TRANSPORT, INFRASTRUCTURE AND CLIMATE CHANGE COMMITTEE

Tuesday 18 November 2008

Session 3

£5.00

Produced and published in Scotland on behalf of the Scottish Parliamentary Corporate Body by RR Donnelley.

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TRANSPORT, INFRASTRUCTURE AND CLIMATE CHANGE COMMITTEE
22nd Meeting 2008, Session 3

CONVENER

*Patrick Harvie (Glasgow) (Green)

DEPUTY CONVENER

*Cathy Peattie (Falkirk East) (Lab)

COMMITTEE MEMBERS

*Rob Gibson (Highlands and Islands) (SNP)
*Charlie Gordon (Glasgow Cathcart) (Lab)
*Alex Johnstone (North East Scotland) (Con)
*Alison McInnes (North East Scotland) (LD)
*Des McNulty (Clydebank and Milngavie) (Lab)
*Shirley-Anne Somerville (Lothians) (SNP)

COMMITTEE SUBSTITUTES

Alasdair Allan (Western Isles) (SNP)
Gavin Brown (Lothians) (Con)
David Stewart (Highlands and Islands) (Lab)
Jim Tolson (Dunfermline West) (LD)

*attended

THE FOLLOWING GAVE EVIDENCE:

Graham Bell (High Speed 2 Scotland)
Colin Elliff (2M Group)
Michael Hayes (Atkins)
Colin Howden (Transform Scotland)
Julie Mills (Greengauge 21)
Councillor Barbara Reid (2M Group)
Professor Roderick Smith (Imperial College London)
Paul Tetlaw (Transform Scotland)

CLERK TO THE COMMITTEE

Steve Farrell

SENIOR ASSISTANT CLERK

Alastair Macfie

ASSISTANT CLERK

Clare O'Neill

LOCATION

Committee Room 2

Scottish Parliament

Transport, Infrastructure and Climate Change Committee

Tuesday 18 November 2008

[THE CONVENER *opened the meeting at 14:00*]

High-speed Rail Services Inquiry

The Convener (Patrick Harvie): Good afternoon, everybody, and welcome to the 22nd meeting in 2008 of the Transport, Infrastructure and Climate Change Committee. We have received no apologies today. I remind committee members and everybody else present that mobile phones, BlackBerrys and all other mobile devices should be switched off.

Agenda item 1 is the continuation of our inquiry into the potential benefits of high-speed rail services. We will hear first from representatives of the 2M Group, High Speed 2 Scotland and Greengauge 21. Following that, we will hear from Transform Scotland and from academics working in the field.

I welcome the first panel, which consists of Julie Mills, Graham Bell, Councillor Barbara Reid and Colin Elliff. I invite the witnesses to make brief introductory remarks, perhaps explaining the nature of the organisations that they represent. Shall we go from my left to the right?

Julie Mills (Greengauge 21): I am a director of Greengauge 21, which is a not-for-profit company that was set up to promote the case for high-speed rail in Britain. We believe, for a number of reasons that I would be happy to go into later, that there is a strong case for building a high-speed rail network for Britain comprising not just one line but a network of lines. We set up a public interest group this year to sponsor and fund our work. In September, we launched a high-speed rail development programme, which aims to develop a strategy for high-speed rail for Britain by examining five rail corridors, including an Anglo-Scottish cross-border corridor; assessing where routes might go and what technical standards they should operate to; identifying key sites that are crucial to the routes; carrying out a conservation programme; and looking at how the lines might be funded. We will report in late spring next year.

Among the funders of our programme are several Scottish organisations, including the City of Edinburgh Council, the south east of Scotland transport partnership—SEStran—and Strathclyde partnership for transport. In addition, Transport Scotland sits on our steering group as an observer.

I am happy to tell the committee more about that work, if members' have questions.

Graham Bell (High Speed 2 Scotland): I represent High Speed 2 Scotland, which is a collaborative group of organisations—I will detail them for the committee—that are interested in the economic benefits of high-speed rail. I came at this issue having been involved in studying it for about three years. Scottish Chambers of Commerce, which I represent, decided that it wanted to co-operate with others in making the case for high-speed rail. I should point out that I am also a director of SEStran, although I am not here in that role. I have considerable involvement, therefore, in many aspects of transport.

High Speed 2 Scotland includes the so-called group of six, which is the Institute of Directors, the Scottish Council for Development and Industry, Scottish Financial Enterprise, the Federation of Small Businesses, Scottish Chambers of Commerce and the Confederation of British Industry. As such, High Speed 2 Scotland represents a fantastic number of businesses in Scotland. I cannot give the committee details about the businesses that the other group members represent, but Scottish Chambers of Commerce alone represents some 9,000 businesses of all sizes throughout the country. We have also been joined by the City of Edinburgh Council, Glasgow City Council, SEStran and SPT in the endeavour to find the best way forward. Broadly speaking, we have been supportive of Greengauge 21 in advancing the case for high-speed rail.

A great deal of what we have done has involved investigating and promoting the continuity of high-speed rail projects to Scotland that include at least the cities of Glasgow and Edinburgh. We need more information, and Greengauge 21 is geared up to find it. Our main purpose is therefore to bring the business community behind high-speed rail.

Councillor Barbara Reid (2M Group): I am a councillor in the London Borough of Hounslow and I am today representing the 2M Group, which is a coalition of local authorities in and around Heathrow and west London. We also now include a lot of councils in the east of the city.

We are concerned about the effects of the expansion at Heathrow on our residents. We have campaigned vigorously, and with some success so far, against expansion at Heathrow. We are not anti-Heathrow and we never have been—we understand the economic benefits of Heathrow—but we believe that the environmental impact of expansion on our residents is totally unacceptable.

Currently, a plane goes over our residents every 90 seconds, and there are 480,000 flights in and out of Heathrow every year. If the Government gets its way, that will increase to 700,000. The environmental and noise impacts on our residents and on schoolchildren are intolerable and inhuman, which is why we have campaigned vigorously against expansion.

We are not a bunch of nimbys—anything but, although two million people is a big back yard. We have looked for alternatives. When Colin Elliff, who is 2M's transport consultant, came to us with his proposals for high-speed rail, we thought that we could give them life. We view high-speed rail as a serious alternative to expansion at Heathrow: it is an idea whose time has come. Instead of looking only at the narrow confines of south-east England, with high-speed rail to Scotland we can view the country as a whole and open it up. A high-speed rail link would reduce journey times from Edinburgh to London to three hours. Experience has shown that three hours is a tipping point: if people can get from city to city in three hours by train, they tend to go by train rather than by plane. That is evident on the continent, where the train journey from Paris to Marseille takes three hours. If they can do it, so can we.

It is not only about bringing people from Edinburgh to London; it is about opening up Edinburgh to visitors from outside the United Kingdom. Why should people not come direct from Europe straight up to Edinburgh, instead of having to go through London? That would be a major advantage of a high-speed rail network. For connectivity and economic reasons, we think that high-speed network proposals are excellent.

This is the Transport, Infrastructure and Climate Change Committee. We do not believe that an airport can expand by 50 per cent without that having a major impact on climate change, so high-speed rail is an environmentally sound alternative to expansion at Heathrow. We are very excited about it, and we also want to make you excited.

Colin Elliff (2M Group): I am a chartered railway civil engineer and I have worked in the railway industry for almost 30 years. I have always believed that our railway could be a lot better in respect of speed and connectivity. The UK rail network, for all that it is very established, is not that good.

We want to bring Scotland closer not to London but to the industrial cities of Lancashire, to which there are almost no decent rail links, to the midlands and to the west country. I envisage a reinvented rail map of England, Scotland and Wales, which would all be connected together. That map would deliver connectivity: it would not be London-centric and it would provide links between the British regions. Together, we will make a much better transport system and provide truly sustainable transport.

Any improvement that we make to the transport system should be paid for by ensuring that we divert traffic from other more wasteful modes on to the railway system. To that extent, I envisage carbon neutral transport. The total goal of having carbon neutral transport by utilising wind farms and other sustainable generation is some way off, but high-speed rail is sustainable in that, in respect of emissions, it is no worse, and it may be a lot better.

The Convener: My first question follows on, to a certain extent, from Mr Elliff's comments about linking to other parts of the United Kingdom, so perhaps I will go back along the line in the other direction. The majority of witnesses from whom we have heard have broadly supported high-speed rail services. Given the nature of the panel, I will not ask whether the witnesses feel the same. However, we have heard a range of views about possible routes, station locations and where services should run to. What are your route preferences?

Colin Elliff: We must take an holistic view. We have a limited amount of money to spend on high-speed rail services, and railways are expensive, so we must connect all the UK in the way that I have just described, with the minimum route mileage and expense. The routes that we build must follow existing transportation corridors where possible to minimise their environmental impact. Although that impact is small and finite, we must ensure that we do not make life worse. To that extent, motorways and existing railways offer good corridors.

My proposal envisages the route following a general east-side track into Scotland, following the more favourable topography of the east of England, coming into Scotland through the Borders and approaching Edinburgh from the east. The route would then follow on to Glasgow. That would have the benefit of placing Edinburgh and Glasgow on a single route and maximising load factors, because trains would not have to fill up with people from only Glasgow or Edinburgh.

I ask my colleague to pass round our maps so that you can see better what we are talking about.

The Convener: If you have already provided written evidence, committee members will have it.

Colin Elliff: We have a map of our route proposal, which we have not yet provided to the committee. It is valuable extra information.

One of the most important environmental concerns about high-speed rail is its energy use. The number of grams of CO_2 per passenger kilometre is worse than that for conventional rail

simply by virtue of the increased speed. The energy bleed is approximately proportional to the square of speed. By going up from 125kph or 200kph to 300kph, we double the energy consumption.

The Convener: Forgive me, Mr Elliff, but committee members have a range of questions on those matters. My question was simply about routes. I am anxious to fit in everyone without overrunning.

Colin Elliff: Pardon me. A route coming in from the east would allow trains to go through Edinburgh and Glasgow, which would allow the load factors on the trains—the percentage of seats occupied against the percentage unoccupied—to be maximised, which would maximise the environmental gains.

Councillor Reid: I have one thing to add regarding connectivity to Heathrow on the route. It is envisaged that there would be a spur line from the high-speed rail service in north London to Heathrow, so there would be a direct link, if not a direct service. Getting from central London to Heathrow at the moment is pretty awful.

14:15

Graham Bell: There are two considerations when we talk about whether high-speed rail will be extended from St Pancras station or east London: a political one and an economic one. We are talking about a lot of money and a lot of different spheres of influence. In saying that we wish Scotland to be part of a high-speed rail network, we must accept at the outset that we are probably talking about high speed 2—in other words, a new line that extends the existing 98km of high-speed rail network. That is not to say that we would not further extend that network at a later date, if it were successful, profitable and so on.

I will limit myself to talking about what we do next. We support the Greengauge 21 programme partly because we need proof about what works best. The Atkins study, which I am sure members have all heard of, did that to an extent.

On where a line might be situated, from what we have examined, we know that there is clearly a lower population between Carlisle and Glasgow than there is on the east coast, so there are reasons why an east coast approach to Scotland might be favoured as the starting point, particularly because it would connect the north-east of England to a network that served the whole of the UK, so the north-east of England would get the same benefits as Scotland. Given the lower population between Carlisle and Glasgow, building the first line up the west coast would make less sense. That view is not universally held, but it seems to me to be the obvious choice. Beyond that, we should consider all the options in producing a study so that we come up with the best economic benefit from the investment.

The Convener: Before I bring in Julie Mills, Charlie Gordon has a supplementary question.

Charlie Gordon (Glasgow Cathcart) (Lab): What would the end-to-end journey time be on Mr Elliff's suggested route from the Glasgow conurbation, which has 1.7 million people, to London?

Colin Elliff: Two and three quarter hours, approximately.

Charlie Gordon: For Glasgow, via Edinburgh, to London?

Colin Elliff: Yes.

Charlie Gordon: Right. Thank you.

Julie Mills: As Graham Bell indicated, over the next year, as part of our high-speed rail development programme, we will look at routes and how to connect Scotland and England, so I am afraid that we do not have a clear, definitive answer for the committee yet. However, I can say that we are looking at western and eastern corridors, because the issue that we are considering is broad enough to encompass that. It is important to examine some of the advantages and disadvantages that Graham Bell talked about.

We are clear that the route will need to connect Edinburgh and Glasgow—it is not a choice of one or the other. They are both vital, important cities that need to be accessed directly by high-speed rail, and to have good onward connections to other Scottish cities and towns.

The Convener: A number of figures for the potential cost of a line have been suggested. Have the panel's organisations assessed the cost of developing their favoured versions of the high-speed rail network? Given the current economic climate, are such cost projections meaningful?

Julie Mills: I am afraid that I do not have an up-to-date cost estimate for a high-speed rail line from Scotland to England. To put an order of magnitude on the costs, we drew up estimates last year for a line from London and Heathrow to Birmingham, connecting up to the west coast main line, which is about 150 miles of route, and we costed that at about £11 billion. Of course, we are talking about much longer distances for a route from Scotland to England, so we would probably double that £11 billion.

As I said, we will be looking at a high-speed rail route between Scotland and England over the next year. Clearly, such a line would not be a trivial project; it would be a major one, and it would need a substantial public sector contribution. Having said that, the operation of services on the line

might well be financially viable. The private sector would definitely have an important role in setting up a structure to deliver and operate those services. A public sector contribution would be needed, but there would also be an important role for the private sector.

Graham Bell: We would be unwise to regard any calculations as more than a cost estimate. We all know how major capital projects have a habit of escalating. However, the best guess that I have seen for the cost of an inclusive line to Scotland is £31 billion.

You mentioned the economic climate. If we are assessing cost, we should regard that £31 billion as an investment and measure it against the returns throughout the life of the service. Interestingly, Network Rail's internal studies suggested that a stand-alone high-speed rail network would not require revenue support; it would be profitable once it was built. I find it difficult to see how it could be built without a public-private partnership, because the sum of money involved would be large, and the railway would take many years to build—it would not happen overnight.

The Convener: 2M Group has mentioned a similar figure of £30 billion.

Councillor Reid: We suggest a figure of £30 billion, with a completion date of 2030. Let us hope that the credit crunch does not last that long.

We need a cost benefit analysis. We have not had one for Heathrow. A high-speed rail link will require innovative funding and, quite rightly, it will almost certainly be a public-private partnership. We also have to consider the environmental consequences of not proceeding with it. That should be a driver.

Colin Elliff: I can break down the £30 billion a bit. High speed 1—the 100km or thereabouts of line from the channel tunnel into London—cost £5 billion, which works out at £50 million a kilometre for a heavily engineered line, a large percentage of which is in tunnels and on viaducts. If the route northwards from London were chosen correctly, it would follow much more favourable topography, along existing transportation corridors where environmental concerns are not as great—motorways create a substantial noise nuisance, and the proposed line would be no worse. A lot of the money that is usually put into environmental protection would not be necessary if the corridor were chosen correctly. So a lower figure of £30 million per kilometre is credible, and with the 1,000km that our scheme envisages, that adds up to £30 billion.

The Convener: I will hand over to Cathy Peattie, but before I do, I say that I am concerned about time, so I ask members to direct their questions to specific witnesses. That might mean that not everyone will get a crack of every whip.

Cathy Peattie (Falkirk East) (Lab): Thank you, convener. In a sense, my question has been answered, but I would like to pursue it. I am interested in the mechanisms that should fund the development of a high-speed rail network. We have already heard a bit about the costs, and a couple of witnesses have made suggestions about using PPP. Are there any other views on the funding?

Councillor Reid: No, that would have to be the way forward.

Colin Elliff: I am not a financier, so I cannot offer anything more than that.

Julie Mills: We will consider the issue again as part of our work programme, so I cannot add any more at the moment.

Cathy Peattie: The committee has heard calls for early development of the Scottish section of a UK high-speed rail network, as well as concerns that such a development would not create sufficient revenue to be financially viable. What are the panel's views on that?

Colin Elliff: I am not sure about the justification for high-speed rail in Scotland alone, because there are already plenty of good lines linking Edinburgh and Glasgow, and higher speed might not deliver much more within Scotland.

If we are considering the project for the UK as a whole, there is a lot of potential for starting the route in Scotland, maybe by going eastwards from Glasgow and creating a link between Edinburgh and Glasgow at the same time as the line is advanced northwards from London. To that extent, development of the line in Scotland would be a good thing.

The greater benefits to Scotland might come from some of the other enhancements that we suggest should be made north of the Forth bridge to increase connectivity with the north of Scotland rather than from the dedicated high-speed route between Edinburgh and Glasgow, bearing in mind the fact that the Airdrie to Bathgate line is already being built to increase that connectivity.

Cathy Peattie: People welcome the idea of high-speed rail, but are concerned about the cost of developing a Scotland-wide service before developing the wider service.

Colin Elliff: If that is what you are looking at, you should consider our suggestions for the Edinburgh to Perth direct link and reopening the Perth to Aberdeen via Forfar link, which would bring all the cities within an hour and a half of each other, as against the almost three hours that applies at present.

Graham Bell: When we talk about costs, we need to consider more than just putting blue drinking vouchers on the table to build the line in the first place. Of the people who travel between the central belt and London, 85 per cent do so by air. We should consider the environmental benefits of modal shift that arise by getting those people on to trains as a saving rather than a cost. We must take an holistic view of what is achieved. When we do Scottish transport appraisal guidance appraisals of Scottish transport projects, we count the social and environmental benefits and not just the difference that is made to finances. That is relevant.

We do not construct a bridge by starting from one bank of a river and building to the other bank; we start on both banks and meet in the middle. If we wait until we have built sections from St Pancras or wherever all the way to Scotland, not many of us will be around to see the railway reach Scotland.

The benefits are significant. Our contacts in north-east England, for example in Yorkshire and Humberside, say that the business community there and the northern way—the joint local authority initiative—are very interested in greater connectivity to Scotland. If, when pruning an apple tree, you cut off the branch above the fruit, the fruit withers and dies. Having a lifeline to our economy is essential to the north-east of England. As we seek to connect ourselves better to the Baltic and Scandinavian countries through developing Rosyth and through Clydeport's activities, the north-east will come through Scotland to use our new ferry services and our new container traffic to reach those countries. We will make lifelines work throughout the United Kingdom, so there is every possibility of starting in Scotland and working south. That might happen alongside starting in the south and working north.

Des McNulty (Clydebank and Milngavie) (Lab): In our financial environment, unlimited money is never available, so people must make investment choices. Graham Bell referred to choices, such as building some parts of the route before others. Another choice is between high-speed rail and competing demands for transport investment. If you can scale down your aspirations, will you tell us how what might practically be delivered first stacks up against other transport investments?

Graham Bell: We eagerly await the strategic transport projects review, which will set priorities that are decided in the Parliament and elsewhere—Transport Scotland obviously has an influence. We should prioritise high-speed rail as a long-term project because, if we go ahead with it, it will be many years before we start to lay track. The inevitable land purchase and planning processes in this country mean that we are not in the same situation as Shanghai was, which designed, commissioned and built a maglev track from the airport to the city in two years. Would that we could do that here, but we cannot, because we are a democracy, where developments take longer because people's views are taken into account, which is only fair and right.

High-speed rail should be a priority. We are making decisions, designing the project and working out how to make it work. If we just said that we have too many spending priorities and we should put the project on the back burner, we would end up having the same conversation in 10 years' time, and it would be 10 years after that before anything happened. We should get on with it.

Julie Mills: We are talking about constrained resources, but we have important objectives to achieve. If we want to increase environmental benefits by reducing air travel, we should aim for a three-hour rail journey time between London and Scotland. However, that can be achieved in more than one way—it does not have to involve building a new high-speed line all the way to Edinburgh and Glasgow. An intermediate solution, such as investing in the network to segregate traffic on existing lines, could be a first step.

Constructing new segments of routes to bypass key bottlenecks or to upgrade routes can achieve significant journey time advantages and relieve capacity constraints. If we are prioritising, we should identify the key capacity constraints and the sections of line with lower speeds and consider addressing them as part of a long-term strategy. That work must be part of a strategy, so that when all the pieces come together they form a coherent network.

14:30

Councillor Reid: I have a brief point, after which Colin Elliff might come in on more technical issues. Of course there are competing demands. I emphasise that the 2M Group is pushing for high-speed rail as much in England as it is in Scotland, because it is essential. The ideal situation would be for construction to start at both ends of the route at the same time and then have the lines meet in the middle. That would show absolute commitment, which is why we are selling that approach to the politicians really hard.

Last Tuesday, high-speed rail featured prominently in a debate on Heathrow in the House of Commons. Members of Parliament of all parties support high-speed rail even, believe it or not, the Secretary of State for Transport—I suppose that he would support it. There is a real shift of emphasis. We want to get people out of planes

and cars and on to trains. In the global warming scenario, that is essential. We are pushing for high-speed rail at both ends.

Colin Elliff: Global warming is not the only problem—there is also the issue of global oil supplies. Certain projections show that supplies will start to decline in the next year, although I suspect that the figure is 10 or 20 years. Whichever is correct, we must start planning now to decarbonise British transport. We need to engineer the greatest modal shift, and a high-speed line is a way of delivering that. Not only would it get people out of planes, it would increase capacity on the existing rail network for freight and so get heavy goods vehicles off the road, and it would give people credible journey alternatives, say from Scotland to Lancashire, so they would tend not to drive down the M6 but instead take the train. All that would reduce carbon emissions and our national dependency on oil.

Des McNulty: I want to pursue the issue because, in a sense, you all ducked the question. Graham Bell's answer could have been used to defend any transport project and Colin Elliff gave us the climate change speech, if you like. I was not really asking for that; I was asking how the proposals fit in with other priorities. We have a limited budget to spend on transport, although I would like a bigger one. The estimated cost of £31 billion is a huge amount, and that is for a reduced part of the scheme that you have talked about, not some of the additional measures. The pragmatic point is that, if we go ahead with the proposals, which I am certainly not against—I am sympathetic to them—other proposals would have to be sacrificed. Put that into the real context of Scotland and give me your argument why Scotland should prioritise investment in high-speed rail between now and 2020, rather than in other alternatives such as the replacement Forth crossing, the Aberdeen western peripheral route, the Borders rail link or other projects in the programme. If high-speed rail is a top priority, which I presume is what you are here to suggest, what needs to be built and what needs to be sacrificed?

Graham Bell: In relation to the projects that are on the table, I endorse the two critical points that have been made—peak oil is a major concern, as are environmental considerations. Those points add to the priority of alleviating the need for air travel inland in the UK, which is one thing that high-speed rail offers. It also offers connectivity between the English regions and to the continent through the Channel tunnel, which we all paid for through taxes but cannot currently access unless we travel to London first. Those are critical arguments on the importance of high-speed rail.

You asked what we would put aside to build a high-speed rail network. The point that I am trying to make is that we are not in a position to consider capital spending on such a project for a number of years. The transport projects that are on the table in Scotland at the moment would have to be completed before we could start the project. We should investigate the options and get all our ducks in a row so that we know what we want to build and why. Therefore, we need to invest now in discovering the best solution, not in building the high-speed rail network. I emphasise the word "invest": I would not consider the money that was used for that simply to be money spent, because there would be a return on it.

Councillor Reid: High-speed rail services would bring enormous economic and transport benefits to the north of England and Scotland. If passengers could get from London to Edinburgh or the other way round in three hours, that would be an amazing two-way traffic. It would not simply be a replacement for flying; Scotland would become more attractive because it would be quicker and easier to get here. That would surely be of enormous economic benefit to the country. Against a four-and-a-half-hour train journey or all the hassles of flying—if people come that way—there must be economic benefits to a two-and-three-quarter or three-hour journey to Edinburgh.

There are pressures on budgets, but the budget for high-speed rail services would have to be completely new. It would require innovative public and private sector funding.

The Convener: Is that enough to move on, Des?

Des McNulty: Again, we have not had any answer to the question. Before Government adjusts money on a big scale, the fundamental issue of what the economic benefit is and how it compares with others must be addressed. Simply to say that it is all right to commit to high-speed rail services in 2008 because we are not going to spend anything until 2020 is not an adequate answer. Nor is it an adequate answer to say that there must be a huge benefit somewhere without quantifying it against the benefits of other projects that we could spend the money on.

Councillor Reid might have wanted to argue that there is an issue about the structure of airport and aircraft spending relative to rail spending. Rail spending is fundamentally delivered through the taxpayer, but a lot of airport spending is delivered by the private sector, so it is cheaper for the Government to allow airport spending to continue because it does not have to pay for it. We might change the tax system.

We must get on to a different plane and say—

The Convener: Des, we are in danger of having questions that are longer than the answers. You may take one last stab at your line of questioning, if you go on to the issues that you have not yet reached.

Des McNulty: I will take my final question. One proposal is the development of a high-speed line that would extend only to the English midlands. We heard evidence last week from the business panel that that would disadvantage the Scottish economy, as it would attract investment to the areas that would be served by the line. Do the witnesses have any views on that?

Colin Elliff: We all propose incremental development. The first stage of any route to the midlands would always have services that continued to Scotland. High-speed rail services would not simply finish where the new line finished but would always be integrated into the existing railway network.

Virtually everyone is agreed on a first stage from London up to somewhere round about Rugby; where we go afterwards is more up for debate. However, that first stage would deliver not only massive capacity benefits in the English commuter regions around London, but 20-minute to half-an-hour savings in journey times up to Scotland, which is a benefit of sorts. As further stages were constructed from the south—if we take that approach—those time savings would increase. At any stage of the railway's development, there would always be services running through to Scotland and, therefore, delivering benefits not only in services to London but beyond to Europe.

Julie Mills: I agree with Colin Elliff that there would still be significant benefits to Scotland from the construction of a high-speed rail network that started in London as long as it was integrated with the existing network, so that the high-speed rail services served Scotland. It is important to see those services as part of the network. However, there is no reason why development from Scotland towards the south could not be started at the same time in order to bypass key areas of congestion and to build where the benefits would be.

The questions are all very useful, but I am afraid that we cannot give detailed answers because we are studying them at the moment. We will be able to come back and give fuller answers in a few months; I appreciate that that is beyond your timescale, and I am sorry about that.

Shirley-Anne Somerville (Lothians) (SNP): Several respondents have questioned the environmental benefits of developing a high-speed rail network, particularly because of the energy consumption of faster trains. Colin Elliff mentioned that briefly in his opening remarks, so I will ask him for his views first; if other members of the panel have specific points that they want to raise, they can respond, too. We are examining environmental benefits. We have heard your views on the climate change issue and we know the importance of public transport and rail in that regard, so we are looking at the specific environmental impacts of a high-speed rail network compared with some of our other transport priorities.

Colin Elliff: There are something like 100 flights a day from Scottish airports to London. I do not have the precise carbon emissions figures, but 230g of CO_2 per passenger kilometre is the figure for internal aviation. All the evidence shows that people would far rather take a train than a plane, so if we can build a high-speed rail network that supersedes any requirement for internal aviation, that figure—even the Government's figure—comes down to 95g of CO_2 per passenger kilometre

It is believed that those figures could be optimised if we could run an efficient network with full trains, which would mean that the network would have to be routed to maximise load factors. There is no commercial or environmental credit in running trains with empty seats. That is our thinking behind the idea of running in to Edinburgh from the east and continuing to Glasgow or Aberdeen.

The figure of 95g of CO_2 per passenger kilometre could easily be brought down to 60g or 70g, which is closer to the figure for conventional rail. High-speed trains typically have much better speed profiles—they do not have to accelerate or decelerate as they go around bends such as those on sections of the east coast main line north of Newcastle. They are also designed to modern aerodynamic standards, whereas existing trains are not. I envisage that the typical energy consumption of high-speed rail travel will be about one fifth of that of air travel. The environmental benefits are probably being understated at the moment.

Shirley-Anne Somerville: Some studies have suggested that there will be an increase in discretionary travel rather than a modal shift. Do any of the witnesses want to comment on that?

Colin Elliff: No. I cannot answer that question.

Graham Bell: We have recent experience of that. The Stirling to Alloa extension has far exceeded the STAG projections on passenger numbers and, as you say, one of the reasons for that is that people are making that journey who did not do so before we provided them with that means. New-build housing has also had an effect and historical numbers will not have shown that.

You are right to say that high-speed trains use more electricity than, say, conventional trains do, and that is clearly a cost. The upside of that is that electricity, as a transferable energy source, can be created from such a wide range of sources that it gives us an environmentally efficient means of powering the train in the first place. A parallel example would be the Edinburgh tram system—forgive me for mentioning that.

14:45

Shirley-Anne Somerville: I would not mention the Edinburgh trams. You will not sell that point.

Graham Bell: We can talk about the Edinburgh tram system being environmentally friendly because it will clean up the atmosphere in the city. However, if that electricity comes from Longannet or Cockenzie power stations, which are coal fired, is it actually cleaning up the air overall?

We have to consider where the electricity would come from for high-speed trains. Again, a holistic picture is needed. The programme to increase renewables is a key part of making an efficiency gain rather than creating another cost.

Julie Mills: One of the benefits of providing new rail capacity rather than new road capacity is that we can manage supply and demand on the rail network so that the benefits of the additional capacity are sustained. With the road network, capacity soon gets filled up and congestion levels return to where they were before a new road was built. With trains, we can manage overcrowding, particularly on a high-speed rail network with an advance booking system that enables people to benefit from the high levels of service. To an extent, the erosion of benefits by the stimulation of excess demand can be prevented by the price mechanism and a sophisticated pricing system. The environmental benefits of modal shift for longer-haul trips from air to rail and for shorter trips—from, say, the north-east and north-west of England to Scotland—from road to rail can also be captured.

Just to throw in a slightly different point, high-speed rail can encourage sustainable patterns of economic development in city centres. Experience in France has demonstrated that. For example, a city such as Lille has a new high-speed rail system and new economic development areas around the city centre station, which are high density and sustainable. We do not get that with many other modes of transport, which can encourage sprawl if there is out-of-town access.

Councillor Reid: The CO_2 emissions from a third runway at Heathrow would be about equal to the CO_2 emissions from a country the size of Kenya. That fact concentrates our minds rather a lot. Apart from the airports themselves, the question of emissions from transport around airports is a major consideration.

All the evidence from countries in Europe that have introduced high-speed trains is that there has been a modal shift. I cannot be any more specific than that, but the evidence seems to suggest that if high-speed rail is there, it will be used.

Cathy Peattie: I want to return to the issue of additional capacity. It has been said that high-speed rail could increase the volume of rail freight. Do the witnesses have a view on that? Would there be benefits for rail freight?

Julie Mills: Yes. One of the key benefits of a high-speed rail system is not just that it serves passengers who want to travel long distances on a high-speed service, but the fact that we can segregate the high-speed services from the slow-speed services and make much more efficient use of the existing network for local and regional passenger services, and for freight. We regard that as one of the key advantages, because a high-speed rail network is not just about high-speed rail services. It needs to be planned in such a way that we relieve the sections of the network that are congested and crowded. However, for the main west coast line south from Glasgow, for example, one of the problems is not necessarily that people are jammed on the trains; the problem is the congestion on the network that results from the different speeds of passenger trains and freight trains. If we can relieve that congestion, we can have a much more effective railway network.

Graham Bell: A high-speed rail network would certainly have great potential for moving more freight on to rail from road in the way that was described. We have seen a 50 per cent increase in passenger traffic on the trains in the past 13 years, but we have seen a greater increase in rail freight traffic, to the point at which we are reaching capacity. Measures such as diverting the coal trains off the Forth bridge create extra capacity, but only a little extra.

As things stand, rail usage predictions suggest a further 30 per cent growth in traffic. It will be extremely difficult to transfer more freight from road to rail if the existing system is running at capacity. One of the beauties of creating a standalone network, or linked-in network, for high-speed rail is that it frees up capacity on the existing network for local traffic—for commuting, shopping or whatever—and for freight. That should be a key objective.

Councillor Reid: I do not have the statistics for the amount of air freight in the UK, but I know that a lot of freight comes in and out of Heathrow. If some of that could be diverted on to rail, that would either free up that air space for passengers

or reduce the number of flights. That must be a good thing.

Colin Elliff: Let me amplify the point that Julie Mills made. The west coast main line is currently the only corridor up to Scotland that will take 9ft 6in containers, which is the international shipping standard, on conventional container flat wagons. The potential of the west coast main line is greatly limited by its passenger services—which purport to be high speed—from London to Scotland. Diverting those passenger services away from that route would provide a step change in opportunities for container freight from southern English ports up to Mossend and elsewhere.

The Convener: Thank you. If we are to get through the questions in reasonable time, questions and answers must be tightly focused.

Alex Johnstone (North East Scotland) (Con): I want to return briefly to a point that Councillor Reid has made more than once. When we heard from representatives of the Scottish business community last week, they argued in favour both of high-speed rail and of a third runway at Heathrow on the grounds that greater connectivity would always be beneficial to Scotland. Does the panel believe that high-speed rail within the United Kingdom will be the death-knell for domestic aviation?

Councillor Reid: I am aware of that suggestion, but I do not think that high-speed rail will be the death-knell of domestic aviation. We certainly look to high-speed rail to reduce the number of short-haul flights—that is the whole point of it—not just within the UK but to Paris, Brussels and Amsterdam. We believe that many short-haul flights could be done away with by diverting journeys on to rail. However, that does not mean that there will be no domestic flights, so high-speed rail will not be the death-knell.

We are looking at something completely different that would involve a major shift in people's patterns of behaviour and expectations. I do not deny that. Getting people out of short-haul flights and on to rail is one of the aims of high-speed rail, but it will not be the death-knell of either the aviation industry or Heathrow. We have never wanted to close Heathrow or curtail international flights. People will always want, and need, to fly. However, let us use the capacity at Heathrow for those flights that are absolutely necessary and for which there is no alternative. Where there is an alternative to short-haul flights within the UK and to near Europe, let us use that alternative on environmental grounds—not just for the people in and around Heathrow, for whom life is pretty awful at the moment—and on economic grounds, too.

Graham Bell: One small area in which we would hope for an increase in Scottish aviation is in the number of landing slots at London airports for flights from Aberdeen, which are severely challenged at the moment. In the short term, there is little likelihood of massive modal shift for journeys from Aberdeen, so an increase in the number of landing slots would be beneficial to the Aberdeen economy. The reduction in the number of flights needed from Glasgow and Edinburgh to the south would provide a large saving overall in the number of inland flights. In turn, that saving might free up landing slots for external flights, given that we are not about to build a tunnel through to Scandinavia or across the Atlantic. There are still places to which we need air connectivity. I have no doubt that we might achieve more comfortable levels of air traffic in those circumstances.

Alex Johnstone: Last week, witnesses highlighted the need for direct connections to airports. Do you view high-speed rail networks purely as a means of connecting city centres or should they also connect other points? Should they, as Colin Elliff's plan makes clear, serve both city centres and other parts of our economy?

Graham Bell: The advantage of high-speed rail over maglev is that it is interchangeable. If we had it tomorrow, we could run high-speed rail into Waverley station; we cannot do the same thing with maglev. Of course, certain engineering considerations would have to be taken into account, but the fact remains that our existing railway stations would be accessible to a high-speed rail network.

There is great merit in examining whether a main line could connect up our airports. Such a line might run from Stratford to Heathrow, Birmingham international airport, Manchester airport, Leeds-Bradford airport, Newcastle airport, Edinburgh airport and Glasgow airport and if those stations became parkway stations for the cities that they serve, a percentage of the trains could stop in the city centres. Indeed, that is what happens in France. Not all TGV routes use TGV lines alone; for example, the Lyon to Grenoble line is not a straightforward TGV line but uses existing track to ensure connectivity. We might wish to look at a similar mixture of lines here.

Colin Elliff: The traffic volumes that are needed to make high-speed rail environmentally acceptable and ensure that the trains are filled will be found only by running the lines between city centres. In that respect, I envisage having stations at Glasgow Central and Edinburgh Waverley. Newcastle Central is a bit of a problem, but there could be a station with close links to Newcastle city centre.

I find high-speed rail access to airports to be something of a distraction. Airports are much better served by a regional network that distributes people in all directions and not along a single route away from the airport. Indeed, that concept is nowhere more important than it is at Heathrow. A single high-speed line into and out of Heathrow will do nothing to tackle the local congestion, which, as Councillor Reid will attest, has reached frightening levels. I cannot speak as strongly about solutions for Scottish airports but, in general, getting a line into an airport is hugely expensive, causes huge disruption and creates general engineering risk. It happened many years ago, but members might recall the Heathrow express collapse. Instead of running the Edinburgh airport rail link straight through the middle of the airport, we might serve people better if we put in place dedicated shuttle services to the Forth bridge and Glasgow lines.

Alex Johnstone: I want to address head-on the issue of technology that Graham Bell raised earlier. The proposal to use maglev for high-speed rail connectivity has occasionally crept into our discussions but are we really talking about only advanced conventional high-speed rail technology? Is maglev for another generation?

15:00

Colin Elliff: In this country, it is not even for another generation. It will never happen here. Maglev might well be the solution if you had to start a rail network from scratch and were looking for something new, but in a densely developed country in which the existing rail network is the prime surface carrier, such a proposal just does not stack up.

There are two major problems with maglev. First, if you want to use it to go from A to B, you have to build the whole line. You cannot have any incremental development in which, for example, half a line is built and the remainder of the route is run on the conventional network until the other half is constructed.

The second problem is city centre access. I think that we are all unanimous on the need for such access; however, although it is relatively easy to build a high-speed line in open country, it is impossible to find alignments for maglev alongside existing tracks without building very expensive tunnels. As a result, maglev developers tend to shy away from city centre access; instead, as in the UK Ultraspeed scheme that came to the fore a couple of years ago, they build parkways on the fringes of the cities that they serve. All that does is eventually provide high-speed links between car parks. The trunk benefits of having more environmentally acceptable transport throughout the country would be wiped out by the increase in car use and the loss of green-belt land on the peripheries of our cities.

Graham Bell: Maglev has distinct advantages. It is faster; it is probably sexier; and it is a great British invention. However, given that the only working network is only 35 miles long, taking on maglev as the prime technology for high-speed rail networks would surely be an enormous risk, especially as far as accessibility is concerned. Moreover, a major advantage of high-speed rail is that it can be built incrementally and linked into the existing network. Maglev simply does not provide any of that.

Julie Mills: Over the next year, our initial work on Greengauge 21 will look at conventional high-speed steel-wheel-on-steel-rail technology. That said, we will test our conclusions to find out the possible impact of maglev. Personally, though, I tend to agree with Colin Elliff about the system's disadvantages.

Alison McInnes (North East Scotland) (LD): I am concerned that we might, in our attempts to connect Scotland's major cities with the rest of the UK, further disadvantage the more peripheral parts of the country. Colin Elliff touched on that. What changes would need to be made to Scotland's existing rail network to maximise the benefits of high-speed rail?

Colin Elliff: Very few, because the existing network is centred on Glasgow's Central and Queen Street stations and on Edinburgh Waverley, which are absolutely key to the development of high-speed rail. Actually, because of the shortness of its platforms, it would be impossible to bring a high-speed line into Queen Street. Glasgow Central seems to provide the only possibility, although anyone on the north side of Glasgow could quite easily catch a conventional train to Edinburgh Waverley if they did not fancy crossing the city.

Given the possibilities not only of aviation diversion from Heathrow but of converting the flights from Heathrow to Aberdeen to high-speed rail, we have deliberately considered the possibility of extending high-speed rail solutions north of the Forth bridge. The existing network leaves something to be desired: for example the two-and-a-half-hour journey from Aberdeen to Glasgow or Edinburgh could be made a lot shorter if existing routes were restored. Such a move would also mean much faster journeys between Edinburgh and Perth and might well cut the journey time to Inverness by between a half hour and an hour, which has to be a great gain for the far north of Scotland.

We have to consider a mixture of conventional and high-speed rail. Many of the lines north of the Forth bridge, for example, would have equal

numbers of conventional and higher-speed trains. Although the clash of speed might give rise to capacity issues, we think, given the number of services that are likely to use the lines, such matters would be manageable.

Graham Bell: In a survey on high-speed rail that Scottish Chambers of Commerce conducted through member chambers across Scotland, some of the most positive comments came from people in Dumfries and Galloway, the Borders and Aberdeen, who clearly saw the benefits. On the other hand, the same people are very concerned about the existing network. People in Stranraer, for example, are not at all confident that if the ferry port were moved they would still have a railway. North of Inverness, very simple solutions that could radically speed up journey times to Thurso have, for various reasons, not been implemented.

We are already making a number of other improvements. Electrification, for example, is a major improvement that brings down journey times, but such measures should not be forsaken just because we are considering high-speed rail options.

Julie Mills: It may well be that some of the projects that are not viable for improving the existing network in Scotland on its own might look a bit more attractive if there was a high-speed rail network that would connect at Edinburgh and Glasgow. We are talking not only about improving connections to those cities but about potential upgrades of routes to provide through services on to the high-speed rail network, where there is sufficient demand.

One example is not about the peripheral areas but about Edinburgh and Glasgow. The strategic transport projects review examined connections between the two cities and considered upgrading the Carstairs route, for example, with a cut-off route to make it shorter, which would potentially be in the long term and not for immediate consideration. Such a route would fit well with a high-speed rail network. There might be benefits to local Scottish passengers, that would add to those for high-speed rail passengers, from integrating such a scheme with a high-speed rail network. That is one example. I am sorry that is not entirely relevant to Alison McInnes's question.

Charlie Gordon: What key lessons, including about costs, can we learn from the development of high-speed rail networks in other countries?

Graham Bell: A key consideration that we need to talk about is whether we will just build a high-speed line from scratch or build it incrementally, linking in to the existing network. The Spanish took the former route and the Germans took the latter, and both have reasons to recommend them. On costs, land is cheaper in the countryside than it is in city centres, but that must be balanced against whether the cost can be justified if take-up would be better if it were going to the city centre. I am not sure that we can necessarily learn from other countries in that regard. Mr McNulty is right that we do not have all the answers, although questions on costs and so on are the kinds of questions that our current survey should be answering.

Julie Mills: One of the clear messages from other countries is the value of having a clear strategy and political commitment from the outset, as the French had for their TGV network when they were planning it 20 or 30 years ago and setting out a long-term vision of what it might look like. That would help to bring on side everybody who might potentially benefit, and it would prevent the alienation that might arise if the focus were to be on one line from the outset. It would also help to make the planning process more efficient, and to avoid abortive expenditure on projects that might be superseded by a high-speed rail network. That is one way of managing the overall costs of running the railway.

Colin Elliff: I have looked closely at the routing for the proposal that I put in front of the committee earlier. There are different station solutions for different cities, but the key is to get the route into the city centre and avoid doing what was done in France, when they routed the high-speed line round the outside of towns. There were fairly unsuccessful parkway developments on the peripheries of towns, which has led to the blighting of the existing railway network and a lack of focus.

City-centre access is essential. Newcastle Central station is a good example of such access not being available. That happened for various reasons. The main reasons for not getting city-centre access are the length of the trains and the likelihood that we will change in the future to the European size of train. Members will understand that the railway gauge is the same here and in Europe, but the size of the trains above the tracks is larger in Europe. Trains of that size cannot run on to the conventional British network. As the existing Eurostar trains wear out, there will be new generations of wider European duplex rolling stock, which will become the standard on the European network.

Our ambition is to have high-speed links not only to London but through to Europe. The operators will want to run trains into all major city-centre locations and ultimately to run, for example, double-decker trains into Glasgow central. That will mean some re-engineering of networks, although for stations such as Newcastle, the approaches cannot be re-engineered for the new trains. For Newcastle, we may have to consider a station slightly south of the city—Tyne Yard is the

area that I am considering. We would then have to consider refocusing of the city station and possibly extending the Newcastle metro system into that station. However, we would need to plan from now to enable the city to be adequately served by the way that European high-speed rail is likely to develop.

Councillor Reid: The lesson from other countries is that we must have vision and be bold. No one ever said that this kind of major shift would be easy: it requires political buy-in, vision and people working together. That might sound bland, but that is what it will take.

Rob Gibson (Highlands and Islands) (SNP): You say that we need the Governments to buy in to these proposals, and I presume that public money will also be needed. We do not need to go into too much detail at the moment but, following on from Des McNulty's questions, I imagine that the estimated £30 billion for the project will not be required all in one year and that we might be talking about £1 billion or £2 billion in the first year. How long will it take for this kind of railway to be built between Glasgow or Edinburgh and London?

Colin Elliff: It depends on the level of priority. If CO_2 emissions were to suddenly reach critical levels and finite oil supplies—something that we all now appreciate—made oil prohibitively expensive, the priority could escalate vastly in importance. Politicians in England have said that global warming is the greatest crisis that humanity has faced since world war 2. Given that we might need to react very quickly to such a situation, we might have to construct the railway very quickly to maintain connectivity across the country.

In sheer physical terms, the line could be built in five years. I apologise for the history lesson but I point out that, when the Americans decided that the Alaska-Canadian highway was essential to stop a Japanese invasion of Alaska, they built the highway across the wastes of Canada in a year. Similarly, the importance that was attached to Mulberry harbours meant that they, too, were built quickly.

It is not really that difficult to put down 400 miles of what is essentially new road. Obviously, the planning process can raise huge difficulties but, as I said, it is a matter of priority. One of the functions of the proposed infrastructure planning commission is to streamline nationally important projects: I believe that this project is as important nationally as you can get.

Graham Bell: The wartime analogy is very appropriate. The period 1939 to 1945 has probably been the UK's most productive in the past 200 years.

Rob Gibson: You should be careful that you do not take too long over your history lessons.

Graham Bell: During that time, we destroyed many things; however, we also built many things and our efforts were driven by having a common enemy. I believe that, once again, we have a common enemy, of which climate change forms a part.

The other challenge arises from our full involvement in the global economy to ensure our economic future. The project could be designed, planned and approved in five years, and built in another five; in reality, however, both phases are likely to take 10 years each.

Rob Gibson: I am tempted to ask whether all of you came here by train.

Julie Mills: Yes.

Councillor Reid: Yes.

Colin Elliff: Absolutely.

Rob Gibson: Why has Greengauge 21 established a public interest group and how does its work relate to that being undertaken by Network Rail, the Department for Transport and Transport Scotland?

Julie Mills: Our work, which sits alongside Network Rail's new line study, was set up as a response to the comment in the Department for Transport's white paper "Towards a Sustainable Transport System: Supporting Economic Growth in a Low Carbon World". Despite its plan to carry out a three-year to four-year transport planning process on a range of projects, it contained no specific plans to consider high-speed rail. We wanted to develop options that we could feed into the process, so we went about securing largely public sector support and funding for that work. Of course, the Department for Transport is getting a bit more interested in the subject, but it still sits on our steering group as an observer. Network Rail is one of the bodies that fund our work, and we work closely with it to ensure that our studies complement, rather than conflict with, each other.

15:15

Rob Gibson: Thank you for putting that on the record.

The 2M Group's submission proposes a hub or compass point with which high-speed rail lines from the north and elsewhere can connect and link to other Heathrow airport services. Will you briefly outline the concept and highlight its benefits, especially for links from Scotland?

Colin Elliff: As I said, I believe that the proposal for a direct high-speed rail line into Heathrow airport is a bit of a distraction. It makes the route longer, more difficult and more expensive and does not solve the local transport problems around the airport. Heathrow is very poorly served by rail;

in fact, there are only two railway lines—the underground Piccadilly line and the Heathrow express—both of which link only to central London. Because of its pricing policy and the fact that it goes only to Paddington station, the Heathrow express is a highly priced and poorly used service. That said—and despite my disparaging remarks about the tunnel collapse which, as I recall, happened in 1996—it is a first-class but sadly under-used piece of infrastructure.

The situation will improve slightly once the airtrack scheme to the south is built, because there will be a buffer-to-buffer connection between overhead electrified trains from Paddington and third-rail trains coming from Network Rail's southern region. They would be two elements of the compass-point network. A third element would be the creation of a link to the Great Western main line heading westwards out of terminal 5 to Reading and a fourth would be what I call the northern orbital arm, which would involve building 10 miles of new railway to link into many existing railway lines and to fashion a connection with all the main lines to the north.

The intention is not, as you might think, to have four branch lines terminating at Heathrow; instead, the proposal is for a network of lines that would go through Heathrow and carry not up to 10 trains an hour in one direction—which is what the Heathrow express is operating at the moment—but 20 trains an hour in both directions. That means that there would be a train every 90 seconds—which, incidentally, is the rate at which planes fly into Heathrow. It is a proportionate solution. Heathrow is a system; people are either flying into—or, indeed, out of—it or wanting to leave it. At the moment, Heathrow's rail system cannot effect their departure, so all the traffic is thrown on to the roads, leading to vast local congestion.

Solving of Heathrow's connectivity problems makes eminent transport sense both as a regional matter and as a means of taking people in the many directions that they want to go in. A few of those people—say, 10 to 15 per cent—might well be interested in catching a high-speed train to the north, and that opportunity would be provided by the interface between the compass-point network, which would be focused on Heathrow, and the northern orbital arm. I imagine that the arm's interface would be the Cricklewood interchange on the midland main-line corridor and the M1 corridor coming out of London that I envisage would be used for the high-speed line.

The Convener: That concludes our questions for the panel. I thank the witnesses for taking the time to give evidence. We will continue to take evidence over the coming weeks and will let you know when our report will be available.

15:18

Meeting suspended.

15:23

On resuming—

The Convener: I welcome our second panel of witnesses, who are Colin Howden and Paul Tetlaw from Transform Scotland. Do you want to make brief introductory remarks?

Paul Tetlaw (Transform Scotland): Yes. Thank you for inviting us today. I want to read from paragraph 1.2 of our written submission, then enlarge on some of the points. Paragraph 1.2 begins:

> "Scotland faces the twin threats of climate change and oil depletion – both of which are due to our overdependence on fossil fuels as an energy source. As such, we believe that it is imperative for Scotland to reduce the transport sector's reliance on oil."

Members will be familiar with the arguments on climate change, and I am sure that the committee will have heard from other witnesses about our need to reduce dependence on oil. To put that in context, 98 per cent of the fuel for our transport system—that is, for flying, driving, road transport and diesel trains and buses—is oil. I think that we all understand that oil is a finite resource that is variable in price according to world circumstances. Climate change is a huge risk, but to be so dependent on oil as a source of fuel for transport is a high-risk strategy for a country. The decision to move away from that dependency is a strategic one.

In that context, we regard high-speed rail as an opportunity to reduce our dependence on aviation, which is one of the most unsustainable modes of transport, for longer-distance trips and to deliver a significant shift in transport away from oil dependence and towards electric power. That sits well with the point about our transport system's 98 per cent dependence on oil. Electric powered systems would move us away from that dependence.

I will explain the difference between high-speed rail and high-speed lines, because much of the focus has been on building new high-speed lines. High-speed rail is a high-quality rail product with a high-quality passenger environment in which people can relax and work, which would make rail an attractive option. That will certainly require some high-speed lines but if, for example, we look at France, we see that the high-speed lines radiate out from Paris whereas the high-speed rail network covers a lot of the country—the committee might want to discuss that further. That is an important distinction. Although the two can support each other, they are different concepts.

The Convener: Your submission argues that, although you support high-speed rail, you do not want it to take away from incremental improvements to the east and west coast main lines. You argue that those improvements should happen before the development of high-speed rail. That point about incremental improvements is compatible with what some of the witnesses in the previous panel said. What are the most urgent incremental improvements that need to be made to the existing network? When would it be appropriate to begin the development of high-speed rail, particularly given that it requires a long time and so will not help to reduce oil dependence in the short term?

Paul Tetlaw: You are right that we argue that we should not lose focus on the east and west coast lines and should continue to improve them. We should remember that the trains for the east coast line were built to run at 140mph anyway, but that has never been possible because we never went through with the appropriate work on the infrastructure. However, to return to my point about high-speed rail and high-speed lines, following the French example, it would seem appropriate to start work on a high-speed line from London running north in parallel with improving the existing lines. We should remember that, for the reasons that I outlined, we are trying to achieve a significant modal shift from air and road to a more sustainable mode of transport for the future. Therefore, we need more capacity. As other witnesses have mentioned, the existing rail network simply does not have sufficient capacity for the significant modal shift that we need to achieve. Perhaps we need a bit of both.

Colin Howden (Transform Scotland): The previous witnesses talked about the Greengauge 21 proposal, which, as I understand it, would initially concentrate on lines out of London. However, we say that, if that policy were followed, further incremental improvements could be made to the east and west coast main lines. Page 4 of our submission contains part of a report that we published two years ago, which sets out incremental improvements that could be made to the existing two main lines south from Scotland. Some of those are in the northern part of Britain, so they are outside the scope of the Greengauge 21 proposal, but they are sensible and can be done.

Benefits can still be gained from the existing railway. We understand that, in December, First TransPennine Express will begin to run significantly enhanced services from Edinburgh and Glasgow to Manchester, which will deliver 15 to 20-minute journey-time improvements between Scotland and Manchester. Although it is important that we consider developing high-speed rail, if we can get that type of improvement out of the existing conventional railway, we should not lose focus on developing what we have already.

The Convener: Does Transform Scotland have a figure for the likely cost of the high-speed rail proposals and, if so, how is it calculated?

Colin Howden: No. We have not done our own research on that.

15:30

Shirley-Anne Somerville: What are the economic benefits of the development of a high-speed rail network, compared to other transport projects? What would it bring to Scotland?

Paul Tetlaw: We have to consider the wider economic cost to the country of all modes of transport. You heard some figures for the cost of developing high-speed rail links, which you might consider substantial. There are figures for the cost of upgrading the west coast main line, which people might also consider substantial. However, we have also to consider the costs to society of existing modes of transport.

We know from studies that were carried out by the University of Leeds and from recent DFT studies that the apparent cost of road travel is only between a third and a half of its total external cost to society. There is a hidden subsidy going into that anyway. The situation is similar for air transport—Colin Howden can give the figures for that.

We have to understand the balance. An economic benefit can be gained from a shift from unsustainable modes of transport, which have hidden subsidies, to more sustainable modes.

Colin Howden: The figures on aviation to which Paul Tetlaw alluded were produced by the Aviation Environment Federation, which said that aviation in effect gets a subsidy of £9 billion a year through avoiding kerosene taxation, VAT on tickets and duty free. That has already distorted the transport market in favour of aviation. We need to correct such distortions.

Were you also asking about priorities in transport expenditure?

Shirley-Anne Somerville: I think that you have addressed the point, which was whether a high-speed rail network was better or worse for the Scottish economy than another transport project. What you said about aviation answers that question.

Transform Scotland produced a discussion paper called “Are High Speed Railways Good for the Environment?” We discussed that issue with the previous panel. Where does that paper sit, given your support for a high-speed rail network?

Colin Howden: That paper, which was published about two years ago, was written by our then chair David Spaven. We commend most of it to the committee. We are still 100 per cent behind the series of recommendations that David Spaven made about incremental improvements to the existing railway. In fact, we have presented them as evidence to the committee. The paper was a discussion paper that was intended to provoke discussion within Transform Scotland. Other elements within Transform Scotland are more favourable to high-speed rail. We have now come round to a view that is more favourable to high-speed rail than the one that was set out in that paper.

Shirley-Anne Somerville: Will you give us some further details about whether there are environmental benefits to a high-speed rail network? I just want to ensure that we are clear about where you are coming from.

Colin Howden: The committee will be hearing from Professor Kemp later, who can give you more specific evidence on that. The figure that is given by Eurostar, for example—which is widely used—is that high-speed rail is 10 times better than aviation in relation to CO_2 emissions. I have seen other claims going down to two times better. It seems to be in that range.

The Convener: Of course, the environmental benefit would be delivered only if the other issues that you address in your paper are taken account of. We are looking for modal shift, rather than modal spread. We are looking for fewer flights, rather than more of everything. Will you say a bit more about whether and why you believe that modal shift would be achieved through the provision of high-speed rail and how we can prevent an overall increase in demand for all modes?

Colin Howden: Our evidence differs from the evidence that the committee heard at last week's meeting from the business groups. They argued that we should maintain the same levels of aviation and have high-speed rail and generate much more traffic. We argue strongly in our submission that the basis of a policy for developing high-speed rail should be to seek to get people to make the modal shift from aviation to rail.

I saw in the newspapers today that Professor Kevin Anderson of the Tyndall Centre for Climate Change Research at the University of Manchester has restated his evidence, which has gained wide coverage in the past couple of years, that if aviation continues growing at its current rate, it will take up all our national availability of emissions. We really need to get control of aviation growth.

The Convener: The appendix to your submission discusses demand management. What demand management measures would be necessary to achieve modal shift as opposed to tackling increased travel overall? Is there a reason why we should not crack ahead with such measures in aviation now, rather than waiting for 15 or 20 years until a high-speed line is in place?

Colin Howden: That goes back to the evidence that I gave earlier. According to the Aviation Environment Federation, there is in effect a £9 billion annual subsidy for the aviation industry from taxation that is not collected. If we drive a car, we pay tax, and a train company that runs trains pays tax on its fuel, but an aviation company does not pay tax on its fuel. If that tax cost were incorporated into the price of aviation, the transport market would be very different and there would be much stronger incentives for people to travel by public transport rather than fly. That is an example of the type of demand management measures that could be considered.

Paul Tetlaw: Another point is that, obviously, we should not expand airports. If we simply expand them, we allow capacity for more demand. The committee has heard evidence about the Heathrow situation. However, in a Scottish context, there are planning documents that look to expand Edinburgh and Glasgow airports. I think that there are almost 100 internal flights a day to London from those airports. Expanding airports and reducing demand do not go together. Another, simple demand management measure is not to build extra capacity for airports.

Cathy Peattie: That leads into my question, which you might have partly answered. At last week's meeting, the business community witnesses argued for the importance of having both a high-speed rail network and a third runway at Heathrow airport. What would be the implications for high-speed rail of going down that line? You said that we should not expand the airports.

Paul Tetlaw: I do not think that we can have both. Going back to what I said at the beginning, the challenge of climate change is big enough, but the overdependence on oil as a fuel is another pressing factor that we have got to get our heads round. We really cannot have both high-speed rail and expansion in aviation. The point of improving the rail network and having high-speed rail links is to offer an alternative to people as a replacement for flying. I do not think that we can have it both ways.

Colin Howden: Another interesting point came up at last week's committee meeting. I think that it was Edinburgh Chamber of Commerce that threw in the figure that 58 per cent of all slots at Glasgow airport were for flights to London. I do not know

whether that figure is true, but if it is and we were considering the efficient use of Glasgow and Heathrow airports—and not taking my advice to reduce aviation levels—surely using the slots for international aviation would be a better utilisation of existing capacity. It would surely be better to replace some or all of those Glasgow to London flights with rail travel and move away from short-hop aviation.

Cathy Peattie: You stated in your written evidence that you do not support the development of high-speed rail solely within Scotland. Can you explain the thinking behind that view?

Paul Tetlaw: The context for that statement is the discussion on maglev routes and reducing the Edinburgh to Glasgow journey time to 15 or 17 minutes, or whatever. We say in our written evidence that we think that that discussion is just a distraction and not worthy of consideration. However, we very much support improvement of Scotland's internal rail services. We state that strongly in our submission. If you want us to discuss how improving internal connectivity would help internal Scottish services and onward links, we would be happy to discuss that. We have a fairly strong view on it.

Colin Howden: We strongly support Transport Scotland's Edinburgh to Glasgow improvement programme, which is under way at the moment. It will deliver a journey time of approximately 30 to 35 minutes between Edinburgh and Glasgow, which is a significant improvement on the 50 minutes that we have at the moment if we are lucky.

We would dispute whether a journey time of 15 minutes between Edinburgh and Glasgow is necessary. If such a service were going to be on maglev, that would lead to new lines being built into Edinburgh and Glasgow and we are not clear how those could be built. There are also environmental considerations with maglev, which may come out later.

Cathy Peattie: The committee has heard evidence that the development of high-speed rail services could increase freight transportation by rail. Do you have any views on that? Would it be a good thing?

Colin Howden: No, we do not have any detailed views on that.

Cathy Peattie: Do you have no views at all on an increase in rail freight?

Colin Howden: I suppose that it could be argued that, if a new high-speed line were constructed—that is, if it were new rail capacity—that would free capacity for freight on the existing conventional rail network, so I can see that there would be potential benefits to that. We gave no particular evidence on that in our submission.

Alison McInnes: I will develop something that Mr Tetlaw said a moment ago about internal connectivity. In your submission, you said that the development of the existing Scottish rail network was of "fundamentally higher priority" than developing a high-speed rail network. Will you elaborate a little on that and tell me what specific improvements to the current rail network you would like?

Colin Howden: Absolutely. Although we support high-speed rail, we need to have a wee bit of a reality check and consider where Scots travel by rail. I understand that there is more mileage on the Edinburgh to Glasgow route alone than there is between Scotland and London on the rail network. If there is a finite amount of money to spend on the railways in Scotland, a higher priority is to ensure that many more of the trips between the Scottish urban areas are done by rail and to invest in the rail networks in the Scottish cities and out into the rest of Scotland.

If we are talking about a limited amount of money to spend on the railways, investing in the Scottish intercity network might be better in environmental and economic terms than investing in high-speed lines. For example, I travel to Aberdeen a lot and wonder why the train crawls through Perth and why it takes two hours and 27 minutes to get up to Aberdeen. It would be nice to get that down to two hours. We would say that that is a higher priority than building brand new high-speed lines.

Paul Tetlaw: Before I came to the committee meeting, I looked at some figures that show that 60 per cent of the line from Edinburgh to Inverness is single track. We have a degraded, sadly neglected Victorian railway there. We are talking not only about improving the intercity routes between Edinburgh and Glasgow but about connecting all the Scottish cities much better by rail.

Alison McInnes: We heard from the previous panel of witnesses that we need a strong vision for the future, but we are hearing from you that we should perhaps consolidate historical patterns of rail services that might not best serve our populations now. Do you have a view on the need for a longer-term vision and how that balances with what you have said?

Paul Tetlaw: I am not sure that I have understood exactly what you asked me, but I will answer. Please tell me if I do not answer correctly.

The Scottish cities still have quite a high density of population—they are much more like continental cities than many English cities, which sprawl much more—so we are quite fortunate that

they still have rail lines that connect them all. However, those rail lines need substantial improvements in capacity and journey times. The communities in our cities and towns can still be well served by rail. Most people in Scotland live in discrete communities. I know that a few people live in remote glens, but the bulk of Scottish people live in cities and discrete communities, all of which can be well served by public transport. Did I cover the point about which you asked?

15:45

Alison McInnes: That is fine.

The Convener: An issue that has not come up with this panel but which we explored with others is whether the services should run from city centre to city centre or between stations or terminals outside city centres. Does Transform Scotland have a view on that?

Colin Howden: The normal pattern throughout Europe seems to be that services run from city centre to city centre. I realise that Paris has developed a high-speed rail hub outside the city but, from my travels around Europe, I know that most train lines terminate in the city centre, which is the optimal pattern for development.

The Convener: Are there any final questions from members?

Des McNulty: If we were to ask Transform Scotland its view of relative priorities for transport investment, we would expect it to say that it favours investment in rail over road because that has been its pattern in the past. There is a profile of rail projects in the short to medium term in the investment plan. If we accept what is being said about high-speed rail as a vision for the future, is there an argument for looking again at the electrification of the Glasgow to Edinburgh line, the projected new lines and ideas such as crossrail in the context of that overall vision, or is the need to complete existing projects separate from the development of that high-speed vision?

Colin Howden: We and all the other rail campaign non-governmental organisations have said for decades that the Edinburgh to Glasgow line should be electrified. Over the past year, the Government has made proposals for the Edinburgh to Glasgow route to be electrified via the Edinburgh to Glasgow improvement programme, which we support strongly. We think that it should be a high priority. The Government has also proposed limited time improvements for the Aberdeen to Edinburgh line, which will kick in during December this year. We will also see improvements in journey times from Edinburgh and Glasgow to Inverness. We support those good priorities and we do not want them to be destabilised by railways funding going off in other directions.

On a different topic, we gave evidence to the committee about an awful lot of money going into unsustainable projects that would worsen our prospects of meeting climate change targets. You could do an awful lot with the £4.2 billion that is proposed to be spent on the second Forth road bridge when the existing bridge could be repaired. With that £4.2 billion, you could build your high-speed line to the border or at least quite a long way towards it. It depends on how you want to spend your money.

The Convener: I thank the witnesses for their time. You have been a comparatively high-speed panel on this occasion. We will continue to take evidence over the next few weeks and will let you know when the report is available.

15:49

Meeting suspended.

15:54

On resuming—

The Convener: We resume still on item 1 on the agenda, and I welcome our third panel of witnesses. We are joined by Professor Roderick Smith, from the department of mechanical engineering at Imperial College London, and Michael Hayes, business manager for rail planning at Atkins. We were to have been joined by Professor Roger Kemp, from Lancaster University, but, unfortunately, he is unable to join us due to illness.

Would the witnesses like to make any brief introductory remarks?

Professor Roderick Smith (Imperial College London): Thank you, convener. I welcome the opportunity to speak with you and thank you for the invitation. I am broadly in favour of high-speed rail and have been for a long time on the basis of my experiences in Japan over a long period. However, in my mind, the case for high-speed rail in Scotland is not as clear cut, because of the low volume. Infrastructure is built with a 50-year horizon and the issues are capacity and the future. Now, with environmental policy and regional development, the case is getting much stronger. I will leave it at that.

Michael Hayes (Atkins): Atkins recently published the 2008 update to the high-speed rail study that we produced originally in 2003 for the Strategic Rail Authority. At that time, the high-level output specification had been published for the rail industry in terms of planned upgrades. Eddington had produced his recommendations as well, but

there was still continuing debate about the merits of high-speed rail in the UK—especially a north-south route. The aim of our work was to inform that debate through evidence, where possible, so that it could move forward.

As part of our analysis, we considered three specific routes—although those are just example routes; we are not proposing any particular route. Our aim is more to inform the debate and the decision-making process.

The Convener: That is a shame, as that was going to be my next question.

There has been broad support from most of our witnesses for high-speed rail in some form or another. A number of different routes or network configurations have been proposed. Do you have a view on which route or network offers the greatest benefits?

Professor Smith: The most recent proposal is the conservative proposal of a London-Birmingham-Manchester-Leeds line linked to Heathrow. That should be viewed in the context of the eventual network that we want to see. There is a parallel with the building of the motorway network in the 1960s. Then, we had a vision of what the network would look like in the future; we did not just plan individual motorways. Also, when the motorway network was built, the link to Scotland came fairly late. Indeed, you might argue that it has not quite been completed yet. However, at that point, the parallel falls down, because now environmental policy is extremely important and we are looking to replace air traffic between Scotland and London.

There is a good case for building a route down the east, to Newcastle, in the interim linking up with the relatively fast east coast main line and the Leeds to Manchester high-speed network. That would then link into a network across the UK. I perhaps see the route going down the east coast as opposed to the west coast, linking Glasgow and Edinburgh en route.

Michael Hayes: The question is quite a difficult one to answer. If I were cheating, I would wait for Network Rail to give a few clues on it.

What would we be trying to achieve by building a high-speed rail route in the UK? We would be trying to support sustainable economic development. The benefits of high-speed rail include shorter journey times; connections between urban centres; increased agglomeration; congestion relief on the existing rail network by freeing up space for more local, freight and interregional services; and modal shift—getting people out of planes and cars, and getting freight off the roads and on to trains. The difficulty, which our work identified, is that there is a real UK national issue around where we put the route. Many places in the UK would benefit in different ways from routes that went through their areas. The priority must be discussed and is being investigated.

16:00

Alex Johnstone: We heard from the first panel fairly robust proposals for a UK-wide high-speed rail network, the estimated cost of which was £30 billion to £31 billion. Are you two gentlemen in a position to comment on that? Is that estimate accurate?

Professor Smith: The estimate could be in the right ball park. The money would not be spent all at once, of course. In terms of monetary units, it is hard to get our heads around £30 billion; fractions of Northern Rock might be easier. The relative benefits of the two types of spending might also be compared.

Michael Hayes: Our update work probably highlights £31 billion for a full, dedicated high-speed UK network from Glasgow and Edinburgh, down through Newcastle and Sheffield to London with another spur up to the north-west. It would not be that just for a high-speed rail line from Scotland to London.

The costs were based on the updating of costs that were developed in quite a lot of detail back in 2003. They took into account construction price inflation and a hefty amount of so-called optimism bias, which is a standard allowance—an uplift of about 60 per cent on costs—to take into account the fact that in the early stages, when people produce schemes, they tend to be optimistic about costs. Are those estimates reasonable? Yes, especially given the outturn costs for high speed 1 from the Channel tunnel to St Pancras.

Alex Johnstone: You are right to refer to optimism; you are sitting in a building that broke world records for optimism.

How robust are the calculations on productivity benefits, for example, in the updated high-speed rail report that Atkins produced?

Michael Hayes: The calculations followed the latest guidance that is available on WebTAG for agglomeration benefits and productivity benefits. However, they do not include two extra sets of figures. The first set is on how better transport—particularly faster transport such as high-speed rail—can assist structural change, which involves moving parts of the economy from a relatively low value to a relatively high value. That has a high productivity impact. The second set of figures is on the ability to move local road trips to rail services by decongesting the rail network.

Lots of knock-on benefits could add up to be just as large as the benefits to long-distance travel as

a whole. The benefits that we calculated are underestimated. We cannot put a figure on how much of an underestimate they are, but our estimates were intended to be conservative.

Alex Johnstone: The committee has heard some evidence today, and more in a previous session, that if the development of a high-speed rail network progressed north from London and stalled in the midlands or at Leeds for years, the areas that the network served would benefit disproportionately from opportunities, whereas areas such as the central belt of Scotland that were not linked to the system would be disadvantaged. Is that a risk?

Michael Hayes: First, I hope that a high-speed rail line would not be developed such that journey times between London and the English midlands or the north-west were reduced but journey times from Scotland stayed the same. I hope that such a situation would not be allowed to arise anyway.

Secondly, on regions, we looked in particular at the south-west of England and examined whether a rail line from London to Birmingham would have a productivity impact on a part of the UK that was not served by the network. The impact was broadly neutral. However, you can put the issue the other way round and ask, "Would they be left behind?" We need to take a national UK approach to such a network. Any development of a high-speed network must ensure that all journey times reduce stage by stage.

Professor Smith: Although I previously thought that, because of numbers, we might not connect Scotland to the high-speed network at an early stage, I now think that there is a strong case for making that connection as early as possible, for the very reason that Scotland would be left out if that did not happen. A network must be built incrementally—it cannot be built in one go overnight—but that factor pushes the priority of connecting Scotland much higher up the list.

Des McNulty: I strongly agree with Professor Smith's comments. France began its TGV system with the Paris to Lyon route and my impression is that the building of that route, even though it was not followed through to Marseille, Toulouse and so on until some time later, benefited the other southern French cities because the route between Paris and Lyon was the most congested one. Building a new, faster route that trains can go down can benefit everybody. Julie Mills made the point that there is a benefit, even to people on other parts of the route, in dealing with some of the most congested parts, provided that the new route is connected up to the existing system and is not entirely separate. Is that fair?

Michael Hayes: Yes.

Professor Smith: It is. The maglev proposal is technically very exciting, but I cannot support it because of its incompatibility with the existing rail system. During the build-up of the system, we must be able to operate off the dedicated, new high-speed lines and on to the existing conventional lines. A maglev system would not give us such compatibility, which would defeat the object of rapid deployment across the whole country.

Rob Gibson: Michael Hayes characterised a high-speed rail system as an all-British concern. That would mean that we might have to measure the modal shift that we could get from air and road to rail. The submission from Atkins said that if the east coast route was chosen, we would get one in six or one in seven passengers switching from air, but perhaps only one in 18 if we opted for the west coast route. Is that modal shift good enough to enable us to say that this is the kind of project that must be given the priority that we are talking about giving it?

Michael Hayes: I will give you the background to those figures. One aspect of any high-speed rail proposal is that it will release capacity on the existing network. As part of that, a lot of shorter road trips will be taken off the road network, so there is a lot of hidden modal shift. The figures of one in six passengers and one in 18 passengers were calculated by taking the number of people on the high-speed services and asking how many of them would come from air and how many would switch over from existing rail services, for example people who already travel between Edinburgh and London by rail. Those figures would be aggregated across the whole country. Therefore, if we take one of the other options, for example a line from Manchester to Birmingham, the passengers would not be switching from air, and there would be a lot more modal switch from road, which is more difficult to calculate.

Sorry, I am not sure whether that answers your question.

Rob Gibson: If we started the high-speed rail link from both ends at the same time, the Glasgow and Edinburgh to Manchester journeys could be captured quite quickly because of people wanting to use the airport at Manchester as a hub.

Michael Hayes: Yes, and the modal shift would be much higher for Anglo-Scottish journeys. The ratio would be much higher than one in six, although I cannot give an exact figure right now.

Professor Smith: The experience in Japan is that high-speed rail captures the air market for journeys of up to about three and a half hours. For journeys of four and a half hours, the figure goes down to 60 per cent of the air market, but in our high-speed trains you would fall off the end of

Britain in four and a half hours, so there would be a huge modal shift, which should be one of its raisons d'être.

Rob Gibson: I am tempted to point out that my office is in Wick, which is four hours by train to Inverness and another three and a half hours from Inverness to Edinburgh, so I will certainly not fall off the end.

Professor Smith: I apologise for that.

Rob Gibson: We should bear those things in mind.

Concerns have been raised about the environmental benefits of high-speed rail, given its higher level of energy consumption compared with that of trains that are currently in operation. Also, Scotland is likely to produce more renewable energy per head of population than England. With those points in mind, what are the general environmental benefits of high-speed rail and the more general projects that we have been talking about?

Michael Hayes: Such projects would be hugely beneficial on a number of levels. The first, and most obvious, benefit is getting people out of planes and on to a mode of transport that consumes less energy, whatever the source of that energy might be. Secondly, they can use a renewable source of energy, and hopefully energy sources will be as renewable as possible in future. Thirdly, they would release capacity—other road users and cars that get stuck in traffic jams would get pushed on to local rail services, which is a huge environmental gain. There might be debate around the carbon consumption of a high-speed train at 300km or 200km an hour, or whatever, but there is a big difference between the carbon consumption of a car that is stuck in traffic and that of an electric train. That is where the big gains would be.

Finally, high-speed rail development encourages a shift in economic development. Towns and cities, even if they are not served directly by a high-speed rail network, are encouraged in a sustainable way. Development happens in the city centres around the hubs, whether they are high-speed rail hubs or connecting hubs, and that encourages a more sustainable transport lifestyle in those towns and cities.

Benefits are seen at all levels.

Professor Smith: The issue of energy and transport is extremely difficult. Clearly we have to wean ourselves off fossil fuels and decarbonise transport as much as possible, as well as taking steps to control its growth. However, moving towards decarbonising road transport as well as rail implies that there will be a huge increase in demand for electricity. At a time when we are losing our oil supply from the North Sea and our nuclear plants are closing down, that is a huge problem. On balance, it can only be squared in the foreseeable future—40 or 50 years—with a vastly increased nuclear programme. I know that that is not what people here are keen on hearing, but the technical arguments are very strong that that is the only way that we can do it.

Rob Gibson: Looked at from the other end of the country—

Professor Smith: I am sorry to have to say that here, but those are my views.

Rob Gibson: Thank you for your views.

16:15

The Convener: I have a supplementary question, although it is not on nuclear power—we will open several other cans of radioactive worms in relation to that.

The witnesses make points about environmental benefits, decarbonising transport and weaning ourselves off fossil fuels. Do you agree that those benefits of high-speed rail will arise only if there is a shift away from aviation rather than just more of the same? We have heard conflicting evidence from witnesses on that. Some have argued for more of everything, but have still claimed that there would be an environmental benefit. However, earlier today, witnesses told us that we need demand management for aviation if we are to achieve a modal shift. Do you agree that more of everything would lead to higher, not lower transport emissions?

Professor Smith: We have no alternative to air transport if we want to go to Australia or Japan.

The Convener: I was talking about routes from Scotland to London and Europe.

Professor Smith: We must not continue to use valuable hydrocarbon fuel for internal flights when they can be replaced by other means of transport. It is vital that we do that.

The Convener: Do you agree with the arguments from previous witnesses that demand management measures for aviation will be necessary if we are to secure a modal shift rather than simply have increased demand for travel overall?

Professor Smith: I am mystified by how we can travel so cheaply by air, although I have joined in the bonanza and taken cheap flights on occasion—and perhaps felt guilty about that. We have opened Pandora's box and it will be difficult to slam the lid shut. However, pressure to reduce air travel will be intense and we might have to do it by controlling it forcibly, rather than leaving it to

the market. The downturn in the economy might go some way towards doing that for us.

Michael Hayes: I am a great believer in not forcing people to do things that they do not want to do, in transport terms. High-speed rail needs to be an attractive alternative to existing transport modes. It would not be particularly good to provide an alternative that was not an automatic choice for people. In theory, we could at present tax to the hilt people who fly to London from Glasgow and Edinburgh and say, "Just take the train—it takes a long time, but tough." However, if we want to maintain economic competitiveness, we must provide a high-quality alternative.

On the general demand for air travel, if air travel becomes more expensive in future—as many people believe it will—we must maintain the competitiveness of our city regions by maintaining their connectivity, not just within the UK but with Europe. High-speed rail will be the only realistic and sustainable way of maintaining that connectivity if connectivity by air falls, whether because it is more expensive, because of restrictions through policy initiatives or because of events that are outside the control of Scotland, the UK or Europe.

Des McNulty: We have talked about environmental constraints, but I want to raise the issue of geographical opportunity. Given the geography of the UK and the distribution and scale of the population, it strikes me that there are few places in the world that would deliver better numbers of potential users of a modern high-speed rail system. Have you done any comparative work on the opportunity for high-speed rail in the UK compared with the opportunities in countries with different geographies? If so, have you posed the question of why the UK is not further to the fore on the issue?

Professor Smith: You make a very interesting point. One of the arguments that we often hear against high speed rail is that our geography is different from that of France. The fact is that France is not ideally suited to a high-speed rail network but it has one; yet, this country is. I do not know why people have not grasped that. We are not quite as well placed as Japan, where all the centres are in one line. Here, the lines are a little bit kinked, but we can do it. One of the biggest drivers is the desire to link up the economic units and take the heat out of the south-east.

Des McNulty: You have made the point about rail substituting for air travel. Is there not also an argument—which has not been put particularly strongly today but is valid nonetheless—that if we can speed up the rail journey between Edinburgh and Glasgow or other cities along the route, we can create a real incentive for people to use rail?

Depending on the time of day, it takes probably 40 or 50 per cent longer to drive between Edinburgh and Glasgow than to travel by rail. The difference used to be less than that. A high-speed rail link might reduce the rail journey to a third of the time that it would take to drive, or perhaps half the time including the time that it would take people to commute to the station.

I wonder whether the time advantage in substituting high-speed rail for driving has not featured as prominently as some of the other arguments.

Michael Hayes: We looked extensively and there are many places in the UK that could benefit from high-speed rail. What the priority is, however, is a different question and billions of pounds could be spent answering it. There are big benefits in reducing point-to-point journey times between city centres, of which high-speed rail can be an enabling element but for which it is not necessarily required in many circumstances.

When people talk about high-speed rail, we tend to visualise a TGV train or a Eurostar, but there are lots of different types of high-speed rail throughout Europe. The Dutch example is about stations that are a lot closer together and reducing journey times to compete with the car. It is also about planning routes that connect more centres. Spain has a different engineering problem with different gauges, but there it is about minimising end-to-end journey times, not about connecting the maximum number of centres. The UK has a different rail and transport system, and the best comparison is probably with the system in the Netherlands, where there is a significant market in car journeys of between 50 and 100 miles, which could move on to either high-speed rail or faster interurban rail services.

The Convener: Do you want to add anything, Professor Smith?

Professor Smith: I do not really have much to add, except to say that the estimates for time and productivity lost through congestion on the roads system are growing annually. The last figure for that that I heard was of the order of £20 billion a year—it may be more by now. Such factors ought to be built into—crudely speaking—the cost benefit analysis.

Cathy Peattie: The committee has heard evidence that the development of high-speed rail could lead to an increase in rail freight transport. Do you have any views on that?

Professor Smith: The high-speed system would release paths on the existing network, which could be used for freight transport. However, freight transport is not an easy issue. The end-to-end journey, with the transfer at each

end off or on to rail and off or on to other modes of transport, is not easy.

We cannot move containers around the country by rail because of clearance restrictions on parts of the rail network. We need to address some big issues before we can use the rail network efficiently and to its best advantage.

Cathy Peattie: Some movement of containers is happening already.

Professor Smith: It is beginning to happen, but we have to release more of the network to take containers of the proper size.

Michael Hayes: My first point is about robustness. There is a bit of an issue with rail freight at the moment. I was discussing vague plans for a power station somewhere in the north-east with someone who talked about where they could get the coal from. A constraint near Glasgow—I cannot remember exactly where it is on the rail network—means that they would have to source the coal from a different port in order to serve that power station. Such constraints cause real problems for the freight industry right across the rail network. Anything that improves the robustness of the UK rail network as a whole would benefit freight.

My second point is that the siting of rail freight terminals is a delicate issue. Loads of proposals for rail freight terminals have been turned down just because individual sections of the rail network are unsuitable for connection, with too many long-distance or passenger trains on those parts of the network. The issue is one of being able to provide not only more freight trains, but access to the rail network for freight.

Cathy Peattie: So you feel that high-speed rail would not facilitate more rail freight.

Michael Hayes: No—I think that it would.

Cathy Peattie: That is good news. What changes need to happen to the current Scottish rail network to maximise the benefit for any high-speed rail development?

Professor Smith: I am not an expert on the Scottish rail network, but the obvious change is the Glasgow to Edinburgh link. I am sorry that I really cannot add much more than that.

Michael Hayes: An awful lot of work and study has been done in that area recently. The first point is about general improvement to connecting services. If you are going to introduce a high-speed network, you will need services to feed into the hubs so that people throughout Scotland can access those high-speed rail services.

Secondly, electrification is an obvious next step to enable through-running of high-speed rail services, whether you are going to Glasgow or Edinburgh, or halfway in between. Further electrification up to Aberdeen or Dundee would enable high-speed rail services to carry through. It might not be possible for every part of Scotland to have a direct high-speed rail service right the way down to London or Paris, but there could be more interurban rail services to access northern England by using the existing east coast and west coast main lines. Overall, there are improvements to be made everywhere, but particularly in electrification. We need to ensure that those improvements are done in a planned way to facilitate high-speed rail development in the future.

The Convener: You both mentioned the Glasgow to Edinburgh route. Some witnesses are calling for early development of high-speed rail in Scotland, and are urging Scotland to press ahead even before a decision is made about a UK high-speed network. Others have argued that that would not be the right thing to do environmentally and potentially not economically viable. What are your views?

Professor Smith: A stand-alone system could exist quite happily. It would be much better if it were connected to a bigger system, but I see no reason why a system could not exist by itself and be a huge benefit in tying together both ends of Scotland's economic powerhouse.

16:30

The Convener: Would such a system generate enough revenue to make it a viable proposition in its own right?

Professor Smith: I am not sure that revenue should be the only thing that we should count. I think that such a system would generate enough economic activity in general to make it worth while, but whether its costs would all be got back from the fare box is a different matter.

Michael Hayes: There are fundamental revenue or economic problems with a free-standing high-speed rail link between Glasgow and Edinburgh. Aside from the economic development and agglomeration impacts that would benefit both Glasgow and Edinburgh, the passenger volumes between those two centres would be quite low in the context of the construction costs of a new line. However, how such a line would interact with the wider UK national rail network is important. The economics would start to change around rapidly if such a line between those centres linked up to places even in the north of England, because of the higher revenue that would be associated with each trip on the line.

It is unclear whether the arguments stack up for a Glasgow to Edinburgh line on its own. The question is whether it is more of a priority to link other parts of Glasgow and other parts of

Edinburgh and Fife to one another and to their centres rather than making centre-to-centre improvements that are tied to the development of the wider national network.

The Convener: On the technology, Professor Smith said that he does not support maglev because it is not interoperable—it would not connect—with a conventional rail system. Do you agree with Professor Smith's view on maglev technology, Mr Hayes? Do either of you think that the committee should make other comments on technologies in its report?

Michael Hayes: It has been said before, especially by Rod Smith, that the issue with maglev in particular is connectivity. How can there be connections to a free-standing maglev network? The advantage of a conventional high-speed rail system is that an incremental approach can be taken, the existing network can be connected, and the existing infrastructure can be reused.

Maglev technology is unproven in this country. Obviously, it exists in Shanghai and in other places, but the first hurdle is to have a working scheme in the UK. Such a scheme would be a big technological and financial risk. I am not necessarily saying that it would be right for the UK rail network, although there may be circumstances in which maglev technology would be appropriate. However, it is not appropriate for the UK rail network.

On other technological issues, one thing to bear in mind is that if there is only a partial high-speed network, whether it starts in Scotland or London, the trains that are developed for it must make maximum use of the existing networks, and they must tilt to enable journey time reductions right across the network, whether that is a segregated high-speed network or a conventional network that has been adapted.

Professor Smith: My principal reason for not favouring maglev is its incompatibility with the rest of the system. There are other technical reasons why I think that building a maglev system would be a high-risk activity, but I will not bore the committee with them.

On the technology of a steel-wheel-on-steel-rail system, it seems to be assumed that we would go for European technology. However, there would be a huge advantage in looking to Japanese technology, which has existed since 1964 and has been refined since then. Japanese trains have much lower energy consumption per seat kilometre and carry round much less mass per passenger. The Japanese also have great experience in leapfrogging different trains through stops to increase the benefits all the way along the line. There are technical and operational reasons why we should examine the Japanese system closely.

Charlie Gordon: In a United Kingdom high-speed rail network, what would be the fastest end-to-end journey time from the Glasgow conurbation of 1.7 million people to central London?

Michael Hayes: If we drew a line from Glasgow to Edinburgh and then down through Newcastle or Sheffield to London, the fastest journey time would be around 170 minutes, which would involve a stop at Edinburgh. Obviously, if we consider different route options, we will get different journey times. The fastest time would be around three hours. Under three hours should be possible, but it depends on the option.

Professor Smith: The best train of the day could do it in two and a half hours. It would be a non-stop service especially for business traffic.

Charlie Gordon: Much of the evidence that the committee has received suggests that high-speed rail stations should be located in city centres. How best can the necessary infrastructure be developed with minimum disruption to residents, existing rail services and the economy?

Michael Hayes: In many circumstances, upgrades to the rail infrastructure are needed anyway. For example, at the moment, we can make do with the capacity on the approaches to Glasgow Central station but, as demand for long-distance and local rail services increases, it will be necessary to increase the capacity on those approaches, potentially as far out as Motherwell. If the network has such a big mix of services that are eating up capacity and causing one another delay, it will have to be upgraded anyway. We need to take advantage of those upgrades and plan to introduce high-speed rail services at the same time.

Professor Smith: I do not underestimate the importance of getting into the town centres. That is one of the reasons why we need interoperability so that trains can come off the high-speed track and get on to existing track. However, we should not forget the need to develop parkway stations—or whatever we want to call them—on the perimeter of big cities. The Japanese experience has been that such stations have been nuclei for the development of economic activity. They call those areas the pearls on the necklace of the line, which is a rather poetic expression, because of the way in which they have attracted economic activity and growth. We must be realistic: many people will transfer to the high-speed train from their cars and we must make that easy.

Charlie Gordon: However, they may drive to the parkway stations, so that may cause an increase in car trips.

Professor Smith: We do not want those car trips to extend into the city centre, do we? We want to keep them well away from it. That is my point.

Charlie Gordon: It is like the man said: "I would not have started from here."

UK high-speed rail developments thus far, including high speed 1, have tended to be a bit more expensive than continental European ones. Why has that been the case and what do we need to do to reduce the costs?

Michael Hayes: They cost more, but in a good way, because they achieve two things. The first is a result of the planning system. Many people say that the planning system takes too long—they say that it takes ages to go through—but there is a good side, which is that people's views are listened to and, most of the time, the system results in a better scheme.

The second thing relates to the fact that, interestingly, long-distance railways are not the same as motorways. When a long-distance motorway is built, local areas benefit from the junctions that allow people to access the motorway. With high-speed rail lines, such as high speed 1 in Kent, we do not want stations every two or three miles to serve every little commuter town, because the whole point is that the trains go fast. Therefore, such lines have to be designed as part of a wider network upgrade that benefits all the communities that the line goes through, so we end up with a much more expensive scheme that benefits more people and which, I would argue, is better planned.

Professor Smith: I am not as relaxed as my colleague about the planning arrangements—we differ slightly on that. We must press on with major infrastructure and energy projects rather more urgently than we are doing. We will disadvantage ourselves if we have extensive and expensive planning procedures. I take the point about improving schemes through listening to objections and evidence, but we could speed up the process. We could probably save a bit by paying the lawyers less—and paying them less frequently.

The Convener: We will be sure to consider that when we write our report.

Rob Gibson: We have heard about benefits that have arisen in countries such as France and Japan from higher-speed or high-speed trains. However, have any costly mistakes been made in other places from which we could learn?

Professor Smith: The early lines in Japan were built without too much regard for people living nearby, but that did not happen in later developments. The Japanese learnt lessons on siting lines and soundproofing them to a large extent. We could learn from those improved technologies. We could also learn a little from the Japanese experience of driving high-speed lines into the remoter areas and perimeters of the country. Those give a good indication of the traffic levels that are required to justify building such lines.

Rob Gibson: I am tempted to go further on that issue, but I will move on to the next question.

Our witnesses last week agreed unanimously that, if a UK high-speed rail network is to be given the go-ahead, it should be taken forward by the UK and Scottish Governments. What is your view on that?

Michael Hayes: That should certainly be the case for the planning stage. Decisions on where the lines should go must be made by the Scottish Government and the Department for Transport. I do not mean down to infinite details, such as whether to turn right at Berwick, but decisions on which cities are to be served and the key stations must be made by Government, because the scheme must tie in with wider economic and land use policy. On the construction and operation of the line, the company that constructs the line must be given a certain amount of autonomy. A compromise is required—we would need enough of the planning to be done by Government agencies, but they would have to be as hands off as possible in the construction and delivery.

Rob Gibson: Do we not have to learn the lesson from the history of the Channel crossing by rail that the ambition of a company is one thing and the unnecessary involvement of the taxpayer is another?

Michael Hayes: The scheme is not just about building a high-speed line; it is a wider transport project that enables sustainable economic development. That is why the Governments must be involved at the planning stage. They will be an extensive stakeholder because of their involvement in funding and choosing how the route is delivered—they cannot be completely hands off. There is an uncomfortable compromise. Big construction projects are never easy, particularly when large sums of money are involved.

Professor Smith: I believe strongly that the Government should be involved in the process. With a sense of history, one could argue that, if Governments had been more involved in the development of the railways 200 years ago, we would not be in the mess that we are in now.

Rob Gibson: Perhaps with that thought we will call a halt.

The Convener: As there are no further questions, I thank the witnesses for their time and

for answering our questions. There are more evidence sessions to come in the inquiry and we will let you know when our report is available.

We have previously agreed to take in private agenda item 2, which is consideration of the budget process.

16:46

Meeting continued in private until 18:00.

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