quite clear about how we are going to open the railway between initially Old Oak Common and Curzon Street, and then we will go beyond Curzon Street on to the existing network, then we will bring Euston into operation. We can see a very programmatic, phased approach of opening HS2, again building on our own understanding and knowledge but also building on some of those Crossrail lessons.

Q109 **Karl McCartney:** Finally, taking examples maybe internationally other than Crossrail, I am aware there have been some big infrastructure projects that British engineers have worked on—Hong Kong, Shanghai, Singapore and so on. But has there been any information that has flowed to you either in your Crossrail role or in HS2?

Mark Thurston: No, I think it is more on the international. A lot of work is going on our activity around systems integration. We have stood up an independent peer review panel that is chaired by a gentleman called T.C. Chew, who spent a lot of time at MTR in Hong Kong. He has put together an international panel of peers with experience of high-speed rail and urban integration systems, railway systems, right across the globe. What they are providing is great insight and challenge as we develop our own plan. Again, this Committee should take comfort that that is very much reaching out way beyond just Crossrail and looking globally at where we can get expertise to keep us where we need to be.

Karl McCartney: I found that answer very helpful.

Chair: The final section for us is on jobs and apprenticeships. I will hand over to Grahame Morris.

Q110 **Grahame Morris:** Good morning, Mr Thurston. Can we look at opportunity cost? I note from your earlier responses that you were not keen on that "cancellation of the eastern leg of HS2" but on a "reconfiguration". What impact has that had in relation to jobs and apprenticeships that were being created by HS2?

Mark Thurston: What I can talk about is what we are doing. We have committed to 2,000 apprentices on HS2. I was challenged a couple of years back that that target was probably a little bit conservative, but at the time I did not have a view on it either way. I think that may have proved to be the case. We are at 825 apprentices on the programme now, so I think we are well on the way to creating a young workforce that is joining the industry that will not only serve this project, but also serve the nation more broadly.

Certainly the week before last, which was National Apprenticeship Week, as a case in point, we were very much waving our flag on the work we have done in creating opportunities for young people, not just on the line of route but all around the country. That is one of a number of areas of activity.

We are doing a lot of work with schools, so we have a major outreach programme because what research tells us is that attracting young people into engineering and construction tends to happen much younger than we think, so by their teens a lot of kids have decided where they see their future. Certainly getting their parents engaged in the opportunities in what is increasingly a digital industry brings an opportunity, and HS2 I think has a great opportunity to be there.

Q111 **Grahame Morris:** In terms of the changes, I fully accept that it is a political decision—politicians make the decision and there is a financial envelope and you are charged with carrying it out, ensuring that there is good value for money and so on—but in terms of the implications for jobs and training, have the changes impacted on where the apprentices will be recruited from, from the East Midlands or from the northern leg?

Mark Thurston: No; I understand the question. In the fullness of time we are going to need, as I said earlier, to think about creating almost another wing of the organisation in the north-west to do the section between Crewe and Manchester, so that will be front and centre in my mind over the next few years.

It will not be long before we think about how we develop our workforce to serve the project into the East Midlands. I think with the work that is done, recognising one of the campuses for the Advanced Transport and Infrastructure College is in Doncaster, it will not be long before we think about how we start to cultivate a workforce of engineers and people who are going to serve the project in this part of the country.

Yes, I accept the point around the shortened eastern leg route, but nevertheless not all the 22,000 people working on this project are on the line of route. They are very much a national workforce in all corners of the country, and I would expect that to continue to be the case.

As I said earlier, we start to hit peak in the next three years in terms of activity. We think our workforce is going to grow to somewhere between 30,000 and 34,000 so there is still lots of opportunity to bring people on to this project right across the country in the coming years.

Q112 **Grahame Morris:** Can I just ask a very brief supplementary? It is in relation to the cost envelope: the inflation cost pressures. We have heard some reports about quite dramatic increases in inflation and you mentioned some of the key materials for the project have been purchased in advance. What is your current assessment on the cost pressures in relation to the overall impact that is going to have on delivering HS2?

Mark Thurston: That is a very real issue for us at the moment and we are working with the Department and Treasury on how best to deal with that and the supply chain in looking at ways of offsetting some of the pressures. Wage inflation in the construction sector has probably gone up by about 10% in the last year or so. We have seen it, as I said earlier, in some of the materials and commodities and that is a very real challenge for us.

Frankly, one of the opportunities of HS2 is because of the scale and when we bring our contractors together, we have an economy of scale for the buying power, whether it is through aggregate or steel, in a way that we can drive best value. We are seeing a little bit of levelling off of some inflationary pressure in some areas, but all the wider economic indicators suggest that that is going to be with us for a little while. I think we are in the highest inflationary situation for the best part of 30 years and our project is not immune to that, much like other parts of the economy.

Q113 **Grahame Morris:** I know time is desperately short, but this just sprang to my mind because you mentioned steel. There was a big meeting in London during the week of the APPG and a symposium on steel. I happened to mention we were having HS2 and Mark Thurston on Thursday, so I was sure there would be huge quantities of British steel specified in the response. They said, "No, it is rather disappointing". Is that correct, what I was told?

Mark Thurston: I am not sure it is correct. We have had some interaction with the steel industry and HS2. We need a lot of steel, but we need something like 2% of the UK steel capacity, so we are not a massive player in that regard. Our main civil contractor acquired about 74% of the steel it needs and 64% of the total has all come from the UK. We have gone overseas for some very specialist steel and that has attracted some media interest, but the UK steel industry was sighted on that. We have made good progress in acquiring what we need and the lion's share of what we bought has come from UK steel.

Q114 **Chair:** Unless members have any other questions—I do not think they do—it remains to me to thank you very much indeed, Mr Thurston, for being with us again. Perhaps I will just say this: where do you think we should go next in terms of points of interest? We like to go on the line of route. We met you down in Euston; we met the communities impacted in the Home Counties; we were in Birmingham with you last time; we are now here in Leeds. Any other pointers?

Mark Thurston: Let's go to somewhere like Crewe. It is from the top of 2a to the bottom of 2b west. That would be my advice, Chair.

Chair: Excellent. We may see you in Crewe on that basis.

Mark Thurston: I look forward to it.

Chair: Thank you very much indeed and our best wishes to all of your team as well.