

Transport Committee

Oral evidence: Airports National Policy Statement, HC 548

Monday 18 December 2017

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[Watch the meeting](#)

Members present: Lilian Greenwood (Chair); Ronnie Cowan; Steve Double; Paul Girvan; Huw Merriman; Luke Pollard; Laura Smith; Martin Vickers; Daniel Zeichner.

Questions 117 - 233

Witnesses

I: Tim Hawkins, Corporate Affairs Director, Manchester Airports Group; Neil Pakey, Chairman, Regional and Business Airports Group; and Rafael Schwartzman, Regional Vice President Europe, IATA.

II: Professor Helen Apsimon, Professor of Air Pollution Studies, Imperial College London; The Rt Hon The Lord Deben, Chairman, Committee on Climate Change; Professor Piers Forster, Professor of Physical Climate Change, University of Leeds; and Cait Hewitt, Deputy Director, Aviation Environment Federation.

Written evidence from witnesses:

- [Regional and Business Airports Group](#)
- [Aviation Environment Federation](#)

Examination of witnesses

Witnesses: Tim Hawkins, Neil Pakey and Rafael Schwartzman.

Q117 **Chair:** Welcome to this afternoon's session. For our records, would you please say your name and the organisation you represent?

Tim Hawkins: I am Tim Hawkins. I am the corporate affairs director for the Manchester Airports Group.

Rafael Schwartzman: I am Rafael Schwartzman from the International Air Transport Association, representing 285 members around the world.

Neil Pakey: I am Neil Pakey, chairman of the Regional and Business Airports Group in the UK, representing 40 UK regional airports.

Q118 **Chair:** The key strategic benefit of expanding Heathrow is to maintain its hub status and competitiveness in Europe. Other industry stakeholders have expressed a view that the market is moving away from a hub model. Are hubs still the best way to maintain connectivity?

Tim Hawkins: It is less of a polemic debate than many would characterise it. Certainly historically there have been some clear benefits to the hub model, in the way that it creates a network and agglomeration effects. Over the last 10 years, we have seen advances in aircraft technology that mean there are many more viable routes and opportunities for point to point, and airlines are taking advantage of those. We have moved to something of a middle ground, and I do not think one or other is necessarily absolutely right.

Q119 **Chair:** Do you think plane technology developments will make the hub obsolete? If so, by when?

Tim Hawkins: No, I do not think they will make it obsolete. Some airports will still make a success of operating hubs, but the types of operations that are feasible, possible and viable from other airports will grow, and we will see a more diverse network of competing airports as we go along. Airlines are demonstrating that with the types of long-haul routes they are starting to operate from airports such as Manchester, and progressively out of Stansted.

Q120 **Chair:** Rafael, from an airline perspective what do you say?

Rafael Schwartzman: From the airline perspective, we do not believe that the hub is one system and point to point another; point to point is complementary. The newer aircraft will probably benefit the hub model more, because a hub allows you to connect distant or even regional places in a much more effective way than point to point. That relates to maintaining the competitive level of the hub. We do not see that as something that will decline, but point to point gives you more options.

On top of that, looking at integrators for example, when you distribute parcels around the world, imagine how you do it today. There has to be a



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similar structure to distribute parcels around a city or around the world via Amazon or FedEx. A hub is an efficient way to connect multiple destinations that will never be achieved by just point to point, especially in the case of Heathrow, which is the hub for the whole of the UK.

Q121 **Chair:** Is the importance of a hub different for passengers and freight, or not?

Rafael Schwartzman: It is strategic for both. As an example, I was reading in the news today that, during the Christmas period, 138,000 tonnes of the cargo going through Heathrow around the world will be Scottish salmon and clotted cream. Imagine if you had to do that point to point; it would not be competitive. It is critical for cargo.

For passengers, 30% of traffic at Heathrow is connecting traffic that is critical to the sustainability of a hub. Similar things happen in Amsterdam. The connecting traffic makes it sustainable to drive routes to certain distant places—for example, to the far east, to China. If you do not have a hub, you are competing with all the other hubs such as Frankfurt or CDG Paris. Obviously when you consider Brexit, that is even more strategically important for the UK.

Q122 **Chair:** Neil, can I get your take? Do you disagree? You represent a number of regional airports.

Neil Pakey: We represent 40 airports, and the range of passenger numbers, not for every one, is around 3 million or less. We have the likes of Aberdeen, Belfast, City, Southampton and Cardiff at the top end. Then we have lots of others like Norwich, Exeter and so forth across the country. Just to be clear, we do not have Manchester or Birmingham; we do not have the sizeable ones. When we talk about regional airports, we are probably talking a slightly different language from the Manchesters and Birminghams.

From our perspective, to answer the question, yes, each one of those airports has supported our position on promoting Heathrow as the solution to the south-east capacity issues, purely for selfish reasons. Those regions need connectivity over what is established as the global brand hub of Heathrow. Some of us rely a little bit on Amsterdam, but generally speaking we would like to see a UK competitive hub on a large scale, because we want connectivity in and out of global destinations.

The reason for our existence was that we felt the other airports association was not really looking after the interests of the small ones. We are very clear that we need Heathrow as a global hub. It is where we were once upon a time. We have come down from something like 18 connections to six, and, more recently, eight. We saw the whole solution to the future for those regions as connectivity over Heathrow. We see the NPS as a potential solution to giving some certainty about that going forward.

Q123 **Chair:** From the perspective of the smaller airports, even plane



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technology will not allow for the sort of connections you need, using point to point.

Neil Pakey: No. Point to point will work in some airports. An airport like Liverpool is strongly point to point. Would it benefit if it also had a connection over Heathrow? It would, but for some of our smaller airports the connection over the hub is of paramount importance.

Q124 **Ronnie Cowan:** For my clarification, if we are expanding Heathrow and we are trying to transport goods from Scotland—you mentioned salmon—are we not better to get the stuff straight to an airport like Glasgow, Prestwick, Aberdeen or Inverness and flying it to its destination? If it has to come to Heathrow, how do we get it to Heathrow?

Rafael Schvartzman: There could be certain destinations that can sustain that, but the reach you have today by coming through Heathrow will be very difficult to achieve. You have to remember that most of the cargo is now transported in belly space; it is not in dedicated cargo planes. You have that capacity at Heathrow, which is today the largest port in the UK by volume. That is why I mentioned earlier the case of the integrators. You can use the example of Amazon and how much it would cost if it had to ship everything point to point. It is a key advantage for exports as critical as salmon, which is fresh. It is similar to critical industries such as pharmaceuticals. You reduce the unit cost by being able to do that, so it is a much more efficient way to do it.

As I said before, obviously there will be some destinations that are sustainable point to point, where they work with everything else, but specifically on cargo the majority today goes in belly space. That is a good and efficient way of using it if there is a hub.

Q125 **Ronnie Cowan:** For fresh produce, yes, but what about stuff that has no real timescale? If you are shipping whisky overseas it does not have to travel that quickly, so are you not better using freight on container ships?

Rafael Schvartzman: In general, air cargo is usually for high value. I am not an expert on the value of drink. Usually, other cargos go by ship or truck. I am not too sure if they use air. That is why I was using fresh products as an example of criticality. There are other high-value products such as pharmaceuticals or high-tech that do not necessarily go by air because the cost would be prohibitive.

Q126 **Ronnie Cowan:** The Department's forecasts show that direct international connectivity from non-London airports will be lower with an expanded Heathrow. How concerned are you that the expansion of Heathrow will limit aviation growth elsewhere?

Neil Pakey: To clarify, Glasgow Prestwick is one of our core members and is very supportive of the Heathrow expansion. I can explain more about that.



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The forecasts very much trouble our members when we look at them on the level of a regional airport. It is a model, and as a model it is a tool. It is an inexact science. Maybe it guides people at the macro level and the numbers are okay, but when it comes down to a specific airport issue, we would not be supporters of those specific issues. We wish they would aggregate them into regions. The model technology is of overspill to another airport; then it dips because there is no overspill and then it goes up because of spill from another one. It is about the input variables. We have been asking the Department for better consultation going forward, so that we can maybe help to sense-check some of the numbers. For some regional airports they are incorrect, although, as I say, the aggregate is fine.

For example, although we have been working very strongly with Heathrow airport to come up with a memorandum of understanding of how the future will operate with an expanded Heathrow, they have not put into the model the extra figures we would have from the routes coming into Heathrow, because that is not the way the model works. The model works from stats, churning out numbers and then going through a modelling process.

Going forward through this process, hopefully, we will be able to help show that there should be a better range of forecasts and numbers.

Q127 Chair: Tim, do you share the same concerns? Are you worried about expansion at your airports?

Tim Hawkins: No; we take quite a different view from the picture that is painted by the DFT traffic forecasts. We do not think it will have a material impact on passenger volumes at Manchester, Stansted or, particularly, at East Midlands. At Manchester, we are confident that the airlines that are there, and that have come in recent years, are to serve the Manchester catchment and are not a substitute for Heathrow. With the addition of new capacity at Heathrow, we do not see the tide going out, as it were.

It is safe to say that we think the new capacity will come later and will come more slowly than has been assumed by the DFT. We do not see it having the kind of impact that the DFT forecasts paint. We take issue with the base in terms of the scenario without new capacity, but the scenario with new capacity at Manchester sees the traffic drop 2 million and we just do not recognise that. We are confident in the traffic that is there.

If I extend the terms of reference to include other London airports, at Stansted we again take a very different view about the prospects of traffic growth. We are confident about the next 10 to 15 years of traffic growth and the competitive advantage that the airport will hold over that period. We take a very different view on the traffic forecasts.

Q128 Ronnie Cowan: Currently, I and many people have to travel to London



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Heathrow to get international flights. I have to travel from Glasgow or Prestwick down to Heathrow and fly out again. Is the expansion of Heathrow not going to make that situation even worse?

Tim Hawkins: There are other options available.

Q129 **Ronnie Cowan:** I could holiday in Scotland, which is not a bad thing.

Tim Hawkins: Scotland is connected to other hub airports, and services are available from other hub airports.

Q130 **Ronnie Cowan:** But should we not have a hub further north? The more people get in their cars to drive to Heathrow, the more pollution there will be, and the more people fly from Glasgow to Heathrow, the more pollution again. It would be easier if people had shorter journeys to get on the plane in the first place, surely.

Tim Hawkins: It is a mistake to think of Heathrow as the solution to the connectivity needs of every region of the UK. Manchester serves two thirds of the demand within its catchment for long-haul routes. It is playing a role in providing the connectivity that people need. To look at that role and make sure we are making the most of it, and that we are putting in place all the policy measures that will allow it to maximise that contribution, needs to be a parallel focus of the Government's work on aviation. These are not the only questions that are relevant in strategic terms. Other airports are connecting other parts of the UK to the world.

Neil Pakey: Heathrow has 400 or 500 destinations. Obviously regional airports will never achieve that kind of number, so it depends where you are going.

Q131 **Ronnie Cowan:** I am concerned that it is going to get worse.

Neil Pakey: Why would that be worse and not better? If you look at the work that Mr Cameron and his partners have been doing in China, which I was reading about over the weekend, and the potential for increased trade between China and the UK, our airports are hoping that that will mean more people going into the regions. It is not just a London message, if it all happens. If there are stronger links between the UK and China, our airports, such as Glasgow Prestwick, will be advocating better connections over Heathrow, because nine times out of 10 the airline, or the operator, would see the benefit of going into the major global hub of Heathrow first, and then, working with regional airlines, get links to feeder services going back and forward.

Ours is a connectivity argument. Glasgow Prestwick would love to have a Heathrow service. They have told me that they are very strongly in favour of having a Heathrow service, and many other of our members would as well. That is purely because of global connectivity. If you are not globally connected, you are less likely get foreign direct investment, inbound tourism and all the rest of it. Those are good reasons for Heathrow to be expanded.



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Q132 **Chair:** Do you think in any way that the narrow scope of the NPS limits the growth opportunities elsewhere, to capitalise on them?

Tim Hawkins: The Government's intention to take forward an aviation strategy in parallel with the NPS is a very important part of creating a coherent aviation policy that works together. In the latest draft of the NPS, we welcome the wording where those two issues talk to each other. It is not just about developing new runway capacity; it is making best use of the capacity we already have. Those two things need to move forward together.

Q133 **Chair:** Is that an issue for you, Neil?

Neil Pakey: To be honest, the definition is a bit of an issue. For me, the national policy statement is what we are about. We are all corners of the nation. Maybe the terms of reference do not point in that direction. Our submission and our advice would be, "You've called it a national policy statement, so make it a national policy statement." The regional airports, whether they are the size of Manchester or the size of Dundee, deserve a place in that national policy statement.

Q134 **Steve Double:** Going back to regional connectivity, part of the Government's backing for Heathrow was based on regional connectivity. Are you confident, Neil, that those regional slots will be provided by an expanded Heathrow?

Neil Pakey: I am, now that I have spent quite a bit of time working with Heathrow. We would not have been at the beginning, to be honest, but we have signed a memorandum of understanding. We have Government commitment. It needs further work, but working with the Heathrow team has been a positive experience for us. They have banked, and we have it—it's a legal document—the £10 million route fund, for new routes coming into Heathrow. That is from the current operator. For our interest, if there is ever any change of operator, that has to be already assumed as part of their commitment.

We and Heathrow are now engaged in coming up with a systematic approach to evaluating which routes there should be in the UK's best interests. We are disappointed that at the moment the promise of only six routes has been indicated by the Department. That is too low; we need there to be more. There is sound economic reasoning across Britain why there should be more.

Q135 **Chair:** How many should there be, and where to?

Neil Pakey: It is interesting. At the moment, the six listed include the likes of Prestwick, Liverpool and a few others, but we think there should be more than just those six. If you live in a region or local area that aspires to have regional development and inbound investment to build up the region, you need a Heathrow link.

Q136 **Chair:** What is your aspiration for a number, Neil, if it is not six?



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Neil Pakey: I think the number should be between 10 and 12. That is the number of increased routes that would be our aspiration. But, before we even get to that number, we need the evaluation process to be right. We need a structured and systematic approach to say who the winners are. The winners in our regions are not the airports' commercial bottom line. The winners are the actual regions. They are the people who get the return on the investments that go into regional airports, not the shareholders of the airport. Sometimes they are the same, I suppose. If those reasons are brought into the equation, there just needs to be an economic evaluation process for the true priorities. At the moment, it has been a little bit of guesswork. There is the assumption that Liverpool or Prestwick would be one of them. For me, it is an assumption and it should be tested, because there are others, such as Exeter, that aspire to have a Heathrow connection.

Of course, the aircraft size is important. Flybe, Loganair, and so on, have smaller aircraft, so it starts to make some sense, but the cement needs to be there, from the perspective of ring-fencing those slots for the greater good of the nation.

Q137 **Steve Double:** In the past, you have expressed concern that there is not enough in the NPS about regional connectivity. What are you looking for? In your view, what is missing from the NPS on that issue?

Neil Pakey: We would like to move as quickly as we can. We have been waiting some time for the Heathrow announcement. We would like to move as quickly as we can with the Heathrow announcement. How far a policy statement can go down that route with the existing operator, I'm not sure, but the sooner the better for us. That is clear, but we want it done in a systematic way with the Government taking it in a more controlled way.

I have been in the industry a while. We have always had the approach that we leave it to market forces and our friends the airlines. If I was an airline, I would be thinking, "I have to do what is right for our business. We have commercial shareholders and we have to make a return on investment for those shareholders." Having a route to Exeter might not make any sense at all for that commercial shareholder. I hope we will have a common-sense approach to some market intervention from the Government, following models that work elsewhere, that would go as far as ring-fencing slots for the regions. You would not be opposed by Heathrow airport; they see the sense of the Heathrow brand being a global hub. Then we could get some certainty into the regions about connectivity and they could build on it from there with all their aspirations for tourism and suchlike.

Q138 **Chair:** In terms of the detail in the NPS, do you want them to say which regional airports will get slots?

Neil Pakey: No; it is just the process really. It is the process, with the Department heavily involved, or driving it, with ourselves representing all



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the regional connecting points, with the airlines that are interested in the sector—the regional carriers—and with Heathrow airport.

Q139 **Steve Double:** Rafael, in your view will the regional connection slots be commercially viable for the airlines?

Rafael Schwartzman: First of all, I have to say that as an industry we support expansion of Heathrow, but we remain concerned about the cost of the project at Heathrow. I refer to that because obviously we also believe that the support of Government policy in providing connectivity is crucial. The industry is highly competitive and therefore there are commercial decisions that airlines need to make. To make it competitive, especially on regional or short-haul flights, the charges have either to remain flat or to decrease. We also have to consider the APD, which is the highest of its kind in the world. That is something that needs to be considered to avoid past mistakes like Little Red or BMI. If the profits are not there, it is not sustainable, so it is important to tackle the overall cost.

Q140 **Chair:** Rafael, let's assume that APD does not change, although I appreciate that the airline industry wants it to. If it did not change, you are saying that landing charges would have to be flat or reduced in order for that to be commercially viable. Is that right?

Rafael Schwartzman: Definitely.

Neil Pakey: There are one or two of our smaller regional airports where it would be great for the region to have a Heathrow service working commercially. We have to look at things like public service obligation and some way of making it work for everybody so that the big winner is the region.

Tim Hawkins: As Neil says, we are talking about market intervention. We operate in a competitive market with publicly financed airport investments. It is one where competition is rife. Like Neil, I would like to see the detail of the measures that will be put in place, and how Government and Heathrow intend to introduce that in a way that does not distort competition. If we are mandating slots and services at Heathrow, it will potentially serve to undermine new services or existing services to other airports. We need to be very clear about how we do that, why we are doing it, and whether there are alternatives to doing it, particularly for access to London.

Q141 **Steve Double:** Sticking with you, Tim, the Department forecasts that the additional capacity at Heathrow will be filled within two years of opening. They say it will be by 2026. Do you think that is plausible?

Tim Hawkins: I would probably defer to the operator of the airport, who has been talking about phasing the investment and phasing the introduction of capacity, in part to meet the affordability challenge. That will be an important part of matching growth in demand with growth in capacity. I do not think we have seen an airport grow like that anywhere



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else in the world, where it has not involved closing another airport to bring all the traffic across to a new airport. In terms of organic growth, I do not think we have seen anything like that. From the evidence that the DFT gave you a couple of weeks ago, it really is a simplistic assumption that it has adopted for modelling purposes.

Q142 **Chair:** So you do not think it is plausible.

Tim Hawkins: Not at all. I think the DFT has recognised that in part, and it has used different sensitivities and scenarios to test what would happen if the capacity came in more gradually.

Q143 **Steve Double:** From an airline's point of view, Rafael, would an airline be able to mobilise their fleet quickly enough to fill this capacity within a two-year timeframe?

Rafael Schvartzman: Similar to the comment that was just made, we do not necessarily agree with the assumption that it would be a full two years after opening. To bring in all those aircraft in time and to modernise the airspace in time is a very unrealistic projection. It needs a more realistic-facing approach. We think it will be different and therefore it will be more gradual. We do not necessarily see that everything will be saturated in two years. It is an unsustainable assumption to bring all those airlines and flights there.

Q144 **Steve Double:** What would you see as a realistic timeframe?

Rafael Schvartzman: Today, for example, the revised projections show us that what was assumed in 2013, with something else happening in 2015 and 2016, was mostly due to a low level of fuel prices. We cannot assume that will be the case in the future. We have already seen some analysis based on the low investment in the oil industry, which means that the capacity might not be there to provide cheaper fuel. We have to assume that, if that goes up, there will not be a similar rate of growth. We have to be extremely careful about those projections as well. I do not have a specific projection, but we just see that as unrealistic, given the fleet requirements and the airspace that needs to be reformed and upgraded. It needs to be brought in gradually to be able to handle the volume and passenger numbers that we are talking about.

Q145 **Chair:** It sounds pretty clear that two years is just not enough time. Would that be right?

Rafael Schvartzman: Yes.

Q146 **Daniel Zeichner:** I want to follow on from the questions about the reliability of the forecasts. I think we touched on this a bit earlier. The Government's forecasts for other UK airports do not seem to reflect what has been happening in recent years. Stansted, which is of huge interest to people like me who live in the east of England, has seen passenger demand grow by 6% a year since 2011, but the Department seems to think it is going to fall by 8% between now and 2030. Tim, can you tell us



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a little bit about your expectations for future growth both at Stansted and the other airports run by Manchester Airports Group?

Tim Hawkins: Certainly. Over the last five years, we have seen 8 million passengers-worth of growth at Stansted and Manchester, equating to growth of nearly 2 million passengers a year. We expect growth to continue over the period to 2030, probably in the range of 3% to 4% a year. We expect Stansted to reach around 43 million passengers in the late 2020s. We expect Manchester to get to nearly 40 million by 2030. We are talking about airports that are consistently growing and, particularly in Stansted's case, in a market where other airports are capacity constrained and where the DFT is talking about more demand in the system. With the combination of constraints on demand and spare capacity at Stansted, we expect the airport to fill over the period to 2030 and to handle 43 million passengers.

In that context, and with a more realistic and prudent view about the opening of the Heathrow runway, and then the build-up of capacity, we do not think we would see any particular impact on Stansted's traffic over that period, should a new runway at Heathrow open. Even in the base case, where we do not think it meets the common-sense test, and there is no runway by 2030, there is still spare capacity at Stansted. In the DFT's forecasts, there will be around 31 million passengers. We think it will be more like 43 million.

That is a very significant difference. You heard a fortnight ago the reasons for that. We have identified for you four particular things. Two of those relate to the opening date for the new runway and the build-up of new capacity, but there are important issues in the allocation of demand in the DFT's forecast that mean we think that it systematically understates the traffic at Stansted, at Manchester and potentially at other UK airports.

Q147 **Daniel Zeichner:** Perhaps Neil could come in on that point and talk about some of the other airports. Do you think the DFT is underestimating growth at your members' airports?

Neil Pakey: I think the numbers show that. I am not sure if the DFT has asked itself the question specifically about those airports, because at the end of the day it is a model, and models spit out numbers. If you were to sense-check it and look at it airport by airport, it would certainly show that it has not really considered what each airport is investing, for example, or which shareholders in our sector would invest money in assets that they did not believe would yield a return.

The growth is there. Cardiff got Qatar Airways recently. We also have growth at Newquay and Southend. Many of our members are experiencing good growth. They are individually disappointed by the level of traffic or the dips and peaks shown in the model. That is why I have been encouraging them to look at the model on a more aggregated regional basis rather than airport by airport. Hopefully, they will never be



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considered to be that relevant when it comes to individual planning applications for those airports.

Q148 **Daniel Zeichner:** That is what I was going to ask you. There are presumably implications from these forecasts.

Neil Pakey: There can be. We are encouraged by the Department coming out with a statement to try to clarify that they come at that level, or do not come at that level, in the sense of being used at planning inquiries or planning decisions. They should not be, because we would end up spending all our effort and time doing a different model to show the local and regional outlook for the airport.

It is of course very difficult to forecast competitiveness. We all have our relations with our airlines. Who would have thought that Cardiff could have got Qatar Airways? That is a strong relationship that has been going on. Who would have thought Liverpool could get in Blue Air and be a base for a Romanian airline? These things happen because of good relations and a sound business proposition put to carriers. You cannot expect a model from the Department for Transport to start with a bottom-up approach that takes into account all those things—who is talking to who and who is signing a contract with whom. It still has a top-down modelling approach, and that naturally comes with flaws when you get down to that kind of level.

Q149 **Daniel Zeichner:** Do those forecasts have an impact on Manchester Airports Group?

Tim Hawkins: Not really. They are more of an issue for the Government. We would certainly encourage the Government not to use their forecasts as they relate to our airports in any policy decisions they might make that affect our airports. I should probably clarify that at a national level, in terms of overall demand, and in some cases at a regional level, we are broadly aligned in the total quantum of demand. Our issues come to how that demand allocates between airports and whether the model properly reflects and captures how passengers and airlines make decisions, and the impact of the new capacity at Heathrow.

We do not think that they paint a representative picture of the traffic growth at our airports over the next 10, 15 or 20 years. In terms of the way we run our business, we do not do it by deference to the DFT's forecasts. As Neil says, we are getting on with it. We are investing, and we are confident about the prospects of growth at all our airports. We will continue to do that. Our concern relates to the forecasts and how they might be used to support the aviation strategy. That is where we are concerned. The Government have talked about using these forecasts for other purposes. We emphasise that we would encourage them not to do that, and to look more closely at our type of forecasts, which capture the kind of commercial information that we have been talking about.

Chair: That is a point well made.



Q150 Daniel Zeichner: The national planning statement makes the rather obvious point that you should make the best use of existing capacity, which I am sure you would support. How could it be improved to better reflect that need?

Tim Hawkins: I think it has been improved since the first draft, when it did not recognise the recommendations from the Airports Commission to that effect. In the intervening period, the Government have clarified that they will support the draft policy principle of making best use. As I said, the two documents now talk better to each other, in the sense that it is recognised that an aviation policy should try to make best use while taking forward proposals for new capacity. That is good, but what we are encouraging the Government to do is actively to commit to make best use of the capacity that exists at airports such as Manchester and Stansted, and at other UK airports. By that I mean identifying the things they should be doing; Heathrow expansion is not the only strategic question that the Government should be asking themselves about UK aviation and the contribution it can make to driving the Government's agenda.

Q151 Paul Girvan: On that point, all politics is local. I represent an area that has an international airport in it. One of the points associated with connectivity is how it potentially could be impacted by creating a monster. To make it viable, it will have to use up the slots it makes and the additional runway, if it goes ahead. All of that has to be used—to sweat the resources, as they say. If that is the case, how can I be sure that the area I represent will retain connectivity? I see it as an opportunity to act as a local hub, where you end up with a certain number of flights that go to north America, for argument's sake, from one spot. We currently have Virgin Airlines flights to north America from the international airport in Northern Ireland. People come from Gatwick and Heathrow to get those flights. How can we be sure that we will retain those?

Tim Hawkins: I do not think those kinds of routes are at those kinds of airports because they cannot get into Heathrow. They are there because airlines think they can make money by serving that catchment directly, flying to the places where people in that catchment want to go. We have seen that with the experience in Manchester, where we have had a route to Beijing open for the last 12 months, and routes to Hong Kong, Houston and Singapore. We have seen a big growth in direct connectivity. That is not because airlines cannot get into Heathrow but because they recognise that within our catchment there is enough demand to make the route profitable. When there is capacity at Heathrow, I do not necessarily see it impacting on the viability of those operations. In fact, passengers much prefer direct connectivity from a regional economic perspective.

Q152 Paul Girvan: What do you mean by direct connectivity?



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Tim Hawkins: The ability to fly from an airport to another airport without having to pass through a connecting hub. People are taking advantage of those opportunities.

Paul Girvan: We have no alternative.

Chair: I think that is clear. Thank you, Tim. Huw, I am going to come to you to pick up about costs and the implications.

Q153 **Huw Merriman:** We know that the estimated costs for the northwest runway are £16 billion versus Gatwick's cost at £6 billion. There is an assumption that these costs will be picked up by the airlines rather than by passengers, but we know that passengers at Heathrow already have the largest charges of all airports in the world. Do you think it is realistic that airlines will pick up the £16 billion cost, rather than the passenger?

Rafael Schwartzman: As I said earlier, we are still not supportive of the costs of this project. In the assumptions, sometimes the calculations show that airlines will be able to absorb the costs. We have to remember that the profitability of the airline industry in Europe is 5% of revenue. It is in line with a utility-type company that has much lower risk. We cannot expect the airline industry to absorb the extra cost, and for the benefit just to be passed to the customer. It should be, but, as I said before, it should be passed in the form of lower charges. The charges need either to remain the same or to be decreased.

We welcome the idea we have seen lately related to bringing in some competition on the options to build up the Heathrow expansion. If that is the case, we see it as a good option to find better alternatives for a more efficient expansion at Heathrow, which will bring charges down to reasonable levels and make it sustainable. At the end of the day, if the costs are as high as they are today, the airline industry won't be able not to pass them to customers.

You have already mentioned the LeighFisher study. It has an airport charges index, and you can see that Heathrow is already 35% more expensive than Frankfurt; 60% more expensive than Charles de Gaulle; 115% more expensive than Amsterdam; and 175% more expensive than Dubai.

Q154 **Chair:** If landing charges went up with Heathrow expansion, would airlines not choose to fly to Heathrow, or would they pass those costs on to customers? If so, what would be the implications?

Rafael Schwartzman: As I have stated already, if the charges stayed the same or were lower, it would make it more difficult for airlines to maintain the viability of the routes, be they regional, European or long haul. It will put certain routes in question. I do not think it will stop many airlines flying to Heathrow—Heathrow is one of the major hubs in the world—but it will certainly impact a lot on the competitiveness of Heathrow compared with other hubs in the world. This is very critical for the UK in the Brexit situation, as I said earlier. I highlighted some of the



competitive environments already there with the current prices. In the future, we need to tackle that.

- Q155 **Huw Merriman:** On that basis, isn't there a problem with this process? It is slightly flawed logic, in the sense that it assumes that airlines will pick up a cost, whereas it is quite clear that passengers are picking up the cost of Heathrow because it is so expensive. Perhaps the NPS itself needs a bit of a rethink, because nowhere in there is the ability to look at alternative schemes for development. You have touched on that, and we know that the Arora Group is looking at a scheme that it thinks would take £5 billion off, with less land having to be cleared as a result. There is a question in there somewhere. Does the NPS need to be a bit more flexible and do the Government need to look at it again in terms of total costs and some of those assumptions?

Rafael Schwartzman: I could not agree more. It has to be more flexible. We already have alternatives outside; for example, in the case of New York, in JFK, there are already terminals operated by different operators. The Irish Government are looking into Dublin and the build-up of Terminal 3, and whether there are alternatives that will bring efficiencies. We are definitely in favour of a formula that will bring efficiency to the expansion project, because we still do not believe that the £16 billion or the latest £14 billion figure is sustainable. We still think that those numbers cannot sustain the level of charges needed to remain competitive.

- Q156 **Huw Merriman:** Do you think this is where the NPS has difficulties, because it almost requires Government to be very rigid and fixed with what they are going to deliver? It therefore does not encourage a fresh rethink as to whether we can deliver the same project for less.

Rafael Schwartzman: There may already be alternatives in it. There might be the option to gradually phase in the implementation of certain things. The consultation with the airlines might not be so rigid on some of the specifics of operational requirements. There might be consulting with the airline industry and the stakeholders. There are options to bring the project in at a lower cost. As a community, I would say that, but, if we keep it as rigid as it is today, it will be very difficult to keep those charges down.

Neil Pakey: From the regional airports' perspective, we would come at it from a slightly different angle. Certainly in our discussions with Heathrow, I do not start from the same place as the airlines, but we have secured tangible and quantifiable monetary commitments from Heathrow. They are commitments about the charges and the level of funding that they will support a regional connecting network with. We are both on the same page when it comes to the need for slot ring-fencing and the route development fund, let alone the discounts they have. There are a lot of financial commitments made by Heathrow airport. If you can disconnect a little bit from the question of how much it is going to cost them, and concentrate on the commitment they are giving to the market, and if



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somehow the NPS could capture those commitments and put them in stone, it would be good for everybody, and we could have a planning framework to move forward.

Q157 **Chair:** I suppose the question is whether you can have those commitments and have the scheme at the current cost—whether those two things can add up.

Neil Pakey: When you analyse different people quoting different numbers, you must make sure they are quoting like for like. I would not be aware of anybody else including in those costs the commitment about the airline discounts that they are talking about, or about the development fund they are committed to, let alone being close enough to know whether all the other schemes were looking at all the environmental issues in local areas, which I know that Heathrow has committed to. It is expensive to build an airport. That is why, from the other side of the table, it is important that we get in stone what their terms are for moving forward.

Chair: We are going to change tack a bit and move on to thinking about the airspace implications.

Q158 **Laura Smith:** If we put aside the obvious concerns as to whether the runway can be delivered on time and on budget, there is also the rather enormous job of redesigning the airspace so that planes can take off and land at Heathrow. Rafael, how confident are you that the airspace requirements can be delivered?

Rafael Schvartzman: We support the aim to reform airspace and the UK's future airspace strategy. We have been working with the authorities, and we definitely support that. It would make little sense to build expansion without a proper airspace redesign. It would be like putting up a Christmas tree but not buying any decorations for it. If there is the political leadership, it can be done. The airspace was designed 50 years ago. Obviously there are a lot of benefits that can be gained by redesigning this airspace, and it is urgently needed. It can be done.

Q159 **Laura Smith:** Are you confident?

Rafael Schvartzman: Yes, I am confident. If the investment in the project is at the level we are talking about, I have to be confident. If we are not able to do this, it is like the Christmas tree analogy and it makes no sense.

Chair: We do not want a plain Christmas tree.

Q160 **Laura Smith:** How will Stansted be affected by the airspace redesign that would be associated with the third runway?

Tim Hawkins: It is something we are waiting to find out. It is clearly a system. It is an airspace system, so it only works with the interaction of the airports in the London system. Any changes to that will be complex. They will be challenging and there will be impacts for people on the



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ground. We need to do it carefully and thoughtfully to make sure that any impacts are dealt with appropriately and minimised.

A word of caution would be that we have to do it in a way that balances the interests of different London airports. It cannot be an issue where the Government bend over backwards to deliver one objective and compromise the interests of a whole load of other airports. We will participate in that process, but we think it is one where the Government will need to take a leading role to make sure that there is an appropriate balance in the way it is done. We do not think it is something where NATS as an organisation, as it is, can lead or make those kinds of policy trade-offs. It will be a challenging thing to do in the time that is available, and it partly leads to our views about when new capacity can come on stream and how quickly it can then grow beyond that.

Q161 Laura Smith: You have touched on this, Tim, but are you confident that your views will be adequately considered, or do you fear that your needs might be secondary to those of an expanded Heathrow?

Tim Hawkins: I have not seen any signs that they will be secondary, but it is something we are looking out for. We are making sure, as you would expect, that we represent our own interests in this. We are not opposed to the development of a new runway at Heathrow. We need to make sure that, as it is delivered, it is delivered in a way that does not compromise our interests. There will be some sort of to-ing and fro-ing with Government, with NATS, with Heathrow and other airports to make sure that we can achieve that, but we do not stand in the way of the capacity being delivered.

Q162 Laura Smith: Rafael, the airlines have expressed their concerns about the proposed night flight bans. What would a rigid ban on night flights mean for operations at Heathrow?

Rafael Schvartzman: The rigid night ban operation could have a very big impact on the hub operations, and especially on the benefits that this project should bring. We have already talked about the cost and the charges.

Let me give an example. Today, we are talking about a ban for early morning arrivals at six o'clock. If you compare that to Frankfurt today, which is at five o'clock, it will mean that Frankfurt has a two-hour span because we are one hour behind. Therefore the competitiveness of the hub is jeopardised. We believe that the industry has already acted proactively by voluntarily restricting their operations, providing a much needed respite for communities.

We have not exceeded the noise budget. The industry has been introducing more modern aircraft. There are options to bring the respite that communities need, but a rigid ban will limit both competitiveness and the options to deliver a more flexible and efficient use of expansion. It is both; it is on the competitive side and on the flexibility side, to bring



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innovation and to be able to bring much-needed respite for those communities.

- Q163 **Martin Vickers:** Could I move on to carbon efficiencies? The aviation sector, like other sectors, has to find more carbon efficiency and stay within a carbon budget. The Government have made some assumptions that those savings could be through uptake of renewable fuels and more efficient aircraft. Is that a fair assumption?

Rafael Schwartzman: We are the only industry that has already put forward a programme for tackling our contribution to climate change. We established a carbon neutral growth target for 2020. We have established cutting net 2005 emissions levels by 50% by 2050. Obviously all of this is supported by investment in the new technology that is coming into the system. We have seen some of the aircraft. It is also by flying using more efficient operational procedures, which is critical, and by building and using more efficient infrastructure. At the same time, in 2016 ICAO adopted the carbon offset initiative, which will start in January 2019 and will allow us to develop and implement new technologies enabling us to be sustainable according to those pillars. The industry has taken that responsibility.

We are looking at sustainable aviation fuel. We are very happy to hear that the UK Government have confirmed a proposal to include those fuels in the UK renewable transport fuel obligation. We are acting responsibly. The assumptions are correct. We also have to remember that it is not only air transport in the area of an airport that brings those levels. There are other things that need to be done at ground level that will help to mitigate that, be it at the airport or in the urban areas around the airport.

- Q164 **Chair:** But in terms of the carbon emissions the big thing is the aircraft flights themselves, isn't it? It is not the ground transport and the like. The majority of it will come from emissions from aircraft, won't it?

Rafael Schwartzman: I cannot answer that with certainty. Urbanisation has a big impact. We have the M25 and everything. I can say that on the ground, for example, there are measures that can be taken and implemented. Vehicles could be electric. The design of the terminal at the airport is critical. You can have electrical equipment that does not require the aircraft to use the auxiliary power unit. You can redesign the taxiways to have shorter taxi and holding times. There are different alternatives for reducing emissions, and the industry is taking them. Some carriers at Heathrow are already bringing in some of those vehicles to save some of the emissions.

- Q165 **Martin Vickers:** Does that mean you think the Government assumptions are correct and that you can meet the targets based on what the Government are assuming?

Rafael Schwartzman: We can meet the targets to which we have committed. I cannot tell you if those targets are exactly aligned to the ones you are referring to, because I am not fully aware of them.

Chair: Thank you very much, gentlemen, for your contributions this afternoon.

Examination of witnesses

Witnesses: Professor Apsimon, Lord Deben, Professor Forster and Cait Hewitt.

Q166 **Chair:** Thank you for joining us. For the record, could you give your name and the organisation you represent?

Cait Hewitt: I am Cait Hewitt from the Aviation Environment Federation.

Lord Deben: I am John Deben, chairman of the Committee on Climate Change.

Professor Apsimon: I am Helen Apsimon from Imperial College. I was on the Airports Commission and I now chair an expert group for Heathrow.

Professor Forster: I am Piers Forster from the University of Leeds. I was also an expert adviser to the Airports Commission.

Q167 **Chair:** I will begin with a question to Helen and Cait. The Airports Commission found that the northwest runway scheme would not delay legal compliance with air quality regulation. Can you say how it reached that conclusion when the data show that three of the monitoring points affected by Heathrow were breaching the limit values?

Professor Apsimon: You are going back to the Airports Commission work and we need to think how things have changed since then. We were obviously making lots of assumptions, and we even tried to look into what the effects remotely from Heathrow would be at Hammersmith, and so on. As you know, with the revised estimate that has just been made, there are lots of changes since then that will bring forward dates of compliance relative to what the situation was when the Airports Commission was operating.

Q168 **Chair:** You are now more confident that the Government will meet their air quality targets?

Professor Apsimon: Yes, we can look at the report that is being produced. It may be a restricted and very legalistic approach based on modelling—I can go into what the assumptions in that modelling are—but, if anything, the assumptions are probably pessimistic in the current modelling.

Q169 **Chair:** When the Environmental Audit Committee looked at this, it concluded that the Airports Commission interpretation “makes no sense in terms of protecting public health and wellbeing,” saying that air quality around Heathrow is not a problem, while Marylebone Road is even worse. Are you saying that those things no longer apply?



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Professor Apsimon: What the new report is saying is that the clean air zones and the new policies and the revised new assessments—because we have had all the problems with real-world emissions; it is largely a question of the transport associated with the airport—have all improved the situation relative to the situation then. Admittedly, we were making assumptions, at the time of the Airports Commission, on what road emissions would be, which might have been optimistic.

Q170 **Chair:** I think they are still rather optimistic. Cait, what would you say in relation to this issue?

Cait Hewitt: I wanted to comment specifically on the question about legal compliance. It was one aspect of the Airports Commission's work that we were quite critical of exactly in relation to the point you mention: to argue that it would be okay to increase emissions at one zone even if they were already above the legal limit, as long as there was somewhere else in London that was even worse, was unacceptable.

The current approach from the Department for Transport looks a bit as if it is hedging its bets. The wording is not clear to us in terms of whether the Government accept the Airports Commission approach or are taking a tougher stance.

Q171 **Chair:** Whichever is the case, wouldn't it be a problem if we were not meeting air quality limits at every monitoring point, not just whether it affected legal compliance?

Professor Apsimon: I think you need to understand the nature of the modelling and the formal process of proving compliance. It is based on a monitoring network and national scale modelling. National scale modelling is a statistical model; it is looking at 18,000 road segments across the UK and looking at the concentration 4 metres from the kerbside.

When you come down to a statistical picture, it is a good model. You have to be very careful when you are looking at particular roads. If you take the Westway—it is mentioned in the report—it is actually an elevated section of roadway, so, 4 metres from that road you would be hanging in space somewhere. You have to be very careful in interpreting this model with respect to extreme values.

You have to take the general messages from the report. The indications are that the critical limit values are obviously met around Gatwick, and would be met around the Heathrow area even before the date to which the expansion has been brought forward. The most critical roads are going to be ones in the centre of London. That is where the increment from traffic, without any additional mitigation measures by the airport, would be less than 1% of the critical level value. That is very small compared with the uncertainties.

We also have to take into account that the official DFT forecasts are still going on the premise that we are going to have no change in the



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diesel/petrol fleet mix. With electrification, the sale of diesels was down by 30% in November from the previous year, so there will be a big change in fleet. That is something that has not even been taken into account and will further help the situation.

Q172 **Chair:** What you are saying is that you are confident in the Government's air quality plans more broadly and that they will deliver.

Professor Apsimon: I am confident that whatever happens from the airport is going to be a small bit of noise. It may be that we have big problems in meeting the limits, simply because the new testing regimes for cars do not work. That is something outside the airports. It is a question of the transport side making sure that whatever we do with the changes in our fleet in future will really solve the problems. That is more an issue for road transport in general than for the airport.

Cait Hewitt: I entirely agree that it comes across very strongly in the latest analysis that the highest risk in terms of air quality compliance as a result of Heathrow expansion is in central London. It is not so much on the roads around the airport; it is in central London.

Nevertheless, we have to accept the reality that that is the case, and those roads are already very close to the limits in future years. In the early years after opening, the latest models suggest that, in a baseline case, expansion would potentially either cause an exceedance or worsen an exceedance, and even for future years the margins are very close. They suggest there is probably a 29% margin of error, so that, even if they just pass, the risk is still very high, but it could exceed. That being the case, our view is that deciding now to expand Heathrow, knowing that that decision will worsen air pollution, is not an acceptable risk.

Q173 **Chair:** You are not confident that the Government's wider air quality strategy will lead to the improvements that are necessary.

Cait Hewitt: It is impossible for us to know at the moment. It is worth remembering that 10 years ago, when Heathrow expansion was on the table, the Government's modelling of the day said that everything would be fine by now; the runway could go ahead and there would be headroom within the limits. It turned out that we had been over-optimistic about the extent to which regulation, particularly around diesel vehicles, would be effective in bringing down air pollution.

Professor Apsimon: That is a general problem rather than the particular airport problem.

Cait Hewitt: Sure.

Professor Apsimon: What I think is missing at the moment is that we do not have a more detailed assessment of the more local effects, which is where these things are going to be important. In central London, the problem is noise. In the local area, the Airports Commission did a lot of work looking at which houses would be affected—the houses that were



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above 32 micrograms per cubic metre or 80% of the limit value, and what the effects would be on those.

Q174 **Chair:** Surely we are concerned about the implications of expansion on air quality. It does not matter whether it is felt very close to the airport or whether it has an impact in central London. It is an effect on people's health.

Professor Apsimon: But it is going to be more significant and of a bigger magnitude closer to the airport. That is where it is important, and that is really not addressed so far in the revised assessment. The local effect needs to be looked at very closely in any developing plans.

Q175 **Laura Smith:** I can probably see which way you might go with it now, but, given that the courts have required the Government to adopt measures to tackle air quality as soon as possible, is expansion at Heathrow going to put the Department in an impossible position to achieve that?

Professor Apsimon: I still think the main issue is more about general road transport and what is happening. That is the real issue that DEFRA is facing. We need to make sure that motor manufacturers comply with the limit values.

There were various things that we did not foresee. One was the expansion in the change to diesels, which was a climate policy. We are going to be in difficulties if people change back and start getting lots of CO₂ emissions. Another was the primary NO₂ issue, and then the fact that the motor manufacturers did not reach the standards, which would have been a very difficult thing to forecast.

Q176 **Chair:** We recognise that those are the major issues we face on air quality. Given the challenges that the Government face on air quality, if you then expand the airport and you know that that will have a knock-on impact both on travel to and from the airport and in what it generates in terms of growth in that area, does that not make it very difficult to meet those wider air quality challenges?

Cait Hewitt: That is right. The problem is potentially one of timing. At the moment, we just do not know how effective a shift away from diesel vehicles is going to be. We do not know the extent to which the Mayor's strategy for London will be effective. What we do know is that, if it is effective and manages to cut NO₂ emissions over the next few years, without a doubt, as you say, I do not think anyone questions the fact that the opening and operation of Heathrow in the mid-2020s would take us some way back in terms of any progress that had been made by that point. It is not something we feel we can have confidence about and that the courts should have confidence about.

Professor Apsimon: There are two separate issues. There is compliance with legal limit values, and the other thing is the exposure of the



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population and how many people are really changed and exposed. That is where we look at the health effects and monetise the health impacts.

Chair: We will come to that in a bit more detail.

Q177 **Huw Merriman:** Professor Apsimon, with reference to the EU air quality directive, we know from the re-analysis from October this year that it is questionable as to whether it can be complied with as things stand, yet Heathrow is due to open in 2026, if it is indeed opened. When the NPS definitively says that compliance with that directive can be met, does that strike you as somewhat over-confident?

Professor Apsimon: This is a little bit of noise, not a significant effect, superimposed on the broader issue of dealing with road transport in London.

Q178 **Huw Merriman:** Parliament will vote on the NPS. It is making the assertion that this can be complied with by 2026, but as things stand at the moment—

Professor Apsimon: It is our best estimate even allowing for some of the uncertainties.

Q179 **Huw Merriman:** I take your point that technology improvements and innovations should assist, but if the current position, without the expanded Heathrow, is that we are already on the margins, it seems a bit strong, at the very least, for the NPS to be so bold on that particular point.

Professor Apsimon: The uncertainty attached to the assessment was plus or minus 30%. That was the expert group that reviewed the DEFRA report. Certainly the updated report tried to look at the headroom. There is some headroom, so it has gone into that. As I said, if anything, I feel that the projections are pessimistic at the moment. I would be optimistic that we are going to meet the limit values before 2025.

Q180 **Huw Merriman:** I take the point about whether it is optimistic or pessimistic, but the NPS is definitive on this point. I just wonder whether it is leaving itself, or indeed MPs, enough boundary of discretion.

Professor Apsimon: You can never be 100% sure in this field. Who would have predicted the Volkswagen scandal? It is a question of whether it is a reasonable assumption on the best available knowledge, which is what I think we are saying.

Cait Hewitt: We agree with the concern about this. In terms of the wording of the NPS, what we think is missing is any kind of enforcement plan that would require air quality to be compliant with legal limit values by the time of the airport opening. We did in the past potentially talk about such a condition—the last time Heathrow expansion was on the table. There is no enforcement plan and there does not seem to be any kind of plan B if things turn out not to be going the way they should in 2025-26. We certainly think that those kinds of conditions need to be



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written into the NPS. As it stands at the moment, the only requirement is for the Government to feel at a point in time that things are probably okay, and from that point forward the NPS passes responsibility to Heathrow to deliver an appropriate package of mitigation. As we have discussed this afternoon, it is not within Heathrow's powers to be held to do that, certainly for roads in central London.

Q181 Huw Merriman: Addressing the balance, as it were, it is entirely reasonable to look ahead to the future, to 2026, and to say, "By that time we know that innovations will come on board." The point is very well made in terms of diesel, electric, and so on. By that point, perhaps things could be even rosier.

Cait Hewitt: We can feel confident that there will be some improvement. There has been so much focus on the issue. As the Committee knows well, there has been a series of legal actions against the Government to try to force some action on the issue. I would like to feel confident that we will have made some steps forward by the mid-2020s. The question remains whether we will have made sufficient progress to allow headroom below legal limit values to allow for the additional emissions associated with Heathrow expansion.

Q182 Huw Merriman: Perhaps I could ask about the numbers that are estimated to be impacted. Professor Apsimon, the 2015 air quality analysis by the Airports Commission was that 121,000 people would be exposed to worse air quality. I understand that it has been concluded by the 2017 analysis that perhaps the Department underestimated the number of people exposed, because of the levels of nitrogen dioxide at receptor levels. Is that something you are aware of?

Professor Apsimon: That does not sound very familiar to me. We looked at numbers of dwellings exposed. I think we found about 14 dwellings that were exposed to a significant level. We looked at those in detail as being at risk.

Q183 Huw Merriman: My understanding was that it was the levels of nitrogen dioxide found at the receptor sites that were used for testing. The Department had underestimated the 121,000 number, and therefore it would be significantly worse. I do not know if that rings a bell with anybody else on the panel.

Professor Apsimon: That is puzzling me. I do not recognise that number.

Huw Merriman: Perhaps we will move on, on the basis that no one can actually—

Chair: I think that is the total number of people affected in the vicinity.

Q184 Huw Merriman: Yes, it was 121,000. It is underestimated, if indeed those tests were—



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Professor Apsimon: If it is the number of people living in the area, I suppose that might be different by 2026 anyway.

Q185 **Huw Merriman:** I will ask something a bit more general. If the figure was 121,000, do you think that is still realistic?

Professor Apsimon: It depends what you mean by affected. If somebody is living in the area but the difference in exposure is 0.1 of a microgram per cubic metre, is that significant? It is really the question of the number of people that are significantly affected. I would think that would be a lot less.

Q186 **Huw Merriman:** Unless I am incorrect, this was the 2015 air quality analysis by the Airports Commission, for which you would have advised.

Professor Apsimon: Yes.

Q187 **Huw Merriman:** Do you recognise that figure of 121,000 people?

Professor Apsimon: No, I do not. I have the report here. I have the analysis for Heathrow somewhere here. We looked at numbers of dwellings.

Huw Merriman: Perhaps we will move on, Chair.

Q188 **Chair:** We will write to seek further clarification on that point

Professor Apsimon: Certainly. What we are really concerned about is trying to minimise exposure. Do not get too hooked on the limit values because it is like the PM10 and PM2.5 legislation. With PM10, we had limit values, a maximum value. That led to a lot of measures to try to avoid the hotspot areas, which actually increased exposure.

Q189 **Chair:** What we are concerned about is how many people are going to be exposed to worse air quality.

Professor Apsimon: Yes, but I think we need to magnify them. How much is the whole exposure going to change? That is the real question rather than the number of people, some of whom might be insignificantly affected.

Q190 **Ronnie Cowan:** I am a bit concerned about that. Are you saying that people could be insignificantly poisoned? It is a strange thing. Surely we should be working to make our air purity better for people, not just accept the fact that we are going to make it worse.

Professor Apsimon: If you are talking about a difference of whether I go to the tube one way or the other way, I would say that is probably not going to be a significant component in my lifetime exposure.

Q191 **Ronnie Cowan:** But should we be trying to make it better, rather than accepting the fact that we are always going to make it worse?

Professor Apsimon: Yes. There will be a lot of other developments going on that might make things better or worse as well. I do not know



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that we can necessarily assume that it is going to be worse, because we do not know what mitigation measures will be in place yet, and what efforts there will be to limit additional traffic to the airport and that sort of thing. That is the critical kind of issue to look at, I would have thought.

Q192 **Ronnie Cowan:** There seem to be an awful lot of things we do not seem to know. We are making assumptions based on things we do not know about. That plus or minus 30% is astronomical. We could get to the end game and discover that things are 30% worse than we thought they were going to be, and we are accepting that.

Professor Apsimon: That 30% uncertainty is in the PCM national assessment.

Q193 **Ronnie Cowan:** That seems to be the boundary we are prepared to accept.

Professor Apsimon: There are very many uncertainties. We have lots of uncertainties about emissions.

Ronnie Cowan: I have heard very few certainties. I have heard about future fuels, but I do not know what we are going to fly planes on. Butter?

Q194 **Chair:** We will be asked to make a decision on the basis of the information in front of us. What we are questioning is how confident we can be that if we make this decision we will not be putting people's health at risk. That is the question we are asking you. How confident can we be that we are not going to cause people to be exposed to worsened air quality? You seem to be saying not that confident, although you are optimistic.

Professor Apsimon: Are we talking now about the local area? The central London thing is a de minimis problem, but if we are looking at the local area, it is a question of detailed scrutiny of the development plans.

Q195 **Chair:** I am not sure why it matters where the people are who could be subjected to worsened air quality.

Professor Apsimon: It is closer to the airport that there will be any potential significant changes in concentrations. The ones in central London are really tiny. It is that central local area that I think we need to be looking at in more detail.

Chair: We have heard what you said, and we will leave it there.

Q196 **Luke Pollard:** Earlier, you mentioned modal shift and the importance of tackling the transport pollution of people getting to and from the airport. It is important and absolutely crucial if we are going to improve air quality.

Professor Apsimon: It is a key issue, yes.

Q197 **Luke Pollard:** How can we have confidence in the improvements to



surface access if the improvements that have been detailed have not been defined and they have not been costed properly? Do you think that gives us confidence that those surface access improvements will be sufficient to tackle air quality?

Professor Apsimon: The actions taken by the airport are not going to solve the problems in that area entirely. That is obviously a question of what happens with local traffic and other traffic. It is not specified yet. There is no detail on those plans. It is just not yet available. It will be up to the developers to convince you that those plans are in place and they are going to work.

Q198 **Luke Pollard:** We are relying a little bit on hope, in that case.

Professor Apsimon: No. You will have to ask Heathrow, but they have plans in place.

Q199 **Luke Pollard:** I will put the same question to Cait. Do you think we should have confidence in the surface access proposals? It is a bit like trying to catch fog at the moment—hard to pin down.

Cait Hewitt: No, I do not, and it is notable that the wording in the NPS is something along the lines that “the requirement is for the airport to strive to meet its pledge on this issue.” It is certainly not something in which we feel confident.

Q200 **Daniel Zeichner:** Following along the same lines, the October 2017 re-analysis concluded that “the level of compliance risk is primarily dependent on the timing of the introduction of, and effectiveness of, measures in the Government’s 2017 Air Quality Plan.” Professor Apsimon, you have already mentioned the mitigation measures. Which of those will be most important in this context?

Professor Apsimon: The introduction of the clean air zone makes a big difference as compared with what we did with the Airports Commission.

Q201 **Daniel Zeichner:** Clean air zones are a wonderful concept. What do you have to do to make the clean air zone work, in your view?

Professor Apsimon: We have been very successful in having our congestion zone and that kind of thing. We are already introducing the T-charge area in central London. The Mayor is very strong on this. We need these incentives to make people change their travel plans—the kind of vehicles they drive and the journeys they make. We are going to need to take these measures to solve the air quality problem.

Q202 **Daniel Zeichner:** Cait, how confident are you that all the measures laid out by the Government in the plan will actually be delivered? That is not a leading question.

Cait Hewitt: We cannot fail to note that the only reason we have a new and updated plan is that the Government were taken to court for their failure to get to grips with the issue. It is not just this Government but previous Governments as well, I have to say. It is not a party political



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point. As discussed in the model itself, there is a very wide margin of uncertainty, and the fact that the Government would need to be focused and very driven in terms of delivering some of these measures. They would need to be so effective that they created extra headroom to allow for the extra emissions from Heathrow. It leaves us in significant doubt that it can all come together in time for the runway opening as planned.

Q203 **Chair:** Before we move on from the issue of air quality, I want to properly understand how this has been dealt with as part of the economic case. Professor Apsimon, have air quality costs been appraised as part of the economic case for the northwest runway?

Professor Apsimon: I probably need to go into a little bit of background. In the Airports Commission, we were rather limited in what we could do on attaching values to health costs. This was because the official DEFRA damage costs for NO_x only reflected the long-range effects—the conversion of NO_x to particulates. It did not account for the local NO₂. We tried to flag up that the DEFRA estimates would have been optimistic and would have underestimated the health costs.

At that time, we were aware of the work of the World Health Organisation, through HRAPIE and REVIHAAP, in looking at the direct effects of NO₂. We tried to make some estimates which showed what the European Environment Agency would have come out with. DEFRA itself came out with some interim recommendations for valuing the NO₂. You probably saw the headlines about 23,000 deaths in the UK and all that sort of thing. That was an overestimate. The matter is being referred to COMEAP—the Committee on the Medical Effects of Air Pollutants. The costs will be higher than we estimated in the Airports Commission, but not as high as you would have estimated if you had used the revised DEFRA figures.

Q204 **Chair:** When the Airports Commission calculated those damage costs, did they use the figure of £875 per tonne of nitrogen dioxide?

Professor Apsimon: Yes, which, as I said, was the limited one. That is why we showed some of the other figures in an appendix that tried to address that issue.

Q205 **Chair:** Obviously, from what you have said, you are aware that the Government guidance on damage costs for nitrogen dioxide was updated in September 2015.

Professor Apsimon: And those would have been an overestimate.

Q206 **Chair:** The damage cost of nitrogen dioxide appears to have been raised very considerably and is now at around £64,000 per tonne. You believe that to be an overestimate.

Professor Apsimon: That would be too high now.

Q207 **Chair:** But you accept that it should be higher than the £875 per tonne.



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Professor Apsimon: Yes.

Q208 **Chair:** If the local modelling has not changed, should we infer that the total air quality costs should be higher?

Professor Apsimon: They are higher than those quoted in the main report of the Airports Commission.

Q209 **Chair:** If they are not the 73 times higher that they would have been if they were now £64,000 per tonne—

Professor Apsimon: I spent an hour on the phone to DEFRA this afternoon talking about damage costs.

Q210 **Chair:** What damage cost do you think would be accurate?

Professor Apsimon: I would think you are talking about something like four or five times higher for the NO₂ part—the NO_x part—than for the Airports Commission estimate, something of that order.

Q211 **Chair:** But the Department's updated appraisal has lowered the damage costs by 90%. How can that be?

Professor Apsimon: I have not actually seen any figures in the reappraisal. There weren't any figures in the DFT update, so I am not sure how these figures, which I only heard about this afternoon, have been calculated.

Q212 **Chair:** My understanding from the DFT's updated appraisal from October is that they are significantly reduced. For the northwest runway, instead of it being £0.8 billion, it is reduced to £0.1 billion, so it is 90% lower, which does not seem consistent with what you have just said.

Professor Apsimon: No. I think that needs checking properly. I do not know how those figures have been recalculated so I cannot comment. I would have said the figures were higher than we estimated in the Airports Commission.

Q213 **Chair:** Based on what you said, you did not think it would be 73 times extra cost, but you thought it might be, did you say, four times?

Professor Apsimon: Yes, as a very rough figure.

Q214 **Chair:** You would expect it to be higher rather than lower.

Professor Apsimon: Yes.

Chair: Thank you. We are going to move on to talk about carbon emissions.

Q215 **Daniel Zeichner:** We have worked two witnesses very hard, so it is time to work the others hard as well. Good afternoon, Lord Deben. The Committee on Climate Change planning assumption is to keep gross aviation emissions at no more than 2005 levels. That is what I am told. I am also told that there is some discussion about the legal status of those



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planning assumptions. Could you tell us a little bit more about that and how we might achieve them?

Lord Deben: First of all, they are not planning assumptions in that sense. That is not a phrase I have heard. As you know, the situation is that the Committee on Climate Change is a statutory committee that sets the budgets inside which we work. Those budgets are offered to Parliament. When Parliament has accepted them, as it has the fourth and fifth carbon budget, they become statutory requirements and cannot be changed unless the Committee on Climate Change says that the basis upon which they were produced has changed significantly and therefore they need to be tightened or loosened.

The problem is very simple. We take into account aircraft emissions for the 2050 cut of 80% in our emissions, but, because up to now we have not had a proper international agreement, we do not put in a budget, step by step, for aircraft emissions. We include what would be a sensible cost-effective move when we are dealing with the budgets, because that is the only sensible way to accept our responsibility, which is to do this in the most cost-effective manner.

You talk about a planning assumption, but we have made it clear that it is not possible to meet the targets, and therefore not acceptable if emissions from aircraft exceed the emissions that we have for the 2005 date. I do not know why there are the words "planning assumption." It is not a planning assumption; it is actually clear that that has to happen.

When we read the detailed report on the Heathrow expansion, there was clearly—how shall I put it?—a less than certain adherence to that. I wrote a letter to the Secretary of State for BEIS because he was about to produce what turned out to be the clean growth strategy. I said it is important to recognise that there is a statutory requirement to deliver this and you cannot do it in the way the Department for Transport presented its statement on Heathrow. In so far as there is an argument of any kind, that is the statement. I made that clear and it still stands. We cannot have a situation within the statutory arrangements in which any Department says, "We don't think this really applies to us."

If you allow aircraft emissions to rise above what is, frankly, very generous elbow room, you can only do so by cutting what other people are allowed to do; and they are already very toughly constrained. I do not think it is possible to turn to other bits of British industry and say, "Part of the allowance you've got has been taken because it has been pre-empted by decisions that have been made."

Q216 **Daniel Zeichner:** The Environmental Audit Committee suggested that it is not entirely clear whether this could be achieved by cracking down on the actual emissions themselves or getting into some kind of trading and offsetting regime somewhere else. Does the Committee on Climate Change have a view on that?



Lord Deben: First of all, the international arrangements envisage some kind of trading concept. We recognise that it is difficult because these are emissions that cross borders of every kind, as we know. We understand why that is, but, as far as we are concerned, Britain is committed to this reduction in our own domestic action. We do not think that it is acceptable to buy your way out of it. In any case, that is not what we have committed ourselves to. That is neither what the Climate Change Act said nor what was put forward by all parties in the debates. We have to stand by that.

The second thing is that we think it is probably economically rather foolish. Since Paris, all the nations of the world have signed up to it, bar one. Even it has now signed up, although quite what Syria is going to do in the circumstances I do not know. As we move on, nations will be doing more and more, and they will find it more and more difficult. The idea that there will be a whole lot of spare and quite cheap trading to be done seems unlikely. I am basically a businessman and I do not think that is a situation I would allow my business to be in. I would be saying to myself, "I would be better off trying to get it right now than leaving myself open to having to do that." I also think that it is contrary both to the spirit and the reality of the Climate Change Act.

Q217 **Daniel Zeichner:** Thank you. Perhaps I could bring in Professor Forster at this point. Lord Deben has already said that international aviation emissions are not included in carbon budgets. Is that likely to change in the foreseeable future, in your view?

Professor Forster: I absolutely think it will, and we have to prepare for them to be included in the budget, especially after the agreement in Paris. To echo and emphasise what Lord Deben has said, they have basically given the aviation industry as much wiggle room as possible to keep to the 2005 emissions. That emphasises that other parts of the economy really have to take up the slack. To get to the Paris targets, emissions across the world will have to drop to zero by 2050 or 2060. They cannot just drop a bit; they have to drop to zero. That means that we have to invest in negative emission technologies whereby we physically remove carbon dioxide from the atmosphere.

By trying to keep the residual within the aviation industry, we have to have the idea that other industries will have to invest in new technologies. The NPS report ought to think about aviation eventually being included in the carbon budget.

Lord Deben: In a sense it is included, because we have to assume a figure for the aviation industry when we do our five-year report. When we begin, as we will very soon, on the sixth carbon budget, we will not ignore aviation; otherwise you would have a most peculiar way of looking at it. We have to do these budgets on the basis of a sensible route towards this end. It is included in the way we do the mathematics, but there is no official inclusion of aviation, or in fact shipping, although



shipping has become a little easier since recent decisions about how we share it out. It is a bit easier to be precise about it.

Q218 Steve Double: This question is to Lord Deben and Professor Forster. The Department seems to be much more optimistic than the Airports Commission about the levels of carbon abatement that can actually be achieved by the aviation sector. Is there any substantive evidence to support the Department's optimism?

Professor Forster: Perhaps I can go first. I slightly disagree. I think they are not very optimistic. There would be economic advantages in going back to look at the regulation and the opportunities for much more carbon abatement to reduce the carbon footprint going further forward, particularly around the use of alternative fuels. Their baseline scenario only has a 5% uptake of biofuels, whereas in fact an industry group like Sustainable Aviation indicates that it could be as high as 20%, 30% or even 40%. To try to achieve those very high numbers, you have to do a far better job with the regulatory framework around biofuels, to make sure they are sustainable and to be able to get fuels into aircraft far more efficiently than we do currently. There are also economic opportunities in trying to regulate aeroplanes into having more updated technology—for example, that you could fly aeroplanes from Heathrow only if they encompassed new technology.

The other thing that we do not see much about in the report are ideas for trying to reduce demand. There are economic opportunities, both around virtual reality and video-conferencing. People dismiss video-conferencing, but when virtual reality comes online we will see a difference there. I do not see much effort to make people in the UK take their vacations and holidays in this country. Both on demand and supply, they do not go into the carbon abatement opportunities as well as they ought to.

Lord Deben: I often think that this industry is in the position that quite a lot of industries were in 20 years ago, when what you do is constantly explain the reason why you cannot do it and somebody else ought to do it. It seems to me that that is a rather dangerous position to be in. That is one of the reasons why I was very clear about the Department for Transport's reaction to the Airports Commission. It seemed to me that it fostered the argument, "It's jolly difficult. This is really hard. We will do our best, but it is really hard and part of the reason it's really hard is because it's international, and we know that not everybody will sign up to it." Of course, that is what people used to say. It is what most other industries have stopped saying. They have begun to say, "That's not the world we are going to live in, so we'd better get into this rather more quickly."

My concern is not about optimism or pessimism, but simply about whether this industry has actually got to grips with the fact that, if we are going to fight climate change and if Paris is going to be a reality, they have to play a very significant part in it. There is a series of things they have to do. They have accepted some of them, but I do not get that



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sense of urgency, pressure or understanding that “That is where we are going to be”.

We can look at what some of the leading companies are now trying to do. One of the excuses is that America does not get involved, but across the board major companies—many of them American—are saying, “We are going to be carbon neutral and we’re going to do something about our water use.” They are setting themselves targets. All sorts of businesses are doing it, and some of the most surprising ones, whether it is plastic packaging right the way across to beverages. The fact is that people are doing that. I do not get any of that feel from the aircraft industry.

One of the reasons that I hope this Committee will be unwilling to be pressurised is that it seems to me that we all have to say to them, “Look, for your own good, you have to get this right because otherwise it won’t work. People aren’t going to let you get away with it, so the sooner you do it, the more you turn your mind to it now and the more you spend on it and really look at it, the better.” Take batteries as an example. They are spending a lot of money on batteries because companies have realised that they have to do something about being able to save and store electricity, so huge sums are going into it. I just do not feel that the same thing is happening from the aviation industry.

Q219 **Chair:** Cait, would you like to come in on this point?

Cait Hewitt: To go back to the original question, we certainly think that there has been a very dramatic and poorly explained reduction in the estimated CO₂ from aviation, arising from the latest forecasts published in October. We have been trying to unpick what might have happened. They have gone down by over 20% since the last forecast in 2013. The latest set of figures brings us closer to the kind of level, whether we call it a planning assumption or a carbon cap, recommended by 2050 by the Committee on Climate Change.

Two elements look to be significant in that forecast reduction. One is a very significant reduction in the forecast number of air transport movements; in other words, the Government have moved dramatically on what they estimate will be the size of planes in future. The other is specifically around technology. They predict that technology improvements will come on stream much more quickly, particularly between 2030 and 2040, and therefore the kind of per annum improvements that the forecast now suggests are much more optimistic than was the case just four years ago in the 2013 forecast.

Q220 **Chair:** Our next question was going to be about what it would mean for other sectors of the economy, but you are saying that we should not allow aviation to feel it can get away with pushing the problem on to other sectors. Is that right?

Lord Deben: The truth is that we have already given the maximum elbow room we can. I am sorry, Mr Zeichner, if I appeared to disagree



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with your planning assumptions. When the Committee on Climate Change sets these things, we have a statutory requirement, and we have to keep the Government to it. That is our job. It says so in the Act. There are moments when it is not all that easy.

This is only a planning assumption in the sense that a total amount is available, it is a statutory requirement and, if one lot does not do it, it has to come from someone else. We just have to say as a matter of fact that the pressures we have to put on other people do not give them any spare bit that one might be able to use. That is before you start thinking, as we will have to do in the sixth carbon budget, about how we move to what Britain has signed up to internationally, which is to get below 2 degrees, because it becomes clearer that 2 degrees is itself a seriously damaging circumstance for us to be in.

If you remember, this was a situation dramatised by the South Sea Island nations, Bangladesh and others. It is all right for us sitting here, but for some nations their whole future depends on this. When people are buying land in someone else's country because they do not expect to have any land left in their own, it is a very serious issue. We cannot have the idea that we don't get on with it. It is the attitudinal situation that we have to get right.

Q221 **Chair:** It is clear: the aviation sector needs to pull its weight.

Lord Deben: It does.

Q222 **Huw Merriman:** Continuing that theme, Lord Deben, you talked about the spare bit, as it were. The Committee on Climate Change modelled or recommended that capacity could not increase by more than 60% above 2005 levels in 2050, whereas the Government's model is 90%. Notwithstanding the innovations in engineering and the more passengers per plane that Ms Hewitt referenced, is it realistic that the aviation sector can meet its carbon emission targets without constraining demand?

Lord Deben: One of the things that the Act constrains us to do is that we are not supposed to tell people how they do things, although we can suggest how they might do them. That is the democratic balance. We have to say what they have to do, and that gets stuck. Once it is passed, it is there. I am loth to say that you could not do it without restraining demand.

For me, the real issue is this, and I do not say it in any partisan way. I remember the first energy White Paper when Mr Blair was Prime Minister. All the dates were taken out except 2050. I could not help remarking that that was interesting because it meant that nobody who signed up to the White Paper would be in any position to be brought in front of public opinion. It would all probably be beyond their lifetime. I am always suspicious when people say that technological advantages will arise, but, funnily enough, they will not arise until between 2030 and 2040. I know



with absolute confidence that I will not be here in 2040 unless some remarkable medical changes take place.

Another problem for me is that the whole idea of the Climate Change Act was that we would not push things forward; we would do all the time what needed to be done to reach that point. At the moment, the industry can do the work it needs to do to keep within a sensible reduction programme, but it cannot then say, when we get to 2030, "Oh, we're frightfully sorry, we haven't done these things." If it has not done those things, it would have to accept restriction on demand. You should throw it back to the industry and say, "If you don't want to restrain demand, you've got to find a mechanism whereby you can meet those demands but within the envelope. What you can't do is say, 'Oh, there's a lot of demand so we're going to expand.'" The more they think demand is going up, the harder they have to work at the technological answers to deliver a means of doing it. I am very happy for people to fly as much as they like, as long as they do not destroy the climate.

Q223 **Chair:** Professor Forster, you touched on the need to constrain demand.

Professor Forster: I would not like to dictate to the aviation industry what they should do, but they have to cut their emissions. The difference between 60% and 90% in sustainable aviation could be even bigger, with demand of 125%, but the industry has to put in good carbon abatement measures. There are regulatory opportunities to do that, as I mentioned earlier, particularly around alternative fuels. I would like a far more concerted effort to look at the demand side. I am currently the author of the IPCC report on 1.5 degrees, which will talk about how to get to 1.5. A lot of that has to be about demand. We have to think of ways of incentivising that. I do not know how much could come through economic means. We have to incentivise the idea of decreasing demand, if we want to get to 1.5 degrees.

Lord Deben: One of the reasons I am so diffident about saying that demand has to be restrained is simply that it is one of the games played by different actors in the whole operation. The only real way to restrict demand is if there were a statutory mechanism of some sort. This is a way of saying, "I don't have to do something about it, because if the worst comes to the worst we are all going to be caught." It will be international, so we will all be caught and everybody will suffer equally.

That is why I think it is terribly important to insist that the industry faces the issue: either it makes it increasingly sustainable at a rate that will meet the requirements, or the only alternative will be that it has to restrict demand. If it does not want to restrict demand, it should not think someone else will be landed with it; it has to deliver it in the first place. Of course, if it does not do it, there isn't an alternative. The trouble is that Governments will be blamed for it; maybe the Committee on Climate Change will be blamed for it, and not the industry. The industry needs to face the issue, and then it may discover some delivery mechanisms.



Chair: You have been very clear about what needs to happen.

Q224 **Huw Merriman:** I will use Lord Deben's actor analogy. Professor Forster, isn't the difficulty that the actors will not get paid as much if they reduce demand, yet we are relying on them to do so? It is counterintuitive for a commercial enterprise.

Professor Forster: Yes, but looking at demand across the whole economy does not have to be detrimental. The reason people get on aircraft is communication and experience; they want to go off and experience different things. There are other parts of the economy that can offer communication. I mentioned virtual reality and the tourism industry in this country. If I was an aviation company, perhaps I would buy a digital media company at the same time. There are opportunities to tackle demand within our economic framework.

Cait Hewitt: This whole discussion is very interesting and important, and, hopefully, is exactly the kind of consideration that the Government will provide when they develop their aviation strategy. The problem is that Parliament is about to be presented with a vote on a national policy statement for aviation in the absence of any aviation climate change policy. We do not know what the Government's plans are for incentivising video-conferencing. We do not know what the Government consider feasible and realistic for increased biofuel rates. Both the industry and environmental organisations, and in fact the Government at the moment, would resist a policy of mandating a certain volume of biofuels for the aviation sector, because of the kind of challenges associated with them.

There are a lot of measures that in theory could help to tackle the aviation climate change problem. The reality is that the Government have been unwilling to demonstrate how any of them can be delivered in a way that is cost-effective and, with particular reference to the discussion today, that is consistent with the expansion of Heathrow airport.

Q225 **Ronnie Cowan:** Lord Deben and Professor Forster, the current assumption—here we are again: assumption—of the Department is that a global emissions trading scheme will be in place by 2030. Is it a realistic assumption? I expect we will all be around in 2030.

Professor Forster: The CORSIA scheme will actually begin in 2020, and the UK has signed up to it as part of ICAO. What they have not determined is what the carbon offsets will be like; for example, if they pick a voluntary carbon offset, they will not necessarily reduce carbon dioxide effectively, so they will have to go for a more expensive carbon offset that takes CO₂ out of the Earth's atmosphere. As Lord Deben said at the beginning, those offsets will be hard to come by, because a lot of different countries will be competing for them. Currently, there is an offset plan, and it proposes to offset any increase in airlines' emissions. It will not offset them in their entirety. If they were genuine, they would offset them in their entirety, but they are not going to do that; they will only offset the increase from 2020.



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Lord Deben: It is not something you can rely on. It is a very limited concept in any case. What you must not do is think that it replaces our own national commitments, because those are something quite different. We have committed ourselves to reduce our emissions by 80% by 2050, and we have to do that. It is well worth being part of the scheme, because I think something much better will develop from it.

We have to face the difference between two kinds of offsets. There is the kind where you say, "I'm going to have a bit more on my budget because you're going to do a bit less." The kind of offset we ought to be talking about is, "If I put this amount of emission into the atmosphere, I'm going to take that amount of emission out of the atmosphere." It is not just that I am refraining from putting emissions into the atmosphere; I am positively—if that is the right word; probably it is negatively—taking emissions out.

If that is the kind of emission operation we do, CORSIA will be a valuable contribution, because it will be a necessary part of what we do to bring the increase in temperature down towards 1.5 and below 2. There is a long way before that will happen, and one of the things we have to recognise is that we have to get started. A lot of these things are pretty bad when they start but gradually they get better, so I am optimistic that it is worth doing. It certainly does not offset what Britain has to do about its own emissions.

Q226 **Ronnie Cowan:** I am almost scared to ask this. We have been here for almost two and a half hours and no one has used the B word yet. Will Brexit affect any of this?

Lord Deben: It would be fair to say that most people involved in this think that Brexit is very damaging indeed. That just happens to be true, because it reduces Britain's opportunities to influence the decisions that have to be made. If you say, "I'm no longer going to work with you on a day-to-day basis," it is more difficult to get the tough agreements that we have. Happily, it is not a party political issue, but being independent on this I have to say that I think it removes one of the major ways in which we have influenced the world.

There is no doubt that in many ways we have learned from other countries; we have clean water, for example. Because we are members of the European Union, we have clean beaches that we would not have had otherwise; but, of late, we have begun to lead the European Union on many of these issues. If you say, "I don't want to do it any more, you can get on with it and we'll have a few words every now and again," I don't think you are in the strongest position to do what we need to do.

Professor Forster: A specific example is Eurocontrol. It does all the air traffic control, and we still have not decided how that will be co-ordinated. We must have co-ordinated air traffic control to get the optimum flight trajectory; for example, an aeroplane does not take off



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until it can come down. We have to make sure that Eurocontrol will still work post Brexit.

Q227 **Martin Vickers:** Professor Forster, what are your thoughts about the fact that the Department has now settled on a carbon price of £221 per tonne? Is that a realistic assumption?

Professor Forster: It is a reasonable carbon cost for some time in the future. It certainly does not cost that today, but at some time in the future it probably will cost that. Perhaps what is not so good is that it assesses that the carbon in aviation emissions does not come as an extra cost, and it is somehow assumed that the international community will offset that extra carbon dioxide. As we just said in response to Ronnie Cowan's question, we do not think the offsetting will work effectively. It is probably incorrect to assume that that will not come at a carbon cost.

Cait Hewitt: I understand that the latest forecast for the cost of carbon to be generated under the international carbon offsetting scheme that we have been talking about is £11 for 2030. It is notable that, in order to achieve maximum buy-in for that scheme, things such as what carbon might cost in future under a regime that is serious about limiting temperature increases to anything like 1.5 degrees, is not a subject that is being discussed. When the Airports Commission did some modelling about the carbon costs that would be required to keep emissions at the level of 37.5 million tonnes by 2050, while expanding Heathrow, their estimate was that we would need about £800-plus per tonne of CO₂ if we were relying on the carbon price to do that.

Chair: The implications of a lower cost are pretty clear.

Q228 **Luke Pollard:** The Department assumes that almost all the carbon abatement from the aviation sector will come from the introduction of biofuels. Will the use of biofuels alone be enough to keep carbon emissions within the planning assumptions we have been talking about today?

Professor Forster: Not at all. It will depend on how quickly both the industry and the regulatory framework come in. There are certainly opportunities around biofuels, but they cannot do everything. The other big thing to do is to modernise the fleet much faster than we do currently. They are introducing fantastic new jet engines. I should say that I sit on the environmental advisory board for Rolls-Royce, so I declare a potential conflict of interest. I am an independent adviser for them.

We could introduce flange engines, and they are far more fuel-efficient, but we have to get rid of the older aircraft and we need a mechanism for doing that.

Lord Deben: We have to be a bit careful about the assumption that there will be sustainable biofuels available in sufficient amounts to do some of the things that are suggested. The Committee on Climate



Change is about to start on a report on biofuels, an update of a previous report. It has always been our view that in this area it is right that the aviation industry should have a kind of precedence over other things, because in many other areas biofuels are genuinely an alternative; you could find something else to do it. It may be that this is very important for the future of aviation; people think it is, but it has to be sustainable and there are many reasons why you have, therefore, to restrict what can be counted. Our report will draw attention to that important matter.

It is not easy: "Oh, we know how to do that. It'll be biofuels." If the biofuels are produced in a way that has its own effect on the climate, it will not be frightfully clever. We need to bear that in mind all the time.

Professor Forster: That is correct, but there is a big range of alternative fuels that are not being discussed. Some of them are not very environmentally friendly or sustainable, but one or two probably would be. One example is crop or forest residues. It depends on the plants in the crop and the cost of hydrogen. If you can produce hydrogen in a sustainable way, you might be able to do it. But it depends on the biofuel.

Q229 **Chair:** Lord Deben, Professor Forster just mentioned the potential for more fuel-efficient aircraft. The Department has assumed a policy measure regulating the fuel efficiency of aircraft flying in and out of the UK. Could such regulation be feasibly introduced?

Lord Deben: It is for Government to make that decision, but in practical terms, yes, it could be. So far, it has been very difficult to introduce such regulations, because the United States in particular considered it as entirely unacceptable in terms of international trade and the like. It brings us back to the issue of what you are prepared to do for trade, and where you are prepared to stand and say, "We won't have this."

It is certainly possible. Indeed, Professor Forster is probably right, and it is actually necessary. I have forgotten the figures, but a huge proportion of the aeroplanes that have ever been in the air are still in the air. It is remarkable how long-lasting they are, so, if you want to reduce that and have more efficient aeroplanes, you will have to be pretty tough, not only with the owners of the aeroplanes and the owners of the airports but with other countries, which perhaps brings us back to why working with one's neighbours in the European Union is rather helpful.

Q230 **Chair:** Professor Forster, the carbon costs of expansion have been estimated and included as part of the economic case for expansion, but it appears that they have not included the actual costs of air travel in the final calculation. Do you know why that might be the case?

Professor Forster: I think I just talked about it, but perhaps I was not very clear, which is fine. I will try again.

The assumption behind that was that there would be effective carbon trading, so, for each tonne of carbon dioxide from the aircraft, there



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would be some market trading mechanism that took that tonne, and put it back down. We think those technologies are not really at scale yet, and we do not think that the carbon trading that came in would work effectively. It is a very optimistic assumption that the costs are not included.

Q231 **Chair:** If we ignore the nearly £15 billion—it might be £18 billion—in carbon costs from air travel, might that distort the economic case for the scheme?

Professor Forster: I am not an economist. I think you have to account for the extra carbon dioxide that comes from building a runway. In the scheme of things, it may not be huge, but it increases it by 10%. Another part of the economy would have to account for that, so it ought to come into the calculation.

Q232 **Chair:** Is the way it is being dealt with in this appraisal a common way of doing it?

Professor Forster: It was dealt with in that way in the Airports Commission report. I think it just took that on board and did not evaluate the uncertainties behind it. There were quite a lot of sensitivity experiments, but that was not one it considered, because it made the assumption that carbon trading would work.

Q233 **Chair:** Do you think that is a reasonable assumption?

Professor Forster: It is not working currently, in that it will not take a tonne of carbon dioxide out and put it back down. Perhaps it will be working effectively by the end of the time, but we cannot predict that. It is a big uncertainty.

Chair: I thank our witnesses very much for appearing before us.