

# Transport Committee

Oral evidence: [Heathrow power outage](#), HC 810

Wednesday 2 April 2025

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Members present: Ruth Cadbury (Chair); Steff Aquarone; Dr Scott Arthur; Catherine Atkinson; Mrs Elsie Blundell; Alex Mayer; Baggy Shanker; and Laurence Turner.

Energy Security and Net Zero Committee member also present: Bill Esterson.

Questions 1 to 131

## Witnesses

I: Thomas Woldbye, Chief Executive, Heathrow Airport Ltd; Alice Delahunty, President UK Electricity Transmission, National Grid; Eliane Algaard, Operations Director, Southern Distribution Network, Scottish and Southern Electricity Networks; Nigel Wicking, Chief Executive, Heathrow Airline Operators Committee Ltd.

## Examination of witnesses

Witnesses: Thomas Woldbye, Alice Delahunty, Eliane Algaard and Nigel Wicking.

**Q1 Chair:** I welcome everyone to this one-off session with Heathrow Airport and other stakeholders on the power outage the Friday before last, following the substation fire, which led to the closure of Heathrow airport on 21 March. We are going to be scrutinising the resilience of Heathrow airport, which is a critical piece of national and international transport infrastructure, and asking questions about how effectively events on that day were managed, whether things could have been done differently, and what lessons need to be learned.

We are joined today by a guest: the Chair of the Energy Security and Net Zero Committee, Bill Esterson. Could I start by asking our witnesses to introduce yourselves and your roles?

**Nigel Wicking:** Good morning. My name is Nigel Wicking, chief executive of Heathrow Airline Operators Committee—a member-based committee made up of all of the airlines and handlers at Heathrow airport. We are a team of six people in the core, but we have various committees that members participate in, by terminal and by function. We cover operational, regulatory and capital issues at Heathrow, and engage with Heathrow in discussions about those challenges and concerns that we have.

**Thomas Woldbye:** Good morning. I am Thomas Woldbye, chief executive officer of Heathrow Airport, which owns and operates Heathrow airport.

**Alice Delahunty:** Good morning. I am Alice Delahunty. I am the president of National Grid Electricity Transmission. That effectively means that I run the high-voltage transmission network for England and Wales.

**Eliane Algaard:** Good morning. My name is Eliane Algaard. I am the operations director for SSEN distribution south licence.

**Q2 Chair:** Thank you very much. I am going to ask each of you to talk through what happened, from the perspective of each of your organisations, on the night of 20 March and morning of 21 March. I will start with Thomas Woldbye.

**Thomas Woldbye:** If I may, with your permission, Chair, I will make a few brief opening remarks. Chair and members of the committee, I appreciate the opportunity to appear here before you today. Before I answer the questions, I would like to make a sincere apology to the many passengers who had their journeys disrupted by the recent incident. I offer my deepest regrets.

The situation was unprecedented, and we recognise the considerable inconvenience and concern that it caused. Heathrow is one of the busiest airports in the world, and it is in our interest, as much as that of our



passengers, to ensure that the airport remains open and operational at all times.

On the day of the incident, our focus was very clear and immediate: to protect the safety of passengers and airport staff, to protect the security of the airport and the integrity of our borders, and to minimise disruption and resume operations as soon as possible. I am absolutely committed to ensuring that we learn from this event. Today, I want to set out for Parliament my comprehensive five-point plan to strengthen our response capabilities and to build upon the systems that we already have in place.

First, we have commissioned the Kelly review and are working closely with the NESO review.

**Q3 Chair:** Mr Woldbye, could I ask you to set out your five points as they are relevant to the questions that we ask? We have a series of questions, which will include lessons learned.

**Thomas Woldbye:** It is very short, just to make sure of what we focus on. Is that okay?

**Chair:** Okay.

**Thomas Woldbye:** Thank you. I have ordered a further internal review of Heathrow's resilience processes. I have met with airline chief executives to agree on future joint response plans. I have set out an initiative to strengthen collaboration with our partners, including those to my left. We will enhance engagement with customers and passenger groups to understand their expectations for the future. I will make sure that this Committee is kept informed as we progress.

**Q4 Chair:** I will go back to my question. Some 200,000 to 300,000 passengers were severely impacted, whether they could not fly at all or were already in the air. That is families and friends not met, holidays not taken, meetings not held, or people not being able to get home. Could you start from what happened on that night and the next day?

**Thomas Woldbye:** I will try to keep it brief. What happened was that, just before midnight, as far as I know, the North Hyde transformer substation caught fire. It is a substation operated by SSEN and National Grid. That may be explained later. It is part of the resilient power supply to Heathrow. It consists of three transformers and has two independent lines running into Heathrow. It caught fire. Having a substation going out is a very low-probability event. It has three very large transformers that were all out of function, and both of the two supposedly resilient lines that go into and power parts of Heathrow also went out of function.

The Heathrow power network is set up so that we have three substations—or rather inlets of power, given that the substations are not ours. They each power different parts of the airport. We realised, during the early hours, at around 12.30 or 1.00, that we were losing power to the airport. In our operations centre, you would have seen all the red



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lights indicating that the systems were powering down. We had no information as to why.

At a slightly later stage, we then got a call from the fire department that the substation was on fire. Our fire crew also went out to help put out the fire. We were in a very uncertain situation for many hours, until 6.00 in the morning, because we could not get information on how long this would last, but we could see that one third of the airport was powering down.

This is, first and foremost, a safety situation. We need to make sure, when a crisis happens, that people are safe, and that is the first priority that we also set out—i.e. that no one is caught in lifts, that no one has gotten hurt, that no one has been electrocuted and that our systems are working. What we could see was that our systems were not working, particularly in the area of terminal 2 and the tunnel into our central terminal area. That area also houses airport-wide systems, which were also powering down as we were losing power.

Our safety resilient systems that power our safety-critical operations such as the runway, the runway lights and the tower, all switched in as they should. For the operationally critical systems, we rely on power from partners with which we have contracts for resilient power set-ups.

When we had ascertained the situation and started setting up our objectives for how we would solve this crisis, which is a standard operating procedure that we do, we set up the first objective to be back in operation by normal opening at 4.30 on the Saturday morning. The second objective was to be back in operation before that.

This is, of course, after we have secured the safety of staff at the airport, of the environment, and of our assets and our borders. After that, what were we setting out to solve? That was to be back in operation by 4.00 the next morning, considering the severity of the incident, as well as, very importantly, the uncertainty that we were in for a very long time.

We did not know exactly what was happening. At 6.00 in the morning, the fire was still blazing. The fire service had not started extinguishing the fire, I believe, but I hope that we can get more information on that. We simply did not know when we would get that third inlet up and running again. There was no information on that.

What we did know was that, in order to power the airport on the two substations that we had left, we would have to restructure the wiring—i.e. how we route the power inside the airport. That takes a number of hours, and means that you shut down the systems, rewire the power network, and then open up the systems. That sounds like a simple process, but it is a very complicated process that you need to execute in a certain sequence in order not to damage the systems and create more damage than you already had at the outset.



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We set out to follow that procedure, because, as we could see, if we were to fulfil our objective of opening fully at 4.30 the next day, we could not depend on the third inlet that we had, so that is why we took the decision that we took. We went about doing that. That takes about 10 hours to do. As I said, it is a very complicated process, and you must get it right.

We can come back to some of the details of that, but, eventually, that was a successful process, and we managed to open fully at 4.00 the next day. We also managed, in co-ordination particularly with British Airways, to open terminal 5, which was less affected by the outage, earlier than that, at 4.00 on Friday, and we had a limited number of flights arriving and departing at that time.

Maybe to address the point around why we closed the airport, when we cannot safely operate the airport, and when we cannot guarantee and have full visibility and transparency of being able to operate the airport safely, we cannot operate it. The only thing that we could have done that would have been worse than that would have been to let passengers travel from an unsafe airport. That is not an option, and we cannot compromise on that. That is quite clear in our licence with the Civil Aviation Authority. It became quite clear, quite early in this process, that we could not operate the airport safely, and that is why we closed it.

If we had not done that, we would have had thousands of passengers stranded at the airport, with a high risk of personal injury, and gridlocked roads around the airport. Do not forget that 65,000 houses and other institutions were powered down. Traffic lights did not work, just to give you an example. Many things did not work. Parts of the civil infrastructure did not work. The risk of having literally tens of thousands of people stranded at the airport, where we would have nowhere to put them or to process them, would have been a disastrous scenario that we could not look into. It was also, by the way, agreed by the airlines on the day.

Maybe I will leave it there. There are many more details, but this is a short summary of how we look at it.

**Nigel Wicking:** From our perspective, this went back a few days, because I had warned Heathrow of concerns that we had with regard to the substations, and my concern was about resilience.

Q5 **Chair:** When?

**Nigel Wicking:** The first occasion was to the team Heathrow director on 15 March. I also spoke to its chief operating officer and chief customer officer two days before regarding this concern. It was following a couple of incidents of theft of wire and cable around some of the power supply that, on one of those occasions, took out the lights on the runway for a period of time. That made me concerned and, as such, I had raised the point that I wanted to understand better the overall resilience of the airport.



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Clearly, Heathrow is a very significant hub operation. It has over 80 airlines operating through the airport. It is the hub for the UK and the major hub for Europe, we contest. As such, we need to make sure that it is resilient. It is the most expensive airport in the world with regard to passenger charges. From our perspective, that means that we should have the best service and the best infrastructure.

Regarding the day of operation, we had to divert or send back to base 120 aircraft with passengers onboard. That is not a light decision to be made in any context, and the consequence of that was that, when I joined the 5.30 call with NATS, they had run out of space for aircraft to divert to in the UK. Aircraft were then going to Europe, and some were even halfway across Europe and were going back to base in India. It was quite a level of disruption for those passengers, let alone all of the cancellations. There were 1,300 cancellations on the day, and nearly 300,000 passengers were disrupted.

The consequence of that was airlines having to fulfil a duty of care. As AOC, we are responsible, on behalf of the CAA, for sending letters out to our members, to make them aware of their duty of care—i.e. that they provide food, beverages, hotels where required, re-fighting, and refunds as appropriate—and to make sure that the passenger can, hopefully, continue their journey, either that day or beyond. For some of those who were landed in Europe, there were challenges with visas, and lots of complications that were not planned, obviously. A number of those passengers were bussed back into the UK at the expense of the airline. From an impact perspective, it was very significant.

In terms of running through the day, the biggest challenge was information. This is a global event. When you take out a hub like this, you have ops controls, which are basically managing the network for the airlines, around the world, trying to figure out, "What are we doing with our aircraft? What are we doing with our crews?" but, most importantly, "What can we do for our customers and how will we serve them to recover their journey and manage the communications of that?"

All the airlines take on that responsibility through their ops controls. To do that, they need information from Heathrow. Heathrow is very good at having community calls, and one of them in the afternoon that I was involved in maxed out on Teams with 1,000 participants. Another one had over 800. That was the level of clamouring for information.

We had asked Heathrow to put out emails with a schedule of detail as to decisions made, impact and when further decisions would be made. We got one at 5.00 pm, and we, as AOC, put one out after every one of the community calls, just to make sure that information was getting out there. Heathrow has a community app that is almost a scroll-down of updates, but, for global communication, that is not good enough. You need to have more structure in the information.



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During the day, I planted myself into Compass Centre, which is Heathrow's ops control area, and tried to convey to Heathrow the urgency of getting decisions made and information out. British Airways had let me know that T5 was operating and available to operate in the morning. They checked in with NATS that the runway was okay and NATS could operate effectively. They really did want to be able to receive repatriation flights that were stuck in Europe with visa problems and various other things. Some of those came back in late in the day, but our conjecture is that T5 could have been ready to receive those late in the morning. In addition to that, there was the opportunity to also get flights out of T5, and my feeling is that we could have made further arrangements in terms of moving passengers.

Overall, all the teams on the day put best efforts in to achieve a good outcome. On the Saturday, we pretty much recovered all of those passengers. Heathrow ran 89% of its schedule. We had 50 extra flights coming in. Airlines were increasing the size of their aircraft just to minimise the impact on passengers. The view is that, by Sunday, we had cleared the backlog of passengers.

Q6 **Chair:** There are a lot of supplementaries that people want to ask, but I do want to let Alice and Eliane answer the introductory question.

**Alice Delahunty:** This is a very rare and significant event, and we are very sorry for the very significant level of disruption that was caused. I thought it might be helpful if I just briefly set out the different roles.

There is an analogy that often gets used with the roadways. You can think about the transmission network, which I run, as the motorways doing bulk power transfer, and the distribution network—SSEN in this case—as the A roads and residential roads that go right to homes and businesses and provide power. Within homes and businesses, they have their own wiring switches and equipment, which is much more complex and significant for a complex such as Heathrow, and that is called a private network. We are talking about three different networks here, and that is the relationship between them.

In terms of the events of Thursday night and Friday, as has been mentioned, a fire broke out at North Hyde substation on one of the transformers. That was immediately visible within our control room. The standby transformer on that site switched in exactly as expected immediately afterwards, but the sudden and extreme heat of the fire meant that all three transformers onsite tripped out of service. The fire brigade was mobilised. Our incident response was mobilised immediately, and the standby engineer was sent to site.

On the night in question, the first incident response meeting happened shortly after midnight. That was run by my director of network operations. Following the sit rep that they did, where they established the situation and the severity of it, and had feedback from the standby



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engineer and the fire services, they alerted me of the situation, so I became involved at that stage.

I did the second incident response meeting in the early hours of the morning, and then travelled immediately to site. Throughout the night, we were engaged with the fire services, working very closely with SSEN and the London Resilience Forum, which was bringing all parties together to co-ordinate.

Our focus was very much on ensuring the safety of the fire services and our team on site, and making the equipment safe and dead to enable the fighting of the fire. I arrived onsite early in the morning. It was very stark to see the situation onsite, the extreme nature of it, and how professionally and diligently the teams were working to ensure safety and to fight that fire. The absolute focus was on restoring customers in the wider community, which I know Eliane will talk about in terms of how that was achieved, and on returning supplies to North Hyde substation itself.

We had confirmed that the rest of the network was secure and operating as expected. In co-operation with SSEN, we returned one route to North Hyde at about 10.00 am and then worked through the day to secure a second route to North Hyde that evening. We had a very focused response on safety and the speed of returning. Throughout that, of course, there was a lot of working with the local community for whom there was a huge amount of disruption as well.

I would just say that this is a very rare event. It is a very serious event, and we really welcome the investigation and the opportunities for us to learn across what is a multi-party event, with many interfaces and many considerations for resilience.

***Eliane Algaard:*** First, I would like to thank the Committee for the invite to present and give evidence, and to explain the steps that we took as a local distribution network operator to restore supply to all 67,000 of our customers, including the north Heathrow intake, in what was a very unusual incident.

As Alice mentioned, the National Grid substation at North Hyde has three supergrid transformers. On the night, two of these supergrid transformers were operational. Because of the incident and the fire, we had lost supply from these three supergrid transformers by 11.51 pm. I was called at 11.57 pm. At that point, we initiated our recovery programme, which is very well rehearsed. It is very similar to what we do in a storm or an exceptional event.

The first steps that we take are to assess potential options in terms of what we can do to restore supply. The way that we do it is we restore supply by switching our customers on the network, which means we reroute our network through remote switching from our control room. For the lower voltage, we dispatch workforce on the ground to switch



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manually, which is what we did. We also sent a team to National Grid, and had an experienced member of staff onsite within 30 minutes of the incident being declared, which is very useful in order to really give us an understanding of the size of the incident and developed optioneering.

At that point, within the next few hours, as I said, we worked very hard to restore supply to our customers. Within the first hour, we had restored about 64%, 83% within two hours, 91% within three hours, and, by 4.00 am, we had restored supply to 62,000 customers. In terms of the remaining 4,900 customers, as well as the north Heathrow intake, we needed to gain access to the site in order to switch what we call the 66 kV interconnector, which links the North Hyde grid supply point to another supply point.

We worked with the fire brigade. The fire was very fierce. We gained access to the site of the 60 kV compound at 6.00 am and were able at that point to assess that our interconnectors were not damaged and that there was no carbon from the smoke on the asset, which means that, once it was safe to energise, we could do so. The fire brigade was very accommodating. As Alice said, it was about making sure that it was safe onsite for the fire brigade and that it was safe to energise. We were given permission to energise at 9.30 am and, at 9.49 am, we were able to start energisation of the remaining 4,900 customers, including the Heathrow north intake.

We spoke with Heathrow at 10.00 am and offered them that connection. We then worked through the day with Alice and her team to make sure that we could also reconnect one of the supergrid transformers, and that was done at 2.22 am on Saturday morning. All of our customers were restored by 10.27 pm on Friday.

**Q7 Catherine Atkinson:** Mr Woldbye, would closure under these circumstances always have been part of the plan?

**Thomas Woldbye:** In circumstances where we cannot secure the 100% safe operation of the airport, yes.

**Q8 Catherine Atkinson:** More specifically, while I know that you leapt ahead to the assessment on safety, which I understand, in circumstances where you have lost this degree of power, was it always going to be the case that you would have had to close?

**Thomas Woldbye:** Yes. We have three inlets, as I said, each of which powers a part of the airport. It is not that we have three inlets that then power the entire airport. Each powers a discrete part of the airport. They have the capacity of 32 MW, 42 MW, and 70 MW. The one that we lost was the 70 MW one, so by far the biggest. That powers primarily terminal 2, 400 buildings, parts of terminal 4, and the tunnel that you go through to get into terminals 2 and 3, which are critical parts of the infrastructure.

Part of that is also buildings that house systems that are airport-wide, such as CCTV, some of the fuelling safety systems, and security locking



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systems for doors, which were, at least momentarily, lost. They are airport-wide systems and, when we cannot guarantee that all systems at the airport are working in the way that they should, there is no other way. We cannot guarantee the safety of passengers when we cannot process them. With no security scanners or baggage systems and so forth, there is no way that we can operate the airport safely.

**Q9 Catherine Atkinson:** We heard from Mr Wicking some queries around terminal 5. Do you feel that some of the terminals might have been able to be opened safely, or at least to be reopened sooner?

**Thomas Woldbye:** One of the reasons why we have instituted the Kelly review is to establish exactly that. It is worth knowing that the fact that the lights were on in terminal 5, which is entirely correct, does not mean that the terminal was operational. We did not have all of the CCTV. We did not have fire surveillance. The fire systems would work, so if you pulled the fire alarm, the border would come down, but the airport's fire surveillance systems were down, so we did not know whether the systems were up and safe. All of that had to be secured before we started operation.

We had very close co-operation and I spoke several times with Sean Doyle, the CEO of BA. On that, we also had some of the fuelling safety shutoffs that were not working. We had to ensure that they were working. This all happened at around 10.00 in the morning. All of that had to be ensured.

I cannot guarantee whether T5 could have opened an hour earlier. We did all that we could to get it open as soon as we could, because we fully understand the airlines' concerns around getting flights and passengers repatriated. Initially, we were of the opinion that we could not get passenger flights out, but Sean Doyle and I were instrumental in getting some critical BA flights with passengers out on the same evening.

**Q10 Catherine Atkinson:** I understand that hindsight is a wonderful thing, but, with the knowledge and the hindsight that you now have, are there things that you would have done differently?

**Thomas Woldbye:** Again, I will not pre-empt the Kelly review. It is not that I do not want to answer your question. Our industry is very fact-based. We should not speculate on things. When I look at how the command and control system of the airport worked, it worked exactly in the way that it is set up, so the right people were in the right place to take the right decisions at the right time.

I am convinced that, with the uncertainty that we were facing for the long period of time that was also described here—the fire was still blazing at 6.00 in the morning—we could not take any other decision. I am satisfied that the decision that we took to power up, based on our two substations, was the right one. That then implies that we would have to shut down the



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airport in order to power down, rewire and power up the systems. That requires closing the airport, so the answer to your question is yes.

- Q11 **Chair:** Given that the control tower, the runway lights and some terminal functionality were still operational, was it impossible to allow those planes that were already en route to land, even if passengers may have had to go to different terminals?

**Thomas Woldbye:** That is, of course, a good question. We would be able to land aircraft, but we would then be leaving them on the runways with passengers in them, not being able to process them because we did not have the safety. That is not an acceptable situation for passengers.

- Q12 **Chair:** You did not have the safety in any of the terminals.

**Thomas Woldbye:** No. We did not have the processing capacity that we needed. When we close the airport, the airport is closed. That was a decision taken considerably earlier, so no.

- Q13 **Chair:** What is the airlines' view of that question?

**Nigel Wicking:** From an airline perspective, there is a level of understanding that a decision had to be made, but there should have been constant review of that decision, particularly as we realised fairly early on that T5 and the runway were available, and those flights could have been brought in. Even if we had to manually operate those flights and receive them appropriately that way, that could have been done. Certainly, in terms of resource, we had checks in with Border Force during the day, and they had full resource capability and availability to handle operations coming in.

- Q14 **Chair:** Was a conversation had between Heathrow and the airlines on that very point, or was it too late by then?

**Nigel Wicking:** We were raising the point of allowing aircraft to come in early. In terms of the 120 diverted aircraft, that was too late. Decisions had to be made in terms of redirecting and repositioning those aircraft. In terms of then taking some of those that had been diverted and quickly bringing them back as repatriation flights, we were constantly pushing for that to take place as soon as possible. Clearly, that eventually happened later in the day, but, by then, most of the airlines had made decisions with regard to bussing and hoteling the passengers, et cetera, so it was almost too late to then make the operational decision to bring them back in later in the day.

- Q15 **Dr Arthur:** I just want to rebound back to the introductory comments, if you do not mind. Alice and Thomas, both of you stressed that this was a really low-probability event. When I think back to my university days, it is a low probability of really high consequence. Was this on your risk register? Was it something that you had planned for?

**Alice Delahunty:** From a National Grid perspective, we have full fire risk registers. We understand the risk of transformer fire, which is very low.



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Q16 **Dr Arthur:** But high consequence in this situation.

**Alice Delahunty:** Yes, high consequence. One of the reasons why we talk about this being such an unusual and rare event is that this is the first time that we are aware of that a fire on a transformer has had knock-on consequences on the entire substation.

Q17 **Dr Arthur:** Is that because of the design of that substation, or do you not know that yet?

**Alice Delahunty:** Those are certainly questions that need to be understood through the investigation.

Q18 **Dr Arthur:** Thomas, was this on your risk register?

**Thomas Woldbye:** Yes. We have risk registers that include both total and partial loss of power to the airport.

Q19 **Dr Arthur:** Yet it seems such a difficult situation for you to deal with, although it was on your risk register.

**Thomas Woldbye:** It is a difficult situation to deal with. It is, as was described here, a very unlikely event.

Q20 **Dr Arthur:** Of high consequence.

**Thomas Woldbye:** Yes, of very high consequence, which is also why we had a plan for what to do when it happened. That is exactly what we did: we switched over to the two that we had left. That takes hours, and that closes the airport. There is a long discussion, which I am sure will also come out with Kelly. I am particularly looking forward to the NESO survey. We purchase and pay for a resilient set-up from our suppliers. Are we then also supposed to have a set-up next to that? We would then have to have a whole power station at the cost of billions of pounds to the airlines at our place.

Q21 **Dr Arthur:** Your suppliers are just contractors. Ultimately, you are responsible for the running of the airport. It is up to you to make sure that the contracts that you have with your suppliers are correct. You cannot just say, "We are passing this on to our suppliers". Is that fair?

**Thomas Woldbye:** I fully agree with that, and those are also the contracts that we have in place. We have our contracts with SSEN for the three individual inlets. They are for resilient power set-ups, which include parallel supply lines that have, as I understand it, three very big transformers at the end of them. What happened should not happen, as was just described, but we have to rely on the contracts that we have. A discussion for later is around whether we should have further resilience, but that, of course, comes at a very high cost. That is a discussion that we have to have with the airlines, because we cannot make investments without them.

I am not trying to pass the buck here; I am just making it clear what the responsibilities are that we each have. Yes, we had a scenario for that,



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and that was the one that we played out, but having all three transformers and the inlets going down at the same time gives us the consequences that we saw.

Q22 **Dr Arthur:** That does not sound like resilience, though, does it? Would you like to comment, Nigel?

**Nigel Wicking:** That is clearly my concern. This is already the most expensive airport in the world. From an airline perspective, we expect resilience. We expect there to be the capability there and the understanding of, when a power supply or an asset is not available, what you will do next and how quickly you will bring it back.

Thomas shared with me yesterday that they had done a 2018 review of resilience and capability. I said, "Was that shared with the airline community for us to understand the level of resilience that you have?" and he said, "No, that is not for sharing on the phone". I said, "I think it is for sharing now, because, frankly, we pay enough". I saw the remarks in the *FT*. We already pay enough for Heathrow. I do not feel that we should be paying more for further resilience. The resilience should have been there in the first place, frankly.

**Chair:** We are going to come back to resilience shortly.

Q23 **Bill Esterson:** I just want to check something that you said there, Thomas Woldbye. Did you say that all three substations were down at the same time?

**Thomas Woldbye:** No.

**Bill Esterson:** I am glad that we cleared that up.

**Thomas Woldbye:** One substation was down.

**Bill Esterson:** I thought that I heard you say it.

**Thomas Woldbye:** It was three transformers at one substation.

Q24 **Bill Esterson:** I thought I would give you the chance to clear that up. Your 2024 annual report does not refer to electrical infrastructure or substations. Was it a mistake not to include it in the report?

**Thomas Woldbye:** That is a relevant question. There are many things that we include in our report. We have many systems. We have a few systems. We have other systems that are not mentioned. There would not be a particular reason to mention that in our report.

Q25 **Bill Esterson:** We are talking about this very serious incident, are we not? That is the one that we need to focus on today. You accept that that was a mistake. Thank you.

The airport was down for a lot longer than railways or domestic customers. Is it reasonable for airlines and passengers to expect that a fire at a single electrical substation would not be sufficient to cause a full closure of the airport? That is probably a question for each of you, but,



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Thomas Woldbye, perhaps you could have a first go at it.

**Thomas Woldbye:** The way that our resilience works is that, for our safety-critical systems—our tower, runway lights and control centre—we have immediate back-up that is based on an uninterrupted power supply with batteries and transformers to make sure that, in an emergency, we can, for example, take down an aircraft. These are regulated areas where we have to have our own back-up. When we come to the remaining part of the airport—the passenger operation part of the airport—we rely on resilience provided by our suppliers, as we do for fuel supply. We do not have our own fuel production, but a fuel supply, and that can be interrupted. We have a water supply that can also be interrupted.

For the power supply, we have contracted specifically a resilience set-up. We pay £135 million a year for energy and the resilience set-up that we have with our suppliers, which includes, as I said, back-up transformers and parallel lines into the airport from three substations. All of that is supposed to be resilient.

As we also heard, this is unprecedented and should not happen. There is a question about where the resilience should lie, and how far back up the supply chain we need to go to provide resilience above and beyond what is already in the regulation and what has been agreed with the airlines. As far as I am concerned, it is not about paying more for the airlines, but there is a discussion with them, because, as the regulations work, we cannot make additional investments without consulting with and getting approval from the airlines.

Q26 **Bill Esterson:** I think we have got the message. Nigel Wicking, what is your view on whether this was reasonable?

**Nigel Wicking:** My view is twofold. First, there is a resilience of supply into the airport. Clearly, we need to have assurance that there is sufficient power should one of those supplies go down. Recognising that this was a fire, there could have been any number of events that could have caused one of the substations to go down. That is also on the security register, et cetera.

My other concern, though, is within the airport, and the resilience and the contingencies for transferring that supply. Should one transformer go down, how quickly can you reroute the power? I believe that that is Heathrow's responsibility, possibly with SSEN, but that was what took time. It was that rerouting that was the concern, and a decision to do that at 6.00 in the morning was too late, recognising that the power suppliers were recognising the impact and making decisions literally within half an hour or an hour of the event. Why were we not doing that at Heathrow?

Q27 **Bill Esterson:** Eliane Algaard, should it have been possible for the system to have been back up and running to give Heathrow full power much more quickly?



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**Eliane Algaard:** As has been mentioned by Thomas, two additional intakes were fully available throughout the incident. These two connections have the ability to supply power to Heathrow airport's historical peak loads. At the moment, Heathrow is currently operating, and has been for the last 10 years, from these two intakes. At the moment, it has elected not to pull energy from North Hyde.

Q28 **Bill Esterson:** Alice Delahunty, why was Heathrow not able to be up and running more quickly? You have already said in writing and in the media that the two other substations were available after the fire and that Heathrow had access to power throughout the incident. Why did it not take advantage of the availability of the power?

**Alice Delahunty:** As has been explained, network resilience does rely on the ability to re-switch and re-configure to take supplies from different places. When we talk about three parallel inlets being there, and two being available, it is a question for Heathrow as to how it accesses the remaining two inlets that were available throughout.

Q29 **Bill Esterson:** Thomas Woldbye, what is your answer to those two questions from SSEN and National Grid?

**Thomas Woldbye:** As it is for SSEN, we need to rewire, exactly as was said. We need to do that inside the airport as well. That is a much more complicated process, because we have to power down maybe 1,000 systems before we do that switch, and then we have to switch it back on and power up 1,000 systems. We have looked at that, because we have not received resilient power from the third substation yet. We got a letter yesterday from SSEN saying that that would now be the case, and that power would be resilient. There is power, but, first of all, there is nowhere near to the 70 MW that we have contracted, and it is not resilient, i.e. there is still switching work going on, and we might have seen ourselves in a similar situation if we had used that substation up to now.

That has now been confirmed, so we will, of course, now look at that. Even in a planned scenario, it will take hours to make that switchover. We did take advantage of the two remaining substations as quickly as we possibly could, but we needed, of course, a little bit of certainty on where the situation was going, and whether we could get power back more quickly. When it was clear that we could not get that assurance, we took that decision as early as we could. The airlines have been kept informed all along on our deliberations, why we took those decisions, and what our objectives were in terms of getting operation back as fast as possible. That is what we did.

Q30 **Bill Esterson:** How long would it take to switch back to North Hyde if the two other sources that you are relying on at the moment were to fail for some reason, because that is the situation that we are in today?

**Thomas Woldbye:** That is what we are working on. We are working on ensuring that the two remaining substations are secure. We are working



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with our partners there to increase capacity and make sure that they are resilient. Switching back would, basically, put us in a similar situation. The airport's infrastructure has not changed. The airport has been built over more than 70 years. Terminals have been added. Power has been added. That is why we have the structure that we have. That is not unlike many European airports. There is not much difference. If we were to switch back, it would take a number of hours. That is what we are planning on doing further down the road, which would happen overnight.

**Q31 Bill Esterson:** You have a private network operated by UK Power Networks. Is that part of the problem here?

**Thomas Woldbye:** It was not part of the problem on the night, in the sense that it worked, and it played out based on the plan that we have.

**Q32 Bill Esterson:** Is it part of the problem in terms of how long it took to re-establish power?

**Thomas Woldbye:** We absolutely need the Kelly report and the NESO report to say, "Can we do these things more quickly? Are there areas of resilience that we can build in, learning from this experience, that will either shorten the time or limit the impact of a major failure such as the one that we saw?"

**Q33 Bill Esterson:** Eliane Algaard, what is your view on the arrangements? My understanding is that you do not have visibility of what goes on at Heathrow.

**Eliane Algaard:** Heathrow has a private network. We have no visibility of the configuration of the network within the Heathrow perimeter. What I can say is that we offered access at 10.00 am on Friday. We were able to re-energise and offer the capacity that Heathrow has pulled at that location for the last three years. It was a maximum peak of 22 MVA. To be clear, we reconfirmed yesterday that, if Heathrow wanted to pull 72 MVA at that connection point, it could.

**Thomas Woldbye:** There is no change here. Exactly as said, it was confirmed yesterday that we could get the capacity that we need to run a resilient operation. That was confirmed yesterday, and not before that, hence the reason we took the decisions that we took. Those were the right ones, because they enabled us to meet our objective, with the airlines, of operating the airport 100% by 4.00 on Saturday morning. Had we not done that, that would have been at risk.

**Q34 Bill Esterson:** The Energy Security and Net Zero Select Committee has heard significant evidence that businesses use private networks because you can connect more easily, and it is quicker and significantly cheaper to operate. Is that really why you have a private network?

**Thomas Woldbye:** I am not an engineer. We are not here to save money. We are here to run a resilient operation. I would like to come



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back to the Committee on that question. It is beyond my technical knowledge.

- Q35 **Bill Esterson:** Alice Delahunty, we are hearing that concern that it is a reason for private networks being used by significant energy users. Is it a concern for you?

**Alice Delahunty:** As I described, there are various different networks involved here. Private networks are not unusual. They give businesses flexibility, and it is for them to understand if those private networks are meeting their needs and requirements.

- Q36 **Alex Mayer:** We now understand that the back-up generators were working as expected and that, by the morning, there was access to power. You keep telling us that it takes 10 hours to rewire everything. Does that 10-hour period sound resilient?

**Thomas Woldbye:** In an event such as this, which is unlikely, as has been described, that is the resilience that is in place. That is the playbook that is in place. The NESO report and Kelly will review that and say, "Should we have more resilience?" but that will come at a cost. We have the regulatorily required resilience in place for our safety systems. Beyond that, we rely on partners, as we do for many other things in the airport. We have to remember that there is not an endless, seamless switchover for everything in the airport, and also not in an unprecedented event such as this one, which should not happen. We are still at a stage where we do not know why it happened.

- Q37 **Alex Mayer:** Would the cost of full power resilience be worth it?

**Eliane Algaard:** Because it is a private network and I do not have visibility of Heathrow's configuration, I cannot comment on what would be necessary to be able to do that. What I know is that Network Rail, which has a connection in-feed to North Hyde, was able to automatically transfer its 400 kV of power from North Hyde to Didcot. We also have data centres that were able to automatically engage their battery power supply in order to retain power throughout the fault.

**Alice Delahunty:** It is not really for me to comment on whether it is worth it for Heathrow. It is not connected directly to the transmission network, but we do build our network to what are called the security of supply and quality standards. Those set out the level of resilience in the network. There are options for customers to go over and above that, and those costs will be considered in the round in terms of benefits to consumers more broadly and to the customer.

**Thomas Woldbye:** If we were to refit a ring around Heathrow that would give you that full resilience, the best estimates of our engineers is that that would cost in excess of £1 billion to refit today.

**Nigel Wicking:** From my members' perspective, the resilience should have been there in the first place. I am not hearing that there was a lack



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of power to come into Heathrow. I was hearing that it took time to move that power to where it needed to be within Heathrow. For me, 10 hours was too long, and the time that it took to make the decision to go into the 10-hour process seemed too long.

If I and the airlines had understood that ahead of time as a risk of this kind of situation—yes, the fire was unusual, but I do think that the risk was there—then we might have really challenged Heathrow to find other ways of ensuring that they could return to operation quicker.

**Q38 Chair:** You say that it would cost £1 billion to build up adequate resilience, but you are spending billions of pounds on remodelling the terminals, including terminal 5, which is not that old. Has the Heathrow board, at any time in the last 10 to 15 years, been presented with a proposal to increase the power resilience at the airport and declined to do so?

**Thomas Woldbye:** I do not believe so, but I would like to confirm that to the Committee. The airport has been built in the way that it is, like many other airports, over many years. More resilience has been built into the system over time. The connection to terminal 5, for example, has four cables going in, so thought has been given to that. Also, in connection with a possible third runway at Heathrow, thought has been given to whether we could increase resilience as part of that process, and we will, of course, continue to do that.

It is important to note that it is easy to ask for resilience. The cost of full resilience at Heathrow for all operational systems would be very high, and I do not think that it is something that airlines could expect to be there. It has never been asked for, and it has been very clear in terms of what our service levels were.

**Q39 Alex Mayer:** I want to go back to the fact that inbound flights were not being allowed to land. We are being told that the safety-critical systems worked. Can you just explain what the safety-critical systems are? You are also saying that it was not safe, in effect, to get passengers to come in, because it was not possible to process them. What is a safety-critical system, and what is something that you just deem unsafe?

**Thomas Woldbye:** There are two levels of safety here. There is the aerodrome safety level: can aircraft operate safely at our aerodrome? There are then passenger safety and health and safety concerns that we have to take care of and consider. Essential safety systems are things such as airfield lighting, the control tower, the telephone exchange, the fire station, our control centre, fire systems, the fuel farm and so on. These are the essential systems that mean that we can take down and land an aircraft.

**Q40 Alex Mayer:** So you have landed it. What is the safety problem in terms of getting the passengers off?



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**Thomas Woldbye:** We have all the operational systems that are required to handle it, and that would include Border Force, for example. It would include baggage systems and, maybe more importantly in this case, air bridges to get people out of aircraft. It is all of the things that you see in the airport every day, such as lighting.

The emergency lighting was on in terminal 2. There are many critical systems. CCTV and fire surveillance, which I mentioned specifically, were not working for a period of time. In terms of access systems and the locking of doors, we need to make sure that the airport and the border are secure, and that people cannot pass. All of those were affected also in terminal 5. We needed to ensure that they were in place and up and running before we opened the terminal.

As I said, it is definitely for the Kelly review to ensure that this question is answered in the light of hindsight, because do not forget that our number one objective was for the entire airport to be operational at 4.00 the next morning, and the second objective was to make sure that we opened as quickly as possible beyond that. Those were the two objectives, and all focus was on those, together with the airlines.

Q41 **Alex Mayer:** Nigel seemed to suggest earlier that some of these things could have been done manually. Would you like to respond to that point?

**Thomas Woldbye:** I do not understand what “manually” means.

Q42 **Alex Mayer:** It could be steps instead of bridges. Maybe you would move people around the airport, or in terms of Border Force, et cetera.

**Thomas Woldbye:** This is one of the reasons why we set up the Kelly review, to make sure that we can ascertain that. On the day, it was clearly our evaluation that we did that as quickly as we could with due regard to the safety of our passengers. Could that have been done a bit more quickly? We will have to look at that, but we are talking about minutes, as in maybe an hour or two. We are not talking about any longer than that, because I know that the systems were out of function. We had a meeting at 10.00, where fuel lines were still a question, and we cannot operate without automatic fire switches on our fuel lines.

**Nigel Wicking:** In terms of T5, my understanding, both from British Airways and also from being there on the day, was that pretty much everything was fine to operate by 10.00.

In terms of the fuel point that has been raised, the fuelling company said that that was fine. They could still be operated. Even though there was not an electronic automatic cut-off, they could do it from the fuel back-up process that they had, so that was not seen as an issue at all. I do not think that there was any reason for T5 not to be used earlier—i.e. within the morning period—to receive aircraft and redirections.

Q43 **Baggy Shanker:** Nigel, we have heard a lot about hindsight, and there have been questions about why decisions were not taken more quickly. If



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passenger and employee safety was compromised, could we be sat here asking, "Why were decisions taken too quickly?"

**Nigel Wicking:** That would possibly be the case if I had not been there and talking to people on the ground from the control centre in T5 and understanding what the situation in T5 was. The reality was that T5 felt that they were absolutely ready to go.

Q44 **Baggy Shanker:** So you think that passenger safety would not have been compromised.

**Nigel Wicking:** That would not have been an issue with regard to T5, from my perspective.

Q45 **Chair:** When you say "passenger safety", what exactly do you mean?

**Thomas Woldbye:** It is the process of safely getting passengers out of aircraft and through customs.

Q46 **Chair:** I accept that it is potentially riskier to have steps than a bridge, but we use steps all the time to get on and off airplanes.

**Thomas Woldbye:** We also did not have CCTV or fire surveillance. This is a question for the Kelly report. Hindsight is very easy. Do not forget that we have to ensure that all systems are not just seen to be working, but are tested and working. I know that the lights were on in T5, and it looked as if it worked, but there were systems that were not working, and we have to make sure that they are. These decisions are taken by our incident commander, who is trained for this, and whose responsibility it is, on a personal level, to make sure that works. It is not about saying, "It looks as if it is working, so we would like to operate". These are serious concerns, and we need to make sure that they work.

At the meeting at 10.00, it was reported that fuel valves were not working. We declared it opened at 2.00, so we are talking about hours here. This is an evaluation. As you say, if we had gotten this wrong, we might be sitting here today and having a very different and much more serious discussion about why people got injured. There is a margin within which our people have to take very serious safety decisions. That is what they are trained for and what they do, and that requires that every single system is up and running, tested and safe.

Q47 **Mrs Blundell:** Thanks to the panel so far. This has been really interesting. For context, my constituency is nowhere near Heathrow. It is Heywood and Middleton, so Manchester airport is of particular interest to my constituents and to the Greater Manchester region as a whole.

This incident made me think about what the consequences might be for my constituents and for passengers across the north-west of England were a similar event to occur there. It would be really good to understand what we can learn from this incident if we are to avoid another mass power interruption, and also what the consequences might be elsewhere in the country. Could this have happened at other similar airports? I am



keen to hear from each of you, if you have a view on this.

**Nigel Wicking:** From my perspective, the most important thing is having transparency of the risk register in terms of, “Is this understood to be a risk?” and, from there, “What are the resilience, business continuity and contingency plans to address such an issue occurring in terms of power supply to an airport?”

**Thomas Woldbye:** We should definitely use this opportunity. We have made a short review of airports in the UK. They all have a similar set-up to the one that we have, hence similar risks. We need to use the outcome from the Kelly report and the NESO report to say, “How can we improve?” Of course, we would be happy to share those learnings with other airports to ensure that we all have the most resilient aviation system that we can.

**Alice Delahunty:** It seems very clear that there is a higher degree of co-operation and visibility needed through the various parties. As a matter of course, if we need to do maintenance, and we know that that is putting an airport at an elevated risk, we take a lot of additional mitigations, et cetera. What we need to do now—we would expect this also to come through the investigation—is to really ramp up that level of co-operation and visibility of the options, configurability and protocols of the various parties involved.

**Eliane Algaard:** Mine would be a very similar comment to Alice’s. I cannot comment on Manchester, but we have two other airports on our south licence, which are Southampton and Bournemouth. We understand their intake. We are liaising with them to review and support them to better understand their business continuity plans. We do that as a matter of course, for example, with hospitals that connect into our network, and we are always available to advise and to provide insight into what can be done in terms of driving better business continuity. We are looking forward to the reviews in progress to make sure that we learn from them and share that learning. We welcome that opportunity.

Q48 **Mrs Blundell:** This might be a question for Nigel, Alice or Eliane, but Thomas is welcome to come in as well. Is enough being done by Heathrow, and perhaps other airports as well, to learn from other critical infrastructure, such as data centres, which have readily available back-up sources?

**Nigel Wicking:** We have heard about the data centre reports, and I was also interested in that rail example, in terms of the speed of switching. I would want to better understand where the opportunities lie in achieving that. As I have said before, though, we have already spent a heck of a lot of money on Heathrow, so I would not be seeing this as an opportunity for Heathrow to get another £1 billion on its regulated asset base.

**Thomas Woldbye:** It is definitely an opportunity that we need to look at objectively. There are fora for infrastructure and so on, but this is



something that we should take the opportunity to do. Just as a comment, you cannot compare Heathrow airport to a data centre. An airport is much more complex than a data centre, which runs a fairly generic and consistent operation, whereas we have thousands of systems, including mechanical ones that have to work and so on. It is just a more complex operation, and do not forget that Heathrow uses as much energy as a small city all the time.

- Q49 **Mrs Blundell:** Data centres might not be the only example. As you might have seen, the chair of the National Infrastructure Commission recently suggested that we should be ensuring that resilience is built into lots of significant infrastructure by embedding national resilience standards across the board, whether that is digital, energy or transport infrastructure. I wondered if you had any thoughts on whether more Government oversight might give more confidence to passengers and operators about a level of service that they can expect. This was a very rare incident that happened, but might something like that be useful?

**Alice Delahunty:** Reflecting on your last question as well, for those that connect directly to the transmission network, we tend to have quite focused discussions on resilience and opportunities. Last year, as part of the National Energy System Operator coming into Government, they set up what is called OREM, the Office of Resilience and Emergency Management. There is a real opportunity there to look more holistically. Especially as the uses of electricity are changing through decarbonisation agendas, et cetera, the lines of the industries and those using energy are blurring and, therefore, there is this opportunity for far greater collaboration, visibility and full system looking at the resilience question.

- Q50 **Mrs Blundell:** Does anyone else have a view on whether this can be left entirely to the market? Perhaps not. It is a private company.

**Thomas Woldbye:** I know what was said there, and I would agree that it is definitely worth looking at.

**Nigel Wicking:** I do see that there is a need for clarity in terms of standards and national standards there, but I would not want it to be seen as an opportunity for operators to suddenly put a lot more money into it and charge it through to users as part of that process. This should have been part of the hygiene factors of running an airport.

- Q51 **Chair:** Many of us are realising that we do not know enough about electrical engineering. Alice or Eliane, Thomas just said that you cannot compare Heathrow's electricity uses and needs to those of a data centre. Is he correct?

**Eliane Algaard:** He is. Heathrow would be like a mini-grid, which is why it has a private network operator supporting it to manage that network. As I say, I do not have visibility of how the network is configured. In terms of transmission, we operate to very clear standards in terms of the level of resilience to our assets and substations, and I can confirm that all



of our sites that feed into the three intakes to Heathrow are operating to well above the national standards.

Q52 **Chair:** The data centre that is very near North Hyde substation did not go down, because it had built in resilience.

**Eliane Algaard:** It had back-up generators.

Q53 **Chair:** There was no what we would call a power cut there. I understand that that is because data centres build in that higher level of resilience. Is that easy for Heathrow or an airport to do, or trickier because, as Thomas said, it is a more complex system? Could you give us a layperson's explanation on the difference?

**Alice Delahunty:** Heathrow's engineers will be much closer to the complexities of their private network, but, in very simple terms, this is the difference between a new-build, single use of power, and retrofit to something that has evolved and been built over time and is over a very large space. The complexity of retrofit versus a new build is a very distinct difference between the two cases.

Q54 **Chair:** It is more which generation it is as opposed to the technical difference between the two, or is it a bit of both?

**Alice Delahunty:** The other thing that is different is that, without wanting to oversimplify them, data centres have one use for their power in one compound, as opposed to, as I think you referenced, 400 buildings and many different systems. There is a different level of complexity and diversity of the assets that you are dealing with in an airport versus a data centre.

Q55 **Dr Arthur:** I can see how having the capacity within the airport perimeter or the resilience to always operate no matter what, like a data centre, would be incredibly expensive, but, falling well short of that, you could build into your systems, Thomas, the capacity to receive flights at a much reduced level, perhaps to cater for the flights that are really close to the airport, so that they do not have to divert over long distances, et cetera. That is a kind of halfway house, is it not? It is not about having a bare minimum service. You can operate at some reduced capacity that meets the immediate needs, or some skeleton level of activity. Is that being considered or is that possible? It could be just having terminal 5 up and running quickly.

**Thomas Woldbye:** I would not rule it out. That is definitely a question that we should ask in the Kelly review. It is also in line with the five-point plan that I mentioned. We will go into that and other areas where we should find a halfway house, as you call it, and we will definitely engage with our airlines on that. I am not going to talk about money all the time, but that comes at a cost. As was also said, retrofitting full resilience would be hugely expensive. We can have that discussion. We want to do what our customers want us to do, and that is what this is about.



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Q56 **Dr Arthur:** The problem is that the failure that occurred is hugely expensive to the airlines and to the many people who were on business trips, et cetera.

**Thomas Woldbye:** That is entirely right. When we talk about resilience, in general, it will always be a balance between the level of resilience and the investment that goes into it. That is a risk evaluation, which is not 100% science.

Q57 **Bill Esterson:** I just wonder whether there are airports elsewhere in the world, perhaps more modern ones, that have this greater degree of resilience.

**Thomas Woldbye:** I know of one, which is Hamad airport, in the Middle East. It is a brand-new airport with a very high level of investment. It is a much smaller airport than Heathrow, but I know of that one.

Q58 **Bill Esterson:** How long has it been operating for?

**Thomas Woldbye:** I do not know; it may be eight or 10 years.

Q59 **Bill Esterson:** Have you looked at it to see what lessons you can learn from what is implicit in your comment, which is that it is best in class?

**Thomas Woldbye:** We will do that.

Q60 **Bill Esterson:** You have not done so far.

**Thomas Woldbye:** No.

Q61 **Bill Esterson:** That would have been a good idea, would it not? Eliane Algaard, you mentioned the fact that you cannot see behind the connections. Should you be able to?

**Eliane Algaard:** It is about respecting the fact that, as Alice was explaining, there is the transmission network, the distribution network and the private network. If we go back to the analogy of a house, should it be right for me to have visibility of, let us say, a property to see what you are doing in your own house with your own wiring?

Q62 **Bill Esterson:** You think that even for a strategically important piece of infrastructure. I am sorry, but the analogy does not stand up.

**Eliane Algaard:** It is about respecting roles and responsibilities. The NESO review and the Kelly review might find that we should have greater visibility of national infrastructure assets, but at the moment it could be seen as one company interfering in the private matters of another. It is about respecting these roles and responsibilities, but we are more than happy to work with Heathrow and its private network operator to see how we can help and how we can work together to improve resilience. As we speak through DESNZ and other groups, we are working on and looking at that type of question.

Q63 **Bill Esterson:** Nigel Wicking, I suspect that you take a slightly different view there.



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**Nigel Wicking:** It is really important to understand that this is a piece of key national infrastructure. As airlines and consumers, we do not have that expertise to understand whether Heathrow saying that it is resilient means that it is resilient. For power, water, fuel, et cetera, there possibly needs to be an independent expert perspective on that resilience and whether it is adequate. That should be shared with those who are using the airport as to whether it is adequate for them, because, clearly, a day to recover was not good for us.

Q64 **Bill Esterson:** Thank you. That is helpful. To this point that Elsie Blundell mentioned about the role of the public sector, what should Government and industry be doing together to mitigate the risks and effects of power outages that have the potential to cause so much disruption, as we have just seen?

**Nigel Wicking:** There is a big question there as to resilience. There should be hardening of assets that provide power into national infrastructure such as this, but the resilience is the big concern that we would have as a community of users. Having that assurance through a body that Government say is the right body to do that assessment is a good thing.

Q65 **Bill Esterson:** Do the rest of the panel have anything to add to Nigel Wicking's comments there?

**Eliane Algaard:** As an industry, we practise for major events on an annual basis, but it is mainly more for utilities. For example, last year, we had a project where different agencies and utility company rehearsed potential catastrophic situations. We need to involve private networks more in this type of discussion, and I am sure that that is something that we will review as part of the NESO review in terms of saying when a private network such as Heathrow, which is recognised to be critical to the UK, should be included in that type of rehearsal.

**Alice Delahunty:** I absolutely agree. These are the important questions that will be asked through the reviews that are done. There are no easy, obvious answers around your previous question of visibility into their network, for example, but what is really clear here is the need to create that co-operation and the understanding of the reliance on each other and the impact of each other's actions.

As Eliane said, there are lots of well-established industry processes within the electricity networks and the system operation for dealing with responses, but extending that further into users and their role in those exercises is likely to be a helpful extension.

**Thomas Woldbye:** On that, point 4 of my five-point plan will put in motion exactly that, strengthening our collaboration with our external partners, including SSEN and National Grid. I believe that SSEN engineers actually have quite a lot of insight into our power networks. I know that co-operation has been very close, both before and after this



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incident, but I would like to come back to the Committee to clarify that point.

On the point of resilience overall, I agree that there has never been anything held back from our airline partners as far as our resilience is concerned. They know our operation really well. Any investment that goes into Heathrow is prioritised by airlines. Every single pound we invest is approved individually and specifically by both airlines and the CAA, so there is full transparency. If that is not the case, I will be happy to make sure that happens in the future.

Q66 **Bill Esterson:** Perhaps both SSEN and Heathrow can confirm this point about how much visibility there is, because you have contradicted each other there. I will not ask you to continue.

Should the electricity infrastructure be critical national infrastructure where it is supplying such a major transport network?

**Thomas Woldbye:** Sorry, could you repeat the question? I did not hear the first part.

**Bill Esterson:** Should the supply into something as significant as Heathrow be critical national infrastructure, and regarded as such?

**Thomas Woldbye:** Given the fact that Heathrow is critical national infrastructure—maybe the NESO report can look into that—it would make good sense to say, “Which critical supply chains are potentially also critical national infrastructure?” to make sure that there is the right level of resilience?

Q67 **Bill Esterson:** I am assuming it is not currently at that status.

**Alice Delahunty:** The transmission network is critical national infrastructure.

Q68 **Bill Esterson:** But not the substations.

**Alice Delahunty:** As far as the transmission substation, I am unclear.

**Chair:** Or specific substations, because of the importance of certain—

Q69 **Bill Esterson:** Are the three we are talking about critical national infrastructure?

**Alice Delahunty:** We consider the transmission network as a whole critical national infrastructure. We work with Government on the security levels and the standards associated with that.

Q70 **Bill Esterson:** So, as far as you are concerned, the substations are critical national infrastructure?

**Alice Delahunty:** Yes.

**Thomas Woldbye:** To build on that, there is also a delivery obligation from the power networks to Heathrow. There are various levels of



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priority, and we are priority one. The confirmation we got yesterday morning from SSEN is that we would be prioritised. We have not had that before, and that is why we have not used the third inlet before now.

- Q71 **Bill Esterson:** Can you confirm that overloading of the network was not the cause, or even a factor, and that, as the grid expands with the Government's Clean Power 2030 agenda, this will not be a cause for concern?

**Alice Delahunty:** I can categorically confirm there was no overloading or overcapacity in the area. The topic you hear discussed is the long lead times to connect, because it takes time to build up capacity. There is currently absolutely no question that there is sufficient capacity in the area.

- Q72 **Bill Esterson:** There is no overloading because you are under pressure to make those connections.

**Alice Delahunty:** No, absolutely not, and certainly not in the middle of the night at the time of this incident. We were well below capacity across the entire network.

**Eliane Algaard:** I can confirm that. We have checked. The distribution network was operating at less than 30% of its maximum capacity of the North Hyde substation.

- Q73 **Bill Esterson:** Likewise, you have no concerns around future grid connections and the effect they will have.

**Eliane Algaard:** It is exactly as Alice expects. We operate within very rigorous standards in terms of what we can allow to connect on to the network to make sure we protect existing connectivity.

- Q74 **Chair:** Yes, because from west London we have known for some time that the grid capacity challenge is affecting new developments. Thank you for clarifying that it was not a factor in this incident. For Heathrow, given you are part of the west London development pipeline, you are building out at the existing Heathrow terminals. You obviously have plans to build a third runway in another terminal. You are a major member of West London Business, which is the organisation that has been pushing on this issue for some time. Are you concerned that there is sufficient capacity for expansion and for your plans?

**Thomas Woldbye:** The short answer is that yes, we will need more power at Heathrow airport. We are planning for that. We will need more power for the green transition and we will need more power for a third runway. We have already applied for a connection to the National Grid directly. That was done a few months ago, and we have paid our fees. I understand the waiting time is about seven years, so there is a long waiting time. We will need about double the amount of energy that we have today to accommodate the projects that you talk about.

- Q75 **Chair:** Would having additional energy also reduce the chance of an



outage such as you had the other week?

**Thomas Woldbye:** In the previous third runway project, if I can call it that, there were already thoughts about how we could improve resilience in various areas as building out when we make these big investments. That will naturally be the case again, yes.

Q76 **Bill Esterson:** The Joint Committee on the National Security Strategy published a report in 2022 saying that power outages have the potential to cause widespread economic and societal damage. Have any of you been looking at the work of the JCNSS and Heathrow in particular, and did you consider its findings?

**Thomas Woldbye:** I do not know that exact report. I am sure we would have people looking at it. We have looked at many other reports that I can quote from, but I do not know this particular one. It is true, and we have also had a report that we have considered, which had brought up a similar concern, which I agree with, by the way. That was a report from the National Infrastructure Commission in 2023, raising similar concerns. That report has been looked at and I fully agree with that. As I said, to expand, Heathrow will need double the amount of power that we have today.

Q77 **Bill Esterson:** Yes, the two reports are consistent; you are correct. Nigel Wicking, is this something you have been looking at?

**Nigel Wicking:** No. I participate in the security exec group at Heathrow, and that has not been shared at that group.

**Steff Aquarone:** Just to build on that point about west London expansion and the potential need for significantly more power, I am interested in who is going to be responsible, and who is responsible now, for the security at those substations. There is a question about exactly which part of the apparatus is critical infrastructure and which is not, on a site-by-site basis, I guess, but whose job is it to make sure that the sites are not able to be accessed and that, preventatively, this sort of thing does not happen?

Q78 **Chair:** There is the external access, but there have also been questions raised about the proximity of the two transformers to each other and the lack of a wall between them. Where does the responsibility lie between National Grid and SSEN? Do key stakeholders have any influence over those decisions and those policies?

**Alice Delahunty:** Within the substation that gets referred to as North Hyde, there is the high-voltage compound and the low-voltage compound. National Grid electricity transmission operates the high voltage and SSEN operates the low voltage. National Grid is responsible for the security of the high-voltage compound. We work very closely with the relevant Government Departments and agencies that determine the security level requirements per substation, and we rigorously deploy those.



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There are different categories. Of course, I am not going to go into the details of that, as that is confidential information, but we apply the standards that are provided for the rating of the substation, including North Hyde, which was secure. The low-voltage compound is operated by the distribution network, and it will be responsible for the security of that.

**Eliane Algaard:** We operate to the same standards in terms of making sure our sites are kept secured throughout our network.

Q79 **Steff Aquarone:** In terms of the practical management of site security, I appreciate you cannot go into details. I am not privy to the details of the provision at Bacton gas terminal, for instance, but I am aware that that is a site of national security. It has multiple stakeholders, including military police on patrol at all times. It sounds like you commercially, as an operator, are responsible for the security. You do not get extra support from any of the law enforcement or security agencies at that site.

**Alice Delahunty:** Again, I will not go into the details, but we do have different ratings and different provisions, given the criticality of substations. We apply them exactly as we are advised and as we discuss with the right Departments.

**Chair:** We are bordering on issues that may be questions for the Joint Committee on the National Security Strategy, which you sit on, Bill. I want to go back now to the business continuity planning at Heathrow.

Q80 **Catherine Atkinson:** We heard earlier that the failure of this substation, being one of three, would, in your view, always mean that there would have had to have been the full closure of Heathrow due to safety. Was that acknowledged in advance? If so, is that something that was shared with airlines in advance: that the failure of one substation would require the full closure of the airport?

**Thomas Woldbye:** It was on our risk register, as mentioned earlier. I do not believe it is a specific discussion that has been had with airlines, but it has not been a secret. It was reported to the Department for Transport in 2018, very specifically, that these were the systems that were backed up. The main systems that I mentioned earlier, which are the CAA control tower, the airport telephone exchange, the main fire systems and so on, would be powered up by generators and uninterrupted power supply. The comment is, "In summary, this would give us capability to deal with immediate safety concerns but not to continue operations due to passenger disruption". That was a known fact, and that was reported to the Department in 2018.

Q81 **Catherine Atkinson:** I cannot see that in front of me, but you are saying that that means a full airport closure.

**Thomas Woldbye:** Yes. If we cannot operate passengers safely, we cannot operate.

Q82 **Catherine Atkinson:** Was it just considered that the risk is so low that it



was worth taking, in that sense? Obviously this was a specific fire, but, as Mr Wicking has raised, there will be other potential threats to substations.

**Thomas Woldbye:** Yes, and they are of course considered. Mr Wicking mentioned a specific example, which I am well aware of. We did a full security scan. This is a much smaller substation that we are talking about. It is not the kind that we are talking about that went on fire. We did a full security scan, together with the relevant police authorities, and made sure that security for those areas live up to the standards that are there. This was a theft of copper, but of course we need to consider anything that could disrupt our operation.

Q83 **Catherine Atkinson:** Considering the range of possibilities that could take out a substation, do you think that it is appropriate, for nationally critical infrastructure, for that risk to be deemed worth taking and to take that gamble?

**Thomas Woldbye:** As a customer of the power companies, we need to be able to rely on the contracts that we make. As I said, that is true for water, fuel and many other things. That said, of course we consider all the risks that could hit the airport, irrespective of who is responsible. It is our responsibility to look at all those risks. That is what we have done. That is why we had a playbook that said, "How do we handle such a situation?" which is highly unlikely, which should not happen and which is unprecedented. In that situation, that was the solution that we had to bring us safely back to full operation on Saturday morning.

Q84 **Catherine Atkinson:** Does that mean we are left in a situation where the risks that were taken and the planning that was put in place mean that passengers and the airlines are having to pay for that risk?

**Thomas Woldbye:** Pay in what sense?

**Chair:** Pay for the consequences of that risk.

**Catherine Atkinson:** Yes, pay for the consequences of that risk.

**Thomas Woldbye:** The balance is, and will always be—this is what we should discuss in the Kelly review and in the NESO review—what the right balance is of those two concerns. It is investment cost. As Mr Wicking said, Heathrow is a costly airport. There are many good reasons for that. It costs twice as much to construct in London as the average of the rest of Europe, so just building in London is 94% more expensive than it is for airports in the rest of Europe. There are good reasons why Heathrow is more expensive.

Our job is, of course, to try to balance those, together with our airlines. I do not think any of these resilience issues have been kept a secret from airlines. We need to make sure that we operate the correctly risk-balanced airport, taking into consideration the resilience, the likelihood of an event and the cost of the resilience.



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**Q85 Dr Arthur:** Just as an aside, you mentioned that you wrote to the Department for Transport in 2018 around the nature of the power connection to the airport. Did you receive or expect a response to that?

**Thomas Woldbye:** I do not think that there was a response to this. This was a questionnaire that was sent out by the Department and we responded to that.

**Nigel Wicking:** I just wanted to come back on that sharing of information. As I mentioned earlier, I raised the risk with Heathrow myself, off the back of other events, recognising the potential impact. In terms of cost, this has cost the airlines £60 million to £100 million. It is difficult to actually quantify yet, but it has cost a lot.

Heathrow, in its conditions of use, absolves itself of any liability. If there were death or injury, that does not occur, but, for any operational failure that Heathrow has, it completely absolves itself of liability in the conditions of use. The airlines refute that every year in the conditions of use publishing, but by flying into Heathrow you accept the conditions of use. No one signs it, but by flying into Heathrow you accept it. You have to accept the clause of no liability to Heathrow.

First, it is unacceptable that that had not been shared with us, in terms of the detail of what risk appetite they had to take on substations. Secondly, we suffered all the cost out of this, and clearly the passengers in particular did.

**Q86 Catherine Atkinson:** Just for absolute clarity, is your view that you and the airlines were not aware that the failure of a substation would have meant the closure of Heathrow?

**Nigel Wicking:** No.

**Thomas Woldbye:** On that point, I would like to go back to the Committee. I have been in position for a little more than a year, but I do not see any reason why this information should not be shared.

I would also like to say the substation that is mentioned is very different from the substations that we are talking about here. That was not questioned earlier. That is a much smaller substation. It is a Heathrow substation, and it is secured in the way that it should be.

**Q87 Chair:** Can I just establish something about the conditions of use that you talked about, Nigel? In itself that is worth further questions, but we probably do not have time today. Are those conditions of use arrangements unique to Heathrow or unique to UK airports?

**Nigel Wicking:** They are unique to Heathrow. They are Heathrow's conditions of use that are laid out for airlines using Heathrow. It would include the charges. It would also include operating parameters, et cetera.

**Q88 Chair:** And liability for costs when things go wrong.



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**Nigel Wicking:** Yes.

**Thomas Woldbye:** Can I make a comment on that? It is, of course, Heathrow's conditions of use. They are in line with all other airports in Europe. I had this specific discussion with the CEO of Virgin and the CEO of BA a couple of days ago; they accept that the conditions of use at Heathrow are in line with the conditions of use of most of the big airports in Europe, including Copenhagen, where I was previously. These are standard terms of use. I know that airlines do not like the way it is, of course, but this is the way it is in most of Europe.

**Nigel Wicking:** I just find it incredible that an airport can absolve itself of any liability whatsoever.

Q89 **Chair:** Is Thomas correct that they are similar to other European airports?

**Nigel Wicking:** I have not seen that evidence, but that may be the case. It does not mean that it is right.

Q90 **Steff Aquarone:** We all appreciate the elucidation you have given, particularly Thomas, as to the approach to risk management. We accept that risk management is about balancing convenience, cost, risk and safety. I just wanted to put on record that the fact that we are having this type of discussion has clearly relied upon the operational excellence of a number of players, including those represented today, in the response to the events themselves. I also appreciate the detail that you have gone into.

Thomas, I appreciate that you are a business and you have commercial confidentiality and duties to shareholders, et cetera. I am keen to understand a bit more about how the balance sheet reflects the approach to risk management. How much is spent each year? I do not mean on the fun stuff that brings in more passengers, but on the boring stuff—the maintenance side of things. Just to draw people's attention, we found a 2014 report by a consultancy firm called Jacobs that did connect the potential for power outage, even briefly, to have very significant effects across the entire airport.

I know that you said that, to your knowledge, there has not been a board discussion specifically to turn down an investment proposal for something like an on-site ring main since then, but can you still give us a ballpark figure for how much is spent on the boring maintenance stuff each year? What has been done since that Jacobs report, specifically around this issue?

**Thomas Woldbye:** With a caveat of defining what the boring stuff is, we are currently investing about £1 billion to £1.1 billion a year. At least half of that goes into maintenance improvement of the current airport. We are looking at £500 million at least currently going into what you describe as the more boring stuff.



Q91 **Steff Aquarone:** The £1 billion on-site ring main thing is a very large investment, but it is not logarithmically out of step with what you are spending, for example, in a typical year on this sort of thing?

**Thomas Woldbye:** No.

Q92 **Steff Aquarone:** Have you done anything else in particular and specifically invested in any other areas to mitigate that risk of, essentially, a total airport shutdown since that 2014 report? Let us accept for a moment that that was a known risk.

**Thomas Woldbye:** I am aware of the fact that we invested in our power resilience during that period. I cannot give you an amount. The Jacobs report was there to address other issues, not specifically something like this, but, nonetheless, yes, we have. There are now four lines going into T5 instead of two, because that is a possibility. Yes, more has been done. If you would like specifics on that, I can come back to you.

Q93 **Steff Aquarone:** That would be very helpful, thank you. Can I just add a supplementary to my own question? Alice and Eliane, you have a service level arrangement and you have resilience, which unfortunately failed in this instance because of the unique nature of this fire and the consequences on that one site. What proportion of the amount that you are taking in revenue per year do you actually have to spend on making that infrastructure work to deliver that enhanced resilience requirement?

**Alice Delahunty:** Our relationship to customers is set out in codes that quite deterministically set out the level of redundancy and resilience in the network to secure that. As we have discussed, power did remain available in the area throughout the incident as a result of that inherent redundancy in how the system is designed. We consistently achieve 99.59%<sup>1</sup> of reliability on the transmission network. We have an incentive or a mechanism called “energy, not supply”, whereby we are penalised if we do not supply energy, and so that reduces accordingly.

We invest a huge amount in the resilience and the health of the network. For example, we invested £5.2 billion on asset health over the last period, £3.7 billion of which was specifically on substations and cables. We have just submitted our next five-year plan. That includes another approximately £5 billion specifically on asset health, but a further £30 billion on increasing capacity, increasing resilience and increasing security. That is a very significant part of our investment.

Q94 **Steff Aquarone:** I understand that is highly regulated. It is part of a cycle that is approved by the Departments and scrutinised by Bill’s committee. I am interested in what you get if you are paying for enhanced resilience at that site. There is an argument that says—I am sure this will be brought out in the fullness of time—that that site had things juxtaposed to each other in a way that was detrimental to the reliability of that transmitter at that transformer site. Who pays for that

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<sup>1</sup> Correction by witness: Should read 99.99999%.



stuff? Who does that on site? Is that a high-capacity, high-voltage transmission investment, or is that coming from something like the distributor?

**Alice Delahunty:** Of course, much of this will be looked at through the investigation. This substation was designed and built quite some time ago to two standards that are set out, and we work to that. As I briefly described earlier, if customers want to directly connect to the transmission network and they want very substantially increased levels of resilience beyond the industry codes, they can request and discuss that. You do get certain customers who will come to us and say, "I want three totally independent feeds", and those investments get worked up and costed, and proposals are made and worked through.

Q95 **Steff Aquarone:** Eliane, it is the same question for you. Thomas is paying you £135 million a year. Some of that is for juice, but some of that is also for the stuff you have to do to keep the lights on. How does that work? How much are you spending in that area?

**Eliane Algaard:** It is important to set the context. As a DNO, we connect to the transmission network via grid supply point, where there are supergrid transformers, which convert 400 kV and 275 kV to 132 kV and 66 kV. In this instance, because the three supergrid transformers failed at that grid supply point, we, as a DNO, lost access to power at that point.

As I said, because we had interconnectors between the Iver grid supply point and the North Hyde grid supply point, what we were able to do is that by 9.30 am, when we were able to energise, we were able to create a new connection, and therefore enable to offer power to Heathrow by 10.00 am.

It is also important to reconfirm that we are very transparent with businesses that connect on our network that a firm connection is not a guaranteed supply of electricity; it is a connection that has double circuits rather than one single circuit. For that reason, data centres or the likes of Network Rail would have an alternative business continuity plan to be able to maintain continuity of supply. It is also important to stress that, for our own network, we operate to very clear standards in terms of the level of resilience we have to offer and maintain.

To answer the next question you asked, we spend £2 billion over the five-year control period between 2023 and 2028 to maintain that level of resilience, but also upgrade our network to be able to meet net zero.

Q96 **Steff Aquarone:** None of that money was spent at that transmission site.

**Eliane Algaard:** As I said, that grid supply point is owned by National Grid. Our asset was the interconnector to connect the two grid supply points, and it was available as soon as the fire brigade gave us the green light to energise.



Q97 **Steff Aquarone:** Alice, none of that national infrastructure investment was specifically spent at this transmission site.

**Alice Delahunty:** I have not checked how much was spent at North Hyde. All sites are in a continuous maintenance, inspection and investment cycle. I would have to come back with the specifics of investment on North Hyde.

Q98 **Laurence Turner:** I want to return to contingency planning. My colleague referenced the 2014 Jacobs report, which set out some generalised warnings about the risk of electricity outages. Down the years of contingency planning at Heathrow, was this specific scenario with the complete failure of the North Hyde site identified as a risk? If so, on the night of the 20th and the 21st, was the contingency plan that was prepared for that eventuality followed?

**Thomas Woldbye:** The answer to both questions is yes. We have a plan for a total failure of power at Heathrow. We have a plan for part failure, like the one we saw. The plan was executed the way that it was laid out. Just to also comment about the comments made earlier, "At 2.00 am"—so the decision was not taken—"the airport chief engineer used his pre-period resilience plan to begin reconfiguring of the supply to terminal 2 and terminal 4. This is likely to take 12 hours in total".

Q99 **Laurence Turner:** Just to tease out the fine difference, you said the contingency plan was prepared for complete loss of power. Is that the same as a contingency plan being in place specifically for the complete failure of this substation?

**Thomas Woldbye:** There are two different plans. There is one for complete failure and one for part loss, as in this case. That is the one that was put in motion.

Q100 **Dr Arthur:** Obviously we have the two official inquiries, one from NESO and one from the CAA. Do you think these are enough to get to the bottom of what happened and what lessons we can learn?

**Alice Delahunty:** Just to add to that, there are also investigations under way by the fire services. Between that combination of investigation into cause and then the NESO's review into this wider resilience impact—because, as we have discussed, the cause is one topic; the full scale of the impact is another—we should be in a good position. The CAA is doing its work to understand the full set of opportunities to learn from this event.

**Nigel Wicking:** We welcome the CAA investigation and report. Clearly we will want to participate with that and engage with it, and also understand also what it will cover in its breadth. Yes, we certainly welcome it.

Q101 **Dr Arthur:** Thomas, you have your own inquiry, which you have referred to repeatedly as the Kelly review. Will that be published in the public



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domain?

**Thomas Woldbye:** We have published the terms of reference. I would think that conclusions will definitely be shared with the Department for Transport and also with this Committee.

Q102 **Dr Arthur:** They will not be in the public domain.

**Thomas Woldbye:** There could be safety and security concerns in there. That is a matter for the board to approve, but I would definitely think that conclusions would be shared in one way or another, yes.

Q103 **Dr Arthur:** If these reports show that either you were poorly planned or the airport dealt with the situation poorly, will you reconsider this issue around compensation to the airlines, and also passengers and your many stakeholders on site?

**Thomas Woldbye:** We should do that. I have had that concrete discussion with both the CEO of Virgin and the CEO of British Airways. On the whole matter of compensation, we have agreed that we would actually like to have a discussion about it when we know the facts, including why this fire started. We are almost two weeks in and we still do not know why we had a fire. That was the agreement we made.

Q104 **Catherine Atkinson:** You have talked about other European airports, but there was a 2023 report to the United States Congress by the Government Accountability Office that references a large hub airport there that has more than one substation. They have the ability to switch from one substation to the other if either of the substations lose power. When you talked about it costing £1 billion, is that the kind of thing that that investment would give us?

**Thomas Woldbye:** Yes. I should say the £1 billion is a very broad stroke in terms of numbers, but we are not talking about £100 million. It is a very big investment.

Q105 **Catherine Atkinson:** But that investment would mean that, if any of the three failed, you could just switch to another automatically.

**Thomas Woldbye:** Yes. What you do is you build a ring, and every building, system and machinery takes power from that ring. You then build the power supplies into that ring, so the ring does not go down, and then you actually have the supply. That is the principle that you would have.

Q106 **Bill Esterson:** Other airports elsewhere in the world are able to do it, but it is prohibitive for you.

**Thomas Woldbye:** I do not see it as being prohibitive. I see it as being highly costly, because we have an infrastructure that was built over 70 years. It has been built in parts and put together in parts. As you know, resilience has been considered many times. We have discussed resilience.

Q107 **Bill Esterson:** Yes, you have told us that. Your point is that it would just



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be that much more difficult for you to do.

**Thomas Woldbye:** Yes. It is a retrofit, and of course it is a discussion we would have to have with the airlines.

Q108 **Chair:** In an answer to a similar question earlier to me, you said you were not aware of whether the board had considered that spending decision in the past, and you are going to come back to us on whether the board has at any time considered but turned down that decision.

**Thomas Woldbye:** I do not think that decision has been turned down, but I would like to clarify the facts.

**Chair:** We will look forward to hearing from you on that.

Q109 **Alex Mayer:** How effectively did Heathrow work with other airports in the UK, continental Europe and the rest of the world during the incident to accommodate diverted flights and to reroute passengers?

**Thomas Woldbye:** The air traffic control services are handled by NATS, which is responsible for managing the UK airspace. Its standard protocols were used. It is a matter directly between the airspace management, airlines and other airports to facilitate that. We do not have visibility of where aircraft are exactly. It is clearly the airlines' wish to manage their own aircraft.

There is not a process where we co-ordinate with other airports, because it is the prerogative of airlines to do that; it is their aircraft. They are not asking us to do it either. I would not rule out whether a process like that could be replaced, but the most efficient place is for NATS to do that via its control centre, because it knows where the aircraft are and it knows where the airlines want them. Of course, we kept co-ordination with NATS throughout the process and the event.

**Nigel Wicking:** From an airline perspective, the various ops controls of the airlines would have co-ordinated what to do with those 120 that were already on their way. As I mentioned earlier, some of them would have gone back to their point of origin. Others would have been diverted, having consulted with NATS as to whether there might be airport capacity within the UK and then allowing faster access to London.

There were only about 11 spaces available, and on the 7.00 am call those were all taken. That is where airlines were then having to put their aircraft into other European airports and stations, sometimes a bit further afield, such as Newfoundland and various other locations, unfortunately.

Q110 **Alex Mayer:** To the extent that you know the answer to this one, when do you think that other airports became aware that flights would be heading in their direction?

**Nigel Wicking:** I could not tell you exactly, but as soon as the ops controls were aware of the situation and the fact that Heathrow was closed—they would have been informed via what is called a NOTAM—they



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would have then been out there trying to find where to put their aircraft. Of course, at that point, they are seeking more information from Heathrow as to how long the closure might be, et cetera.

Q111 **Alex Mayer:** Thomas Woldbye, do you think the decision to close until midnight was taken quickly and at an early stage?

**Thomas Woldbye:** Yes, it was. The NOTAM went out at around 1.40 am.

**Dr Arthur:** It was 1.44.

Q112 **Alex Mayer:** Why did you make the decision at that stage to say it was all the way up until midnight?

**Thomas Woldbye:** That was because we would not be safely able to operate the airport at opening, as already discussed. We had no visibility on when we would be able to operate the airport. Our accountable officer, who is the one in charge of taking safety decisions like that, clearly had very little visibility. We still had the blaze going on. We did not know exactly how long it would take us and what the consequences would be of the shift over that we talked about.

We need to give airlines information that they can actually operate on. We have previously seen scenarios where we say, "Well, we maybe think we will open by so and so", and then we are not, and then it rolls on, and the consequences are actually much worse than being able to take a decision. Now, we also said—and what was shared with airlines very early in the morning—that our objective was to be back in operation the next morning, but also that we would do whatever we could to be in operation faster.

Q113 **Alex Mayer:** Just thinking about all the other forms of public transport that normally access the airport—trains, tube, buses and coaches—what were your conversations with them over the whole period?

**Thomas Woldbye:** There are co-ordination calls with London where all of these entities participate, and so do we. We kept them regularly updated. I cannot remember the sequence, but it was maybe every three hours. The entire system, including the Department for Transport, is participating. The communication was efficient. We saw very few passengers turning up at Heathrow before the ones who were supposed to turn up actually turned up.

Q114 **Dr Arthur:** Willie Walsh from the International Air Transport Association, who is normally quite a quiet and unassuming character, said, "This is yet another case of Heathrow letting down travellers and airlines", and it was a "clear planning failure". You have already said you think there is a planning failure here, but what Willie is saying there is that this is yet another case of a problem at Heathrow Airport. Is it a problematic airport?

**Nigel Wicking:** Yes. From our perspective, we have to look at this with regard to future growth, expansion and investment, et cetera. We are not



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sure about the foundations of Heathrow as it stands at the moment. There have been a series of events such as this.

Q115 **Dr Arthur:** Could you give an example?

**Nigel Wicking:** We had outages during last year. We had 82 baggage system issues through the whole of last year, and thousands of bags misconnecting. From a point of view of value, as I said before, this is the most expensive airport in the world for passenger charges. The reality is that we do not get good value for money as airline users and as consumers. We need to have better surety of that value, and the value potential in terms of efficient investment, efficient services, et cetera.

As we move towards expansion, airlines are very supportive of expansion, but it cannot be under the existing regulatory framework and model, because it is just not delivering the efficiency and value that we would expect.

Q116 **Dr Arthur:** By regulation, do you mean the way Heathrow is regulated by the Government?

**Nigel Wicking:** Heathrow is regulated by the CAA. There is basically a five-year cycle of that regulation. There are expansion proposals being tabled, hopefully later this year, and there are some very big numbers associated with that, in the £40 billion to £60 billion range. We cannot go in that direction without a fundamental review of the economic model of Heathrow, because the charges today are about £25 per passenger. That is £50 per passenger for a long-haul flight. We think with rates and the business rates that could increase by another £5 to £6 in 2026, so you are straight into the £30-plus territory. In the next regulatory cycle it could be another £5 to £10. The numbers are going in the wrong direction already. If we then add £40 billion to £60 billion on to the regulated asset base, it just will not be affordable and we will have a white elephant, frankly.

Willie's comment is absolutely right. We need to get a grip of this situation with Heathrow. We need to have an airport that we can all be proud of and that really delivers great value to the economy.

Q117 **Dr Arthur:** Thomas, you have been in the job for a year or so, you explained. I guess you have come to terms with the operation. Is what Nigel is saying a fair assessment, or has he been a little bit harsh on you?

**Thomas Woldbye:** We need to understand the context that Heathrow operates in. In terms of space, Heathrow is one of the smallest hub airports in Europe. It is an interesting KPI. We operate 6.5 passengers per square metre of airport. The closest to that is Frankfurt at 2.7 and Amsterdam at 2.5.

Q118 **Dr Arthur:** Does that excuse all these problems around baggage handling and all the rest of it?



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**Thomas Woldbye:** What I am making clear is that Heathrow is highly utilised. It is very dense and very utilised. It is the most efficient airport in Europe in terms of runways and in terms of square metres.

Q119 **Dr Arthur:** You want to make it even denser with this expansion, do you not?

**Thomas Woldbye:** No, we will get it less dense by expansion, because that will give us more space. What you can say is that we are operating at capacity, which for any operational system is not a healthy situation to be in. That is where we already are.

Q120 **Dr Arthur:** Excuse me, but you are choosing to operate at capacity. You could operate at 95% capacity if you wanted.

**Thomas Woldbye:** Yes, but our airlines would not like that because that would reduce the number of passengers, which is what we all live from. We are under pressure all the time to accommodate more passengers and more flights in our system. We operate the number of flights to basically 100%. We do as much for our airlines to accommodate as many passengers as possible. On that point, do not forget that we are totally aligned, as an airport, on passengers.

Now, if we were to reduce capacity—there has previously been talk about that—there would be an uproar from airlines. That is also what happened during Covid. We are all aligned that we want as many passengers as possible.

The short answer is that we should have expanded Heathrow many years ago. We are operating at a very high level of efficiency. Of course, we are working with the airlines to make that an experience that is as efficient for the airlines as possible and as pleasant for the passengers as possible.

Since I came in, I put in place a strategy that specifically talks about value for money. We want our airlines to perceive better value for money. Are there ways we can do that? I hope so, but, as I said, in terms of expanding Heathrow, if we want that additional value for society, getting another runway is really the only solution, because currently we are running at basically 100%. As you know, when you run a system at 100%, you wear it down faster and your likelihood of getting failures is bigger. We are working every day with our airlines to minimise that.

Q121 **Dr Arthur:** To close off one last point—it has been touched on earlier—it is around the communication with airlines during this event. Some of them have said that you were quite slow to respond and the airport was not good at keeping them updated. Nigel gave that example of a Teams call with 1,000 people on it, which sounds horrendous, but I guess you were in uncharted territory. Are there lessons that can be learned through how you communicate? Do you acknowledge some of those concerns, about how airlines did not always feel they were in the loop?



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**Thomas Woldbye:** I have personally received only very positive feedback for our communication. Some of our airlines have written to us and said that the communication that was given to airlines during the incident was first class. That is these calls. It is correct that during one call we maxed out at more than 1,000 people. We have rectified that already. That will not happen again. That is the feedback we received.

If there are concrete examples on how we can improve that, of course we will take those in and we will invite that from airlines. It is part of the five-point plan that I presented. We will specifically talk with airlines about whether there are immediate learnings from this that we can put into action, absolutely.

**Nigel Wicking:** Airlines clearly have a duty to communicate to their customers and tell them what is going on. They set up their call centres and other infrastructure to make sure that they kept in touch with the consumers. One of the things that is really important there is not to just have the community calls; it is actually to have structured information, on a reasonable document, on a regular basis, just to update those communication teams as to where things are at. In the end, the airlines are basically taking care of the customers.

Unfortunately, this was a Friday, so there have been a lot of families seeking to travel for quick trips over to Europe, over to the UK or whatever. Those would have ended up as cancellations. They might rebook or they might have just actually asked for a refund. There has been lots of money lost from that perspective, it being a Friday coming towards Easter.

Q122 **Chair:** We are coming on to that. When was the Department for Transport notified?

**Thomas Woldbye:** I think it was 3.30 in the morning. We kept continuous updates. I spoke to the director general at the Department for Transport and the CEO of the CAA several times during the day.

Q123 **Baggy Shanker:** I will just start by saying that I visited Heathrow last week, and, as an untrained eye, I was really impressed on how everybody was working—the operators, baggage handlers, border security—and it looked normal to me. There is general agreement that within a day or so everything was back to normal. Just teasing out the point Scott was making around lessons learned, is there a collective approach to assessing what lessons can be learned and logging those, but doing that together rather than everyone doing it individually?

**Thomas Woldbye:** That is exactly what is in the five-point plan that I presented and that I have put in place. We will work harder with our airlines and with our partners that are sitting to the left of me. We will engage with our customers, including passengers, and say, “How can we bring that together?” If we have learned anything from this, it is that the airport has a very strong ecosystem. As you said, we are back, but we



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will indeed learn from this experience and bring that out to the wider airport community for anything we can do to improve the experience for passengers.

Q124 **Chair:** There are other lessons to learn. Gatwick Airport's southern terminal was closed for security reasons, but they moved all their operations over to the northern terminal quite quickly.

**Nigel Wicking:** There is an opportunity for the airlines to share more about their command and control structures and the frameworks they use. They are very mature and very well versed in these kind of events around the world, so there is opportunity for us to share more with Heathrow from that perspective.

Q125 **Laurence Turner:** You may feel that this question has been partly answered already, and I am conscious of time, so please do not feel the need to repeat anything that has already been said. With the benefit of some hindsight, how well do you think that Heathrow and the airlines communicated with passengers and adapted to their individual needs during this period of disruption?

**Nigel Wicking:** In the end it is the airlines that are doing the communication. Unfortunately, Heathrow does not really have a role in that, other than clearly comms were going out across London, which was good, to make sure that people knew not to come to the airport while it was quite closed. The airlines then provided a lot of information out to their customers. There are fairly sophisticated structures on that, in terms of use of phones, et cetera, but also command and control structures and call centres to back up any queries.

Q126 **Laurence Turner:** Just to check, you said, "Unfortunately, Heathrow does not really have a role". Do you think that there is a change to be made there?

**Nigel Wicking:** There is something to be investigated there as to whether Heathrow should be more consumer and customer aware in that sense. There are often conversations that it is Heathrow's customers and it is the airlines' customers, but, in the end, they are the travelling public. We need to make sure that all the appropriate parties are communicating with that community, and that they are well informed as to where things are going to be.

**Thomas Woldbye:** First of all, I like to look at the outcome. Was communication effective? Very few passengers came to the airport when they should not. The passengers who should have come came as they should, and on the following day passengers turned up as they were supposed to. The outcome was the right one. We can always look for improvements, but do not forget that we do not have the names of the passengers; airlines have that. I do not think airlines would want us to get involved in the communication with passengers, to be honest. They do that. We communicate to the airlines, and airlines decide what to communicate to passengers.



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We, of course, issue press releases to the general public. That worked really well. We have statements on our website, we have statements on our app, and we tweet and so on. I would say that, when we look back at that particular part of the process, it worked really quite well.

**Nigel Wicking:** Just coming back on that, that is why structured information is really important. If you are an ops control member of staff in Malaysia and you are trying to figure out, "Right, what is it we need to be telling our customers in terms of their flights today?", you need to have that structure, rather than just a deluge of information that might come out on a community call. You need specifics.

Q127 **Laurence Turner:** I have two more questions on compensation for passengers. The first is that, while some people will be reimbursed for cancelled journeys, most passengers will not be entitled to compensation. I am not inviting comments on what the regulations say, but do you think that that status quo is fair for passengers?

**Nigel Wicking:** In a circumstance where it is completely out of the control of the airline, the airline will make sure that the individual has food, drink, and accommodation where necessary. They are also then obliged to make sure that they are either refunded or rebooked. That is what was provided on this particular occasion. It is not fair on the airlines to then pick up on compensation for a situation they did not cause. That is clearly an issue with regard to acts of God. In this case, it was a supplier that had failed.

Q128 **Laurence Turner:** The second part was on the issue that has just been touched on, which is on delay attribution. There are other parts of the transport sector—I am particularly thinking about the railways—where delay attribution is perhaps better understood. Do you think that there is a need for change in that area?

**Nigel Wicking:** There is opportunity to have that considered within the CAA review. Certainly with regard to this circumstance, it was very clear that it was the supply of the airport provision that has failed. It does take me back to the issue of who is liable in that situation. From our perspective, the liability sits with the airport and their suppliers.

Q129 **Chair:** Is Heathrow going to seek compensation from the suppliers?

**Thomas Woldbye:** There we are back to knowing what actually happened. We will have a position on that when we know what actually happened.

Q130 **Chair:** Can I come back to something that Nigel raised earlier, which is the high charges that airlines are paying? Do you think that the CAA's economic regulation powers of Heathrow and other airports mean that the infrastructure failures at Heathrow are a product of the form of regulation that we have?



**Nigel Wicking:** Partially, yes. From our perspective, the concern we have is the current regulatory framework incentivises to get as much money on to a regulated asset base. Obviously we can share detail of what that means at a later stage. In doing so, Heathrow often gold-plates—that is the term that is used—capital projects but does not necessarily deliver great outcomes.

We have a series of situations at the moment on the horizon, let alone expansion. The terminal 4 car park is about to be condemned and knocked down, and that is potentially going to have a big price tag on it. I do not know how that is going to impact the operators that are in T4 at the moment. That is a consequence of possibly bad infrastructure being developed some time ago, but there might be examples of that in more recent times as well.

Mr Woldbye mentioned earlier that airlines sign off all the capital spend. We have to agree to a lot of the capital spend, on the basis that we do not have detailed knowledge to challenge. There are two examples where we have pushed back. On T2 baggage, there is a big baggage system going in at £1 billion. We have asked for experts to be there representing us independently. That is the first time we have got it. That should become a common practice going forward.

On another recent project there was going to be a big spend of about £250 million, and suddenly that was halved when I had pushed back to understand exactly what that £250 million was going to be spent on. There is a lot behind this where we need to have far greater transparency and detail about capital spend. The regulator needs to help us get to a structure and framework by which we can get to a far greater efficiency in that spend.

**Thomas Woldbye:** I want to make it quite clear that we live up to the regulation as it is set out with the CAA. When investments are planned, which is on a five-year cycle at Heathrow, airlines are part of the prioritisation. They have access to all the details. Every single project that is started at Heathrow goes through a number of gates. Airlines approve at gate 1 and gate 3.

Q131 **Chair:** I was actually more asking about the regulatory system, rather than the detail of how it works.

**Thomas Woldbye:** As part of the new regulation, we are under delivery obligations, which means that, if we do not deliver what has been agreed with the airlines, we get a penalty. Just to be clear, there is full transparency on investments at Heathrow. At various stages airlines have the ability to correct, stop or ask questions about investments at Heathrow.

**Chair:** Thank you. I do apologise for cutting people short, but we do have to close now. I note Heathrow Airport Ltd's commitment to the five-point plan. That is now on the public record. We do ask that the plan be



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provided to the Committee in writing, as well as the timescales that you will update the Committee on the implementation of the plan.

We are all looking forward to the NESO and Kelly reports. We are keen that the Kelly report is in the public domain as much as national security allows. I hugely respect Ruth Kelly as a former Transport Secretary, but she is a board member at Heathrow, so we do not want it to look like Heathrow is marking its own homework.

In conclusion, I thank all of you for your evidence today. Do feel free to write to us with anything that you felt you have not been able to cover adequately. We have all found this session really valuable, as have many people watching it live, I assume. That concludes today's meeting.