HOUSE OF LORDS

Environment and Climate Change Committee

Uncorrected oral evidence: Electric vehicles

Wednesday 22 November 2023

10 am

Watch the meeting

Members present: The Lord Bishop of Oxford (In the Chair); Baroness Boycott; Baroness Bray of Coln; Lord Bruce of Bennachie; Lord Duncan of Springbank; Lord Grantchester; Baroness Jones of Whitchurch; Lord Lilley; Lord Lucas; The Duke of Wellington; Lord Whitty; Baroness Young of Old Scone.

Evidence Session No. 7 Heard in Public Questions 78 - 102

Witnesses

I: Anthony Browne MP, Parliamentary Under-Secretary of State for Decarbonisation and Technology, Department for Transport; Richard Bruce, Director of Transport Decarbonisation, Department for Transport.

Examination of witnesses

Anthony Browne MP and Richard Bruce.

Q78 **The Chair:** A very warm welcome to the sixth and final session of the committee's inquiry into electric vehicles. It is very good to welcome our two witnesses. Anthony Browne MP is Parliamentary Under-Secretary of State at the Department for Transport. Congratulations on your appointment, and we look forward to speaking with you. We are very grateful to you for being with us just eight or nine days into your tenure. It is also very good to welcome Richard Bruce, director of transport decarbonisation at the Department for Transport. Richard, thank you for being with us.

Our normal Chair, Baroness Parminter, cannot be here today and sends her apologies, but we are very glad that you are with us. There are normal notices, as for every session. A transcript will be produced and made public, and the witnesses will have a chance to review it beforehand. The session is being webcast live and is available to view via the parliamentary website. Members should declare any relevant interests as per normal.

I will ask the first question. We have heard from stakeholders in different evidence that we have received that the UK has very limited incentives to support private ownership of EVs when compared to countries such as the Netherlands and Norway, which are further along the transition than we are. It would be good to know what consideration the Government are giving to developing new incentives to support electric vehicle uptake.

Anthony Browne: Thank you for asking me. It is a pleasure to be here. I caveat that by saying that I am at day eight in the job and have spent most of my time attending a summit in Dubai on sustainable aviation fuels. If you ever do an inquiry into that, I will be very happy to answer questions. I might defer to Richard Bruce a bit more than normal.

The UK has a vast range of incentives. I asked officials for a full list of them. I have them on a piece of paper and would be very happy to supply them to you. The big picture is that we are very similar to France and Germany in terms of the market share of full electric vehicles and charge points, and we are ahead of southern Europe and the US. We are behind the Netherlands and Norway, which you mentioned, but we have reached that point with quite well-targeted use of public subsidies and other regulations.

It is not just the amount that one spends on subsidies but the structure of the subsidies and what they are targeted at. There are lots of different blockages in relation to the use of electric vehicles. There is the price of electric vehicles, to start with. We had a plug-in grant of £1.6 billion as a subsidy for people buying electric vehicles. We brought that in in 2011 and phased it out in 2022. The sale of electric vehicles has jumped 45% in the year since we phased out that subsidy, so we clearly do not need that subsidy from that point of view.

A lot of the other interventions are on things like getting charge points into people's homes, which is key. We had a scheme for people having charge points in private homes with driveways. That has ended, because we think that has sufficient momentum now. There is still support for people in rented accommodation who do not have charge points.

On support for local authorities, there is the local electric vehicle infrastructure fund, for example, to get them to invest in charge points on streets. It is not just the cost of the vehicle that matters; it is having a proper charging infrastructure. People can see, hear and read about whether there is a proper electric vehicle infrastructure out there. People are unlikely to buy an electric vehicle if they do not know how they are going to charge it.

The upfront subsidy for buying a car is only one small part of all the interventions needed. On top of the fiscal incentives there is regulation. Last year, we brought in regulation that all new houses that are being built with a driveway or allocated parking space must have a charging point there. That will lead to about 150,000 new charging points every year. We are also bringing in the zero-emission vehicle mandate—I suspect you will ask about that later—to get to 80% zero-emission vehicles by 2030. That will create a lot of incentive for car manufacturers to sell more electric vehicles.

If you look at the whole package, I think from a value for money point of view we have done very well in encouraging electric vehicles through a more targeted approach to where the particular blockages are. The end result is not as extensive as we want, but the charging network is growing very rapidly and we have a market share that is similar to other countries'.

Q79 **The Chair:** We have heard particular concerns about the second-hand car market. It would be good to know what plans the Government have to ensure consumer confidence in the second-hand EV market through measures such as battery-testing standard or developing open access battery performance data.

Anthony Browne: A lot of new cars that have been bought, particularly by fleet operators, then go on to the second-hand car market. We are expecting a huge number of cars to go on to the second-hand car market, which brings down prices, which is key. I have been told that in some cases electric vehicles are now cheaper than the equivalent petrol cars on the second-hand market, which increases take-up.

You are right that you need confidence on things like battery deterioration, although, as I understand it, the concern there is that battery deterioration is not always based on what is happening. Also, batteries deteriorate far more slowly than most people appreciate, so it should not be a particular cause for concern. I know that we are looking at ways to bring in a standard and open measurement of that.

Richard Bruce: Back to the earlier point, the subsidies available on company car tax are very strong; they are worth thousands of pounds a year, potentially. That is driving demand for the vehicles that then go on to the second-hand car market, so 80% of purchases are not of new cars; they are of second-hand cars.

On the question of price reassurance, if the price of second-hand EVs go down, that makes the market more accessible for individuals, but if you have greater depreciation of EVs, that makes the lease price of new EVs go up, because they have to bear a greater part of the depreciation. It is a bit of a double-edged sword. The second-hand market for EVs has been quite volatile recently, because it was impacted by the shortage of semi-conductors, and the glut of EVs that came on to the market in 2020 is now coming on to the second-hand market, which has increased supply but not matched demand. I do not think it is normalised yet in any way, shape or form.

The battery degradation point is one concern that is often mooted but is not based on fact in the real world. There is some great data from Tesla, which you may have seen, which suggests that the average degradation is 12% after 200,000 miles, which is quite a lot of driving. Most manufacturers are now offering very long warranties on their batteries, because they have a lot of confidence that the battery will outlast the car. We are working with the sector on international standards for degradation and assurance and how consumers can get information on the state of the battery when they are buying a second-hand car. That work is ongoing.

Q80 **Lord Lilley:** I did not agree with the premise of the question. I understand that electric vehicles do not pay fuel duty. Fuel duty on average is £1,000 per car per annum. It seems to me a huge incentive. When all 35 million cars are electric, that will cost us £35 billion. What are we going to do about that?

Could you also quantify the subsidies that people who buy their electric vehicles through company schemes get? We understand that the overwhelming majority of electric vehicles are sold through company schemes because the subsidies are large. Are they quantified on the bit of paper you are going to leave us?

Anthony Browne: Certainly, full electric vehicles do not pay fuel duty, which means that they are generally far cheaper to run than petrol and diesel cars. Indeed, some of the figures I have seen are that if you charge at home, where the electricity is cheapest, it can be up to 3p per mile, which is far less than the cost of a petrol or diesel car. If you look at the life-cycle costs, it is absolutely right that electric vehicles tend to be a bit more expensive up front, but then the running costs tend to be a lot lower. You are right from that point of view.

Lord Lilley: Not the real running costs. They are getting an unfunded tax break, which you condemn normally.

Anthony Browne: You are right. Clearly, what happens with fuel duty when petrol and diesel cars are phased out is a question for the Government, and the Treasury in particular. As you say, that is a big source of revenue for the Government, and I am sure the Treasury is looking at different options for that. It is not my place to speculate—particularly on Budget Day—on what those options might be. Clearly, that is part of the transition to electric vehicles that the Government will need to consider. I know that other Select Committees, such as the House of Commons Transport Committee, have done a report on exactly this and made various recommendations.

Richard Bruce: It is worth bearing in mind that the 2035 phase-out date for new vehicles does not impact used vehicles. The average fleet turnover is about 14 years, so you will still have a lot of cars on the road burning petrol and diesel and paying fuel duty—and trucks; a large portion of the fuel duty revenue comes from HGVs, which burn a lot of fuel to take big loads a long way, so there will be no north face of the Eiger cliff face for fuel duty. It will reduce over time and, as the Minister said, colleagues in Treasury have noticed and are thinking about this.

Anthony Browne: You asked me a very specific question about the cost of the benefit in kind tax break. It is not on my piece of paper, but I suspect we can find it out, and it will be a question for the Treasury. We will write to you afterwards with that.

Q81 **Lord Grantchester:** I want to follow up on the second-hand market. We have heard that the flood of vehicles through the fleet purchases on to the second-hand market is depressing the whole industry and leading to resistance in people taking up new cars because of the price. Is there something to encourage the second-hand market and ordinary consumers to soak up these cars coming from the fleet purchases to put a stabilising force into the market?

Anthony Browne: In the second-hand market—and most car sales are second-hand—supply and demand applies. If there are more second-hand electric vehicles, the price goes down and more people will buy them. If there is a shortage of them, the price goes up.

Lord Grantchester: Hence I suggest that it is not a concern to the Government.

Anthony Browne: Clearly, we have a view on the market, but also you must allow markets to operate.

Richard Bruce: There was a unique set of circumstances this year. In 2020, the regulations that apply to car manufacturers on the vehicles that they sell got a lot tighter for that particular year, so they had to sell a lot more EVs for them to be compliant. This was before the days of the ZEV mandate. All those vehicles bought by fleets in 2020 are now coming on to the second-hand market in a big glut. At the same time, some manufacturers, particularly Tesla, have reduced the price of their new vehicles, which has an impact on the second-hand market.

Those two things combined have had a particular impact this year. That does not mean that there is a systemic problem with the operation of the two markets. These are early days for the transition to EVs, and I think it will normalise over time. Cheap EVs and lower prices are good, because they democratise the transition to electric vehicles.

Q82 **Baroness Young of Old Scone:** Perhaps I could bring in the question I thought I might ask anyway but lead into it in a different way. We heard from some of the witnesses that the second-hand market was a problem for used car dealers because they sat on the forecourt for longer and nobody wanted to buy because of a lack of confidence in second-hand electric vehicles, partly because the technology is improving so quickly that if you buy a second-hand one now you might be buying something that is not state of the art and so not very saleable in the future.

It would also be useful to get a comment from the Minister on whether something that we heard yesterday when we were talking to a whole load of younger people about EV uptake rings bells with you. They said that there is absolutely no point in them lecturing their parents about buying an EV car if the Government are pushing out the deadline and telling them, "There's no hurry". That was the message these youngsters have taken from the recent announcement about the change of deadline.

Perhaps the Minister could ponder on the second-hand market and the fact that people do not seem to want to buy these cars, even though they are cheap, and that they have this subliminal signal that there is no rush to go to EV technology.

Anthony Browne: On the second-hand market, clearly we want people to have confidence, or not an undue lack of confidence, in second-hand electric vehicles. There has been some misinformation about them which the Government will carry on trying to correct, and I think there are a lot of people in the electric car industry and charging industry who will increasingly put out more information about second-hand cars.

You are right that it is a rapidly changing technology, but if people are worried about the types of batteries being slightly older than new batteries, prices might come down and more people will buy them. That is the nature of the market. We will monitor it and see whether there are things to be concerned about. At the moment, although the second-hand car dealers might be concerned about it, in my eight days in the job it has not been brought to my attention as something to be concerned about.

Richard Bruce: For a lot of these second-hand car dealers, this is the first time they have dealt with these products. They have had a lifetime of selling combustion engine vehicles and it is all a bit new for them, so they are reluctant to have a vehicle on their forecourt that they are not used to selling. I suspect there is an element of that. We saw that with new car dealers a few years ago. They were not used to selling these vehicles and would rather sell diesel, which they knew about. That is changing, and it will change for the second-hand dealers over time.

I do think there has been an impact from a concerted campaign of misinformation over the last 14 months or so that has been pushing consistent myths about EVs that people absorb and which is reflected in their appetite. There is an anti-EV story in the papers almost every day. Sometimes there are many stories, almost all of which are based on misconceptions and mistruths, unfortunately. That has percolated through.

Baroness Young of Old Scone: Would the Minister like to comment on whether, against that background of reluctance and misinformation, it was wise for the Government to announce a change to the phase-out date, knowing that in the background the mandate was driving the market fast anyway?

Anthony Browne: I think the Prime Minister is always wise. One thing to note is that the zero-emission vehicle mandate remains completely unchanged. We will still bring that in. That will require vehicle manufacturers to progressively increase the share of zero-emission vehicles to 80% by 2030. That has a real bite. That gives certainty to the car companies, and to the electric charging industry. That is why, when the announcement was first made, it was not totally clear that the ZEV mandate was unchanged. It is unchanged, and I think the car manufacturers and the environment groups that I spoke to are massively reassured by that.

The policy reason behind it is that, initially when plug-in hybrids came out, we thought that people would plug them in a lot more and use the electricity rather than the petrol, but the performance is far more like petrol and diesel cars than electric cars for plug-in hybrids. There was no rationale in 2030 to ban the sale of petrol and diesel cars but not ban the sale of plug-in hybrids, because they were always going to be phased out by 2035.

We just equalised the phase-out date for full petrol and diesel cars with that for plug-in electric cars, because the performance, as it happens, is basically the same. We know that now, but we did not know it at the time when we announced the phase-out dates. It also aligns with what most other major countries, certainly the EU countries, are doing. It means that some people will be able to carry on buying some numbers of petrol and diesel cars between 2030 and 2035 who would not have been able to before. I think the total difference is about one million tonnes of carbon dioxide per year for those five years.

Q83 **Lord Bruce of Bennachie:** I appreciate that you have only been eight days in the job, but we have learned from the evidence we have taken that the whole process of rolling out electric vehicles cuts across several departments; indeed, the Office for Zero Emission Vehicles cuts across two. Then you have battery recycling, recharging and charging, local authority planning and all those issues. Does that office have the authority, the clout, to influence other departments and local authorities to achieve those aims? What is your standing? Are you able to say to other departments, "Look, I have an authority here. Can I check what

you're doing?" or, "Can I ask what you are doing"? or, "Can I even instruct you to be doing things?" Do you have any of that authority?

Anthony Browne: It is a good question to ask: whether the machinery of government is designed to do something like this that is cross-departmental. In a similar vein, I was previously appointed the Prime Minister's Anti-Fraud Champion to lead the Government's battle against fraud against the individual, because that cuts across all government departments and they decided to appoint one person who could then act across government departments.

I am on day eight in the job, and I am assured by officials—I have asked them the same question—that it is not a problem. It is sufficiently well co-ordinated internally within government to take all the actions and steps that we need to take. As you say, the Office for Zero Emission Vehicles answers directly to the Department for Transport and the Department for Energy Security and Net Zero.

Some of the actions that we are taking, such as the LEVI—local electric vehicle infrastructure—fund is one for local authorities and are overseen by DLUHC. I understand that we get full co-operation from other government departments, and there have been no barriers on that. Clearly, if there are other barriers, as a Minister in one department I am able to go to speak to Ministers in other departments. I do not think there is any resistance.

Lord Bruce of Bennachie: In the reporting process to you, are the other departments required to give you progress, and are you in a position to monitor that?

Anthony Browne: I can tell you that I am absolutely in a position to monitor it, in the sense that the officials in the Department for Transport follow very closely what is going on in other areas and report to me where we are making progress and where progress needs to be faster. As I say, day eight in the job and I have not seen any particular problems on the front line.

Richard Bruce: I am in year 12 of the job, and I think the best answer to that question is to look at what has been achieved. There have been changes to development, changes to building regulations—in terms of talking to DLUHC—and a fundamental change in how we approach the reinforcement of electricity connections through work with DESNZ. We work very closely with the auto sector, which was in BEIS and is now in DBT and it is completely mainstream. There are a whole load of achievements on this agenda that all require cross-government working that are happening and have happened.

The automotive transition is in the vanguard of a wider transition to electrify the economy, because it will have to happen in heating and in other sectors, because that is the most efficient way of using energy and that is how you decarbonise in many sectors. We are working very closely with our colleagues in Ofgem and with others to try to work out how a

system previously set up primarily to manage down the cost of a stable system can grow in a way that does not punitively hurt anybody but that also facilitates the drive to net zero. How we reinforce good connections, who pays, who charges and all that sort of stuff is quite radical. There is close working and great working relationships across Whitehall, and it is all quite positive.

Q84 **Lord Bruce of Bennachie:** On that wider issue, we found in a previous report that the take-up of heat pumps was nowhere close to the Government's target. You are also responsible for funding the rollout of charging. First, do you have enough resource to do that, and, secondly, do you have enough control? A lot of that is down to local authorities, for example, so what is your relationship with local authorities in rolling out the support for charging?

Anthony Browne: On charging, 70% of homes have off-street parking, with a driveway or an allocated parking space. As I said, we have supported that in the past, and in certain instances we carry on supporting charge points there. That is scaling up very rapidly.

The main areas where we think there is a role for intervention by the Government is encouraging on-street parking for people who do not have driveways and for long-distance driving, particularly motorway service stations and other places, so that there is sufficient rapid charging there. We have numerous funds that are supporting those. I mentioned the local electric vehicle infrastructure fund, which is for encouraging and helping local authorities to set up on-street charging points. That is supported by a specialist unit now to give them advice and guidance on how to have the contracts with the charging companies and how to operationalise it effectively, because local authorities do not have that skills base within them.

One of the big challenges with motorway service stations is that a lot of them are in quite remote areas and do not have very powerful electricity connections for rapid charging, so we have set up a £950 million fund for that. There are a lot of issues that need to be sorted to get that going. At the same time, there is another scheme, an interim measure, to help motorway service stations to have battery storage, so that if they do not have strong enough grid connections, they can charge up overnight. They are rapid-charging batteries, and when people come in their car they can do it.

Lord Bruce of Bennachie: You have talked about incentives and support, but if one of your colleagues in the Commons said, "It's not good enough in my area. The council's not doing enough. Other things are not happening", do you have any mandate to say to that authority, "You need to hit the target", or whatever?

Anthony Browne: Before answering that question, I should say that the charging industry has allocated £6 billion to invest in charging points, which is a huge amount of money. There is a huge amount of investment going in there because of the certainty.

To your point, we are looking at introducing powers for the Government to issue instructions to local authorities and to develop interventions that will ensure that there is on-street charging in different areas. It is not a statutory duty. That is one of the things that we looked at, but we thought that a statutory duty to have a plan for electric vehicle charging was a bit blunt, because a lot of local authorities already have that in place and are doing very well, and a statutory duty would create quite an administrative burden on local authorities without any real benefit. That is why, when time allows, we will look at more directed interventions.

Richard Bruce: Ultimately, the public in those local authority areas will be the ones who hold them to account, because it will be pretty clear where one authority is doing very well and another is not. They will all have funding and the resource, the people, to do the work, and they will have charging companies knocking on the door bidding for contracts. I think it will rapidly become clear in the league table of performance which local authorities are dragging their feet and which are not.

This is not a government-led rollout. This is led by a very dynamic, vibrant charge point sector that has lots of capital to invest and is looking at the best places to put those charge points. It is not a big state intervention, with local authorities or central government planning where things should go, because that would be entirely wrong. These CPOs, as we call them, have a lot of data and a lot of interest in these long-term investments. Our role is to gatekeep local government and to make sure that they do not enter into any silly contracts that are too short or too long or are guaranteed monopolies for a long time. That still leaves lots of other sectors that are rapid charging for long journeys and what we call destination charging at supermarkets and shops, which is going great guns with no government intervention whatsoever.

Ultimately, the combination of the public and the market will probably deliver.

Q85 **Baroness Jones of Whitchurch:** In your eight days, have you had a chance to look at the issue of battery recycling, which again is a cross-departmental issue; it is a Defra issue or arguably a Science, Innovation and Technology issue. We heard quite shocking evidence of the lack of recycling facilities for batteries when they are out of term—batteries going abroad, as we have all heard, just being melted down into a black mass with all the rare metals still in them. We are losing out on the rare metals that we should be extracting; we are losing out on the ability to recycle that material, and we are effectively dumping waste abroad. I hope that as one of your cross-departmental priorities you could talk to your Defra colleagues and begin to address that issue.

Anthony Browne: It is not something that I have addressed in my eight days in the job, where I have spent most of my time dealing with sustainable aviation fuel. I agree that it is a very important issue, and I will look at it and ensure that, if there are particular problems, they are resolved. Richard knows what is being done at the moment.

Richard Bruce: If and when a battery is no longer suitable for use in a vehicle, the first thing to do is not recycle it. The second thing to do is basically reuse it. Lots of those automotive batteries will go into energy storage in domestic homes, and potentially into shipping containers in battery service areas and other grid level storage, because if they get to capacity there is still lots of energy that they can save. The order is not to dump the car and recycle the battery; it is to reuse the battery, because they are a very valuable resource.

There are huge incentives on battery and vehicle manufacturers to recycle batteries because of constraints in the supply chain on the raw materials that go into them. There is an enormous amount of global investment going into recycling technology. There are companies starting in the UK. The Faraday Institution is doing work on this, also funded by the Government.

It is early days. There is not a huge flood of spare EV batteries piling up somewhere, and it is quite easy to paint a dystopian picture of that. These are valuable things, so it is highly unlikely that they will be dumped—and, anyway, there is a requirement in law on the manufacturers to recycle them. We are very cognisant of it, because it is one of the things that gets promulgated when saying why this is all a bad idea.

However, they will be reused first, and there will be big incentives to recycle them and to get access to the materials inside them. Also, given some of the elements, the cobalt argument and all that sort of stuff, manufacturers are very interested in moving away from reliance on those sorts of supply chains. You can buy certain manufactured vehicles now that have no cobalt in the batteries whatsoever, and motors with no rare earth in them either. Again, I think the incentives are aligned. It is not perfect, but we are getting to a position where there is no rare earth in the cars, a very efficient recycling system, and reuse first.

Lord Duncan of Springbank: Following on from Lord Bruce's comments about local authorities, £6 billion does sound like a lot of money, but if I were investing £6 billion I would probably put it into places of significant population density. We have heard already that rural areas struggle, quite often. There are several large constituencies across the land that, frankly, will be very rural indeed. The question then is: how would that money be spent, and how would you ensure that there are not parts of the country that are left behind, notably in rural areas?

Anthony Browne: It is absolutely right that we do not want any part of the country to be left behind. That is one of the things that we are looking at and monitoring, although it works both ways, and I say that as somebody who has a rural constituency themselves. It is a very affluent constituency. There are very few flats, a very large proportion of people have off-street parking, and there are very high levels of charge points. So it works both ways. That is the point of the funding that we have, like the local EV infrastructure fund; it is to help parts of the country that need help, rather than those that do not.

Richard Bruce: It is an interesting point. Although a charge point rollout has initially been centred in London and the south-east—because, to be blunt, that is where rich people have bought EVs first and where the vehicles were—if you look long term and are a charge point company, you will get the most money where you get the most usage of the charge points, which is people who are very car-dependent, who drive a very long way, and who do not have a great public transport offer. That is not in towns and cities. That is often in rural areas and market towns, because they need more electricity, fundamentally. Although it might look a bit odd at the moment, I think over time we can be quite confident that the CPO businesses will be looking to the next 20 or 30 years and putting the charge points where they are going to be used.

Lord Duncan of Springbank: If I were thinking about council houses—you can work out as a proportion how many council houses there are per constituency, and there must be some in your constituency—the people in them would not necessarily have driven. Equally, they may not be the most significant drivers either, so they may fall foul of the point you raised, Richard. I put that point out there, because it is definitely an area that might well prove to be problematic in the future if you are going to reach into each of these areas. That is an aside.

The Duke of Wellington: Mr Bruce, I think I heard you say that there is in fact a legal obligation on battery manufacturers to recycle. Could you explain that a bit more? I had not picked that point up in other evidence.

Richard Bruce: Checking my memory, I am 99.9% certain that there is an obligation on manufacturers of vehicles, just as there is on manufacturers of batteries now, to take them back to recycle them. You are seeing containers for AA batteries in lots of shops because there is an obligation on the people who sell them to basically cater for that and recycle them. That also applies to vehicle manufacturers. There is an obligation on vehicle manufacturers to deal with the waste from their product. We can write to the committee to confirm that.

Anthony Browne: We will write to you to confirm the precise detail.

Q86 **Baroness Bray of Coln:** I was going to ask you later, but it seems relevant to do so now, about the different departments you have to go to to check with and discuss, the different streams of local as well as national government. It seems that you have a lot of work to do to pull these things in all the time. Would it not be simpler to appoint some kind of ministerial task force that operated perhaps under Mr Browne—I do not know how that would work—where you could bring all these strands together? It would be a great deal more straightforward for some of the people who are waiting for decisions if there was something that they knew they could go to that would get right through.

Anthony Browne: As I said, the same thinking went into creating the role I had before as the Prime Minister's Anti-Fraud Champion. It was for the same reason. I will monitor closely how well it is working, or not working. If it is not working, if things are disjointed, and if I get

complaints from industry—or, indeed, from local authorities—and they do not know where to go, I am happy to look at arrangements and advise the Secretary of State and the Prime Minister on whether we need to do something to bring things together. At the moment, on day eight in the job, I have not seen that.

Baroness Bray of Coln: Might that be on the cards at some point, if you begin to find that it is getting too complex?

Anthony Browne: Clearly, if things are not working, we need to look at how to make things work. That is a statement of the obvious. If they are working, there is no need to change things, but I will be totally alive to that point.

Baroness Bray of Coln: Just as an example, we heard from one of the companies putting in a lot of charging points that half the time the whole thing is being held up because they cannot get decisions from further up the chain, whether from planning or whatever. Everything is in a queue, simply because there is no one streamlined area that they can go to that can take the decisions and pass them back.

Anthony Browne: There are quite a lot of different bottlenecks, as you mentioned. One of the bottlenecks for the electric charging point companies is being able to get installs with the power companies, because there has been a huge volume of interconnections going on, which has led to a backlog. As I say, if things are not working, I will very happily look at whether we need to do something. Nothing is off the table to make sure that it works.

Richard Bruce: There are two points. One is that there can be bottlenecks at a local level. These are being discovered and attempts are being made to knock them down one by one, such as in permitted development rights and the way charging companies operate with local authorities and get permission to put things in on the street. We are very cognisant of those and are working with DLUHC to change that. There was some stuff in the plan for drivers that was announced a few weeks ago, particularly with regard to streamlining the process. Now, a local authority can appoint a charge point company to act on its behalf and put charge points in without requiring planning permission for every charge point.

Those are being resolved piece by piece, but we are trying to transition a framework that was set up that did not anticipate this world, so it takes time to change them. Transport is the biggest carbon-emitting sector in government. This is the biggest policy in government to decarbonise. There is huge interest, across Whitehall and in No. 10, in this policy and in understanding the challenges and helping to resolve them. There is no shortage of interest, and there are Cabinet committees that focus on decarbonisation.

Baroness Bray of Coln: It is the putting together.

Anthony Browne: Yes, but I have not encountered fundamental challenges. The problem with the grid is well established and not easy to fix, and there is a whole lot of work going on because they apply across the whole economy. As I said, we are basically in the lead on countering those problems, but they are about how the electricity system works fundamentally, and that is knowledge. I do not think there is a shortage of interest and willingness to try to address some of these issues in central government.

Baroness Bray of Coln: Perhaps you could just speed up the decisions a bit.

Anthony Browne: In my experience, one of the challenges is having problems that are cross-departmental but the departments have different agendas and objectives. So far, on day eight in the job, I have had no evidence that other government departments are not also committed to trying to speed up and ease the rollout of EVs. There are no in-principle objections.

When you have a rapid transition, as we do at the moment, there are bound to be bottlenecks. What matters is that you ease those bottlenecks as quickly as possible. We have just reached the figure of over 50,000 public charging points, 10,000 of which are rapid charging points. It is growing very rapidly. I did some work on this a year or so ago, and we are definitely in a lot better position overall than we were a year ago.

Q87 **Baroness Boycott:** Over the course of this committee, we have heard so many different things and so many things that seem quite confusing and unclear and keep changing, such as the goalposts moving in terms of whether you get subsidies, whether you get help, whether you can park here, whether you can park there. There used to be what was obviously quite a popular campaign called Go Ultra Low, which was a partnership between the Government and vehicle manufacturers. That, we were told, was ended in 2021, reportedly due to a lack of funding.

First, was it true that there just was no money between the Government and the vehicle manufacturers, and are you going to do something new, either straight from the department or from OZEV, the Office for Zero Emission Vehicles? It does seem that some scheme and simple leaflet or online campaign would be enormously helpful, not least just to start to explain things like the second-hand market. People worry about batteries, and we are all a bit out on a limb here.

Anthony Browne: We had the Go Ultra Low campaign for eight years, and I understand that it was the only campaign anywhere in the world jointly funded by industry and government to raise awareness of this. We think that there is now enough information out there from other sources. It is very different from a few years ago. There is no shortage of different advice out there, from groups like Which? or Money Saving Expert.

However, as we mentioned earlier, we have concerns about a certain amount of misinformation that is going on, and we will carry on playing

the role, as Governments always try to do, of countering the misinformation and working with industry to do so. There is now quite a big industry, such as the charging operators, which has an incentive to ensure the successful take-up of electric vehicles, and we will work with them to try to diminish the misinformation.

Baroness Boycott: When you say you work with Which?, which all sorts of people always say, do you imply that there is a government relationship with Which? such that if Which? says X the Government agrees, X is true?

Anthony Browne: No. Which? is responsible for what Which? says, not the Government or the AA.

Baroness Boycott: If I wanted to buy one, how would I find out all the government rules, regulations, standards and information at the moment?

Anthony Browne: There is an awful lot of information out there. It is the same in any consumer area. If you are buying a washing machine or a computer, we do not advise people on computers.

Baroness Boycott: Yes, I know, but it is not, though. You are trying to make a massive change in the way we drive, get rid of vehicles, recycle them, fuel them. It is very cultural and physical. I want to know who you rely on and whether, if someone asked you, you could say, "Read X".

Anthony Browne: On day eight in the job, I am not in a position to recommend any particular thing.

Richard Bruce: Go Ultra Low came at a point where the auto sector was less enthusiastic about the transition to EVs. That has all now completely changed, so they are highly motivated to bust myths and sell these vehicles to consumers. At the time Go Ultra Low ceased to exist, there was a sense that we were moving from the early adopters of the technology into the mass market, and it was no longer the Government's job to be putting out some simplistic myth-busting information. That was before there was a very concerted campaign of mistruths and myths.

In the Plan for Drivers, there is a commitment to look again at communication materials. There are some excellent campaigns and websites out there looking at every misconception about EVs and knocking them down. There is a great one on the Carbon Brief website, there are some great ones by ChargeUK, and there is a whole bunch of stuff on the Government's website talking about the myths. There are almost different issues. There are the misconceptions about the transition and whether it is good for the environment and all that sort of stuff. There is consumer information about which car to buy and how to use it. You cannot find it all in one place, necessarily, but it is all out there, and there is lots more coming.

Baroness Boycott: Are you at any point thinking of changing the requirements in the driving test, given that you can do automatic or stick

shift? Will there be any new category adding to the familiarity and understanding of electric vehicles?

Anthony Browne: This issue has not come across my desk in the last eight days, and I do not know whether the Government have thought about this.

Richard Bruce: Nor mine, to be honest.

Anthony Browne: Electric vehicles have slightly different characteristics from normal petrol and diesel cars, whether they are manual or automatic, and they tend to have faster acceleration at low speeds, for example. Fundamentally, the Highway Code and how you drive is very similar between the different cars. Certainly, I have found driving electric cars no different from driving petrol or diesel cars.

Lord Whitty: I think you answered my question in response to Lord Bruce earlier, but to make absolutely sure, your relationship with the local authorities in the charging strategy is that you are going to beef up your advice and guidance, but you are not going to make it a statutory duty. Did I understand that correctly?

Anthony Browne: Basically, yes. We have set up the local electric vehicle infrastructure support body, which is offering all the support, guidance and information to local authorities to help them build up their expertise on the things that Richard mentioned earlier—the types of contracts, the different business models and so on. This is a learning curve across the public sector, particularly local authorities, which are not resourced to deal with that. We have committed some £37.8 million in capacity-building funding for local authorities for that.

In terms of statutory obligations, we do not think that is necessary. We think that would impose a lot of burdens on local authorities that are doing well and would not bring any particular benefit. A better way to go is powers of direction, where we can direct individual local authorities on specific issues in a targeted way. We do not have those powers at the moment, but should there be legislative time, our ambition is to bring in those powers.

Q88 **Lord Whitty:** Can I ask a different question, which relates to the relationship with local authorities but also your relations with planning arrangements? We have been told that, as far as on-street parking is concerned, that has slowed down, with the necessity and the planning to get the agreement of adjacent property owners. Have you raised that with DLUHC? Is there likely to be any change in that arrangement?

Anthony Browne: Not in my eight days in the job; sorry to keep coming back to that. I do not know if that has been an issue in the past.

Richard Bruce: I have not heard it expressed in that way. There have been problems with the permitting, as it were, for charging companies to put stuff in, requiring different approaches across the country, because it is determined by local authorities. This is something that we have

addressed in the plan for drivers—how we consult on a far more streamlined approach by which CPOs can put charge points in on local authority streets.

On your earlier point about planning and the statutory requirement, in talking to the industry, the key issued that they had, and the first one that we felt was knocked down, was that there was not the capacity or the capability in local government to do work on charging infrastructure. That is why one of the most important things in the LEVI arrangement is putting a person in every area across the country whose job it is to do charge point rollout. Having a plan is irrelevant if there is no one to do the work. That is game-changing, getting nearly £40 million to do that, plus the capital funding to do the charge point.

We are still in the process, there are people there to do the work and there is some best practice promulgated very strongly by a support body. Those things combined, plus a decent chunk of capital funding, should see the situation in local government improve. I will inquire about the adjacent properties question, but I have not heard that expressed before.

Q89 **The Duke of Wellington:** I did not quite agree with the premise of the set question, and I just heard you say that you did not agree with it either, namely that the Government do not intend to give guidance to local authorities about the local electric vehicle infrastructure fund, but you have set up a support group. Are you satisfied with the take-up of the LEVI fund? Have local authorities engaged to the extent that you would have liked them to do? Do you think that you have set this fund at a level and with a definition that is likely to lead to increased local authority installations of charging points?

Anthony Browne: Just to be clear on the point that you made at the beginning, I am not opposed to the Government giving guidance to local authorities; my point was that imposing statutory requirements on all local authorities was not necessary, for the reasons that I stated earlier.

In terms of the take-up of the LEVI fund, the LEVI fund is a successor to a previous fund, and it has been designed more explicitly to be tailored to the requirements of local authorities to ensure that there is good take-up. It is structured quite differently from the previous fund, which was just a subsidy per charge point that local authorities installed.

There are different elements to the fund. There are the grants that they give, and they have different types of grants, but there is also the capability funding that Richard and I referred to earlier, the nearly £40 million capability funding with the LEVI support bodies. So we are looking at this from many different aspects. In terms of the approach from local authorities and whether we are pleased with how much they have taken up, it is early days.

Richard Bruce: LEVI has already been piloted in the sense that we put out £60 million early on to get a taster of how this would work with different local authorities. The way the main fund is working is that it is

divided into two tranches. Local authorities get an allocation. They know what the allocation is, and they come forward with a plan, a proposal, for how they are going to use that money, including their procurement approach, which is fundamental to this. We get to look at their approach and if we agree it, we release the funding. They go on and do the procurement. That is for 90% of the funding and the last 10% comes at the end of the process when they have done all the work, effectively to make sure that it happens.

That process is probably the right one. The challenge for local government is to get their plans in a good enough shape in a short period of time. We have already had some plans in, and the deadline is the end of this month for most of those in tranche 1. We need to make sure that we are not just handing over taxpayers' money to local government without robust plans in place to spend it. There is a balance to be struck between being too perfectionist about the proposals and not getting the money out of the door and the charge points in the ground. That is a balance that we are looking at all the time.

The Duke of Wellington: It does seem to me that there is a risk in that, in the way that you have described it, you have added a bureaucratic element to the application processing procedure. I must say that I would be inclined to give a bit more discretion to the local authority, because otherwise you will just pile up the applications, they will not be processed, you will not have enough people to go over them and in effect you are back-seat driving.

Anthony Browne: With these things, you are aware, as well as I am, that there is always a balance to be struck. If we did not have any bureaucratic checks and balances, it would go to another committee—maybe not this one—accused of wasting government money on throwing it down the drain on schemes that did not have any impact. With all public spending, you have to have some process of ensuring that it is value for money. If it is overly bureaucratic so that no money leaves the door, clearly you have got the balance wrong.

It is absolutely the right thing that we will end up monitoring it as we go along, to see whether the level of checks and balances is right to ensure value for money and to ensure that there is investment in that infrastructure.

Q90 **Lord Lucas:** One of the big differentials is between someone who has off-street parking who can charge from their electricity supplier, and someone who is on-street who ends up paying a great deal more. What can the Government do to reduce the cost of on-street electricity, including by equalising the VAT between the two circumstances?

Anthony Browne: Most of the interventions that we have now that we have been talking about are about ensuring capacity for on-street parking, because that is one area where we know that there is an issue, and we need to build that up. Clearly, if there is more on-street parking rolled out, if more companies are involved with that—they are definitely

pricier, as you say, at the moment—that would help to bring prices down by increasing the amount of it.

On the VAT rate, VAT on domestic energy is at 5%, which was set I think in 1997. VAT on electricity bought outside the home is 20%. That is a measure for the Treasury. If you want to ask about VAT policy, that is set by the Treasury not by the Department for Transport. I do not think that I am speaking out of turn to say that the risk of deadweight costs is one of the things that the Treasury would be looking at.

The other point to make is that the difference between VAT at 5% for electricity at home and 20% for electricity on the street is only a very small part of the difference in price. The pricing of electricity can be two to three times as much on the street as it is at home, and there are different elements of that. That is the rate at which the charge point operators charge themselves. They are commercial companies. If you are plugged in at home, you are not dealing with a charge point operator, you are just plugging directly into the grid.

The rates that charge point operators pay to the electricity companies will be probably higher or different from the charges at home. So there are multiple different factors in the pricing and the 15% differential on VAT is quite a small part of that. So, even if you equalised it, it would not be the whole solution.

On your general premise, clearly we want to reduce barriers to take-up. We want people across the income scale to be able to use electric vehicles. It is an absolutely valid concern to look at.

Richard Bruce: In the hierarchy of costs and charges, off-street at home every night is the cheapest. Rapid charging at motorway services is probably the most expensive. On-street charging overnight will be cheaper than rapid charging, generally speaking. As the market matures and the energy system integrates more, I suspect what you will see is charge point companies offering grid services, getting value for that and passing on those savings to consumers.

The ability to cede control of when you charge your vehicle—you plug it in at night but you do not need it charging the whole time—has value to the charge point company and it can sell that to an energy company and pass that on. So you will get a cheaper tariff if you do that.

Ultimately, you will get vehicle to grid, where the charge point company can take maybe 1% of the battery, feed it into the grid and that will be a payment to the consumer, potentially, so it will be an even cheaper tariff. By having a model where generally speaking those who do not have off-street parking are charging on-street overnight, that opens up that world of different tariffs, smart charging and cheaper electricity to those people in a way that is not the case if they are only rapid charging.

Q91 **Lord Lucas:** Another big differential obviously is the capital cost of these things. If you go to China, you can buy a weatherproof electric vehicle for

about £2,000. There are equivalent vehicles on the streets of London, but only delivering goods. What are the Government doing to address the problem of the standards that are required, which appears to be preventing UK manufacturers offering cheap, short-range electric vehicles for use in urban situations?

Anthony Browne: The price of electric vehicles has been coming down quite a bit.

Lord Lucas: This is not so much the price as the type that is being offered. There are electric SUVs, but there is nothing at the bottom.

Richard Bruce: That is an interesting question. If you start at the bottom and work your way up, you have what we call L-category vehicles, which is everything from electric mopeds to tricycles. You will see increasingly electric delivery vehicles, maybe with four wheels or three, maybe with a cover. They are regulated in that category alongside motorcycles. Above those, you have what are called quadricycles. You do see car manufacturers binging electric versions of those vehicles to market. The Citroen Ami, which you might have seen, is £4,000.

Lord Lucas: It is useless; you cannot fit any luggage in it.

Richard Bruce: But there are vehicles coming to market. The issue with those is that they are not built to the same structural standards as a whole vehicle. The G-Wiz, which some of you may remember, was a quadricycle. It was a cheap, very short-range ENVIRONMENT, but not as safe as a whole car. I suspect, as people's mobility needs change—you are already seeing far greater granularity in the mobility solutions available to people. It used to be: "That is a car. That is a bus. That is a taxi. and that is a bicycle", and you are getting that sort of smeared. You are seeing things that are not quite cars and that are not quite mopeds. That is a good thing, because there are more solutions for people.

The question is: is the regulatory structure keeping pace with that change? Sometimes you are trying to regulate mobility solutions with legislation from the 19th century and that does not work. That is a constant challenge. On your fundamental point, those products are coming to market. Another manufacturer that I know is doing something like the Citroen Ami but maybe with a bigger boot. They are coming to market.

Q92 **Lord Lucas:** Last question: what are you doing to make sure that the charging structure is suitable for automated vehicles when they become generally available, since we are passing a Bill on that?

Anthony Browne: You are absolutely right; we are about to pass a Bill on that. My ministerial colleague, Lord Davies, is bringing it to the House of Lords first to start it there and then it is coming to us.

Lord Lucas: How does an automated vehicle automatically charge at an on-street charging point?

Richard Bruce: There have been automated charging points that have been demonstrated in trial, with robotic arms plugging in. There is wireless charging, potentially. The mass-market adoption of robo-taxi style stuff is not here yet, but I am sure that the manufacturers that are making those vehicles will be thinking about that and there are technical solutions. With inductor charging you just park over a certain plate. That can be controlled electronically within the vehicle by the automated driving system, and they can charge. It is not an insuperable problem.

Anthony Browne: There are automated lawnmowers that take themselves around. They automatically dock into the charging place and get charged before they go out. The technology clearly is there and doable, but this is some years ahead.

The Chair: Before I come to Lord Lilley, could I rewind to the previous question? We were missing an explicit response on whether the Government are monitoring the number of local authorities that are applying for LEVI and whether you are content with the progress so far?

Richard Bruce: Yes to monitoring. We will answer to the content after the end of November. If we do not get as many as we need, we will need to think again about the process.

The Chair: Could you write to us?

Anthony Browne: We can write to you and update you.

Q93 **Lord Lilley:** The rapid charging fund was announced in March 2020. When is it going to be opened and why would you open it, given your very sensible remarks about the market having masses of expertise and capital to install rapid charging points, which are essentially for in-journey travel? We did not have to subsidise the spread of petrol stations.

Anthony Browne: The Government have identified that at the motorway service stations there is a gap, in that it is not commercial for a lot of them to spend the money on the electrical infrastructure for the grid to the motorway service station and it would be uneconomic for them to install rapid charging because of that.

Lord Lilley: How can it be uneconomic when they can just charge a price that covers their costs?

Anthony Browne: That is why the Government have done it, because it is not economic. Part of the role of government is to ensure that we do not have range anxiety, that people do not end up with motorway service stations that decide not to install rapid charging because it is too expensive to make the connection to the grid, or that, if it is done, the charging is so high that it is punitive for drivers. It is a valid role of government to look at whether there are specific bottlenecks and try to get over those bottlenecks before the industry takes off.

Richard Bruce: The Government do not have an interest in charge points, per se; they have an interest in the transition to electric vehicles, to decarbonise, among other reasons. A key barrier in the mind of many consumers is their ability to make longer journeys. That requires them to be able to have a visible charging structure that they can see, in advance of purchase, that they know that they could use for the longer journeys that they might want to do. The offer at many motorway service areas is suboptimal, to put it mildly. Some areas have banks of empty chargers because they have a good, fat, juicy electricity connection. Others have two and that is all that can be powered at the moment. That is not a compelling offer for some people making those journeys.

The challenge with MSAs, motorway service areas, is that they are where they are. They are not going to be moved. Some of them are close to connections and they have a lot of electricity. Others are in the middle of nowhere and it is very, very expensive to get a lot more electricity there. Previously, the electricity was to power the lights and the coffee machine. You hear apocryphal stories that, if they put the chip fat fryer on, the lights go out now. Therefore, their ability to have 1,650 kilowatt chargers is very, very remote.

If you waited for it to become commercial for those locations to invest in electricity connections, purely funded by the revenues from a few rapid chargers, it will not happen quickly. The purpose of the intervention is to level up that playing field and to say that the Government will help with the cost of the connection at locations that require it where it is non-commercial so that you can get a lot of charge points in.

Rather than that happening incrementally, so that you get a little upgrade and only get four chargers, they get full and there is queuing, and then you get another upgrade and another four chargers, dig once, one investment, one big upgrade, futureproof that key, strategic location for a world where 100% of the cars are zero emission. Then you can put in the chargers as and when you need them, as you get more and more demand. That is the theory.

That reason that it has taken a long time is because this is incredibly complicated. It is challenging in terms of how you deal in regulatory terms with who pays for the electricity. We have to work closely with Ofgem to agree a new approach so that those using the charge points are not faced with the whole cost of that upgrade at the point at which they want to put two new chargers in. It is also a complex, competitive landscape where you have existing operators, you have the motorway service areas, and you have potential new operators as well. We thought it would it be a reasonably simple policy and it is not. However, there has been huge progress made and I hope that there will be good news on this very, very soon.

Lord Lilley: Chair, do we have any questions about the rather surprising evidence that we had from the grid that there was no problem about them providing electricity to places?

The Chair: Yes, we will come on to that in Baroness Jones's questions.

Q94 **Baroness Young of Old Scone:** I have a mad vision of the future. If you take the various things that will have to happen for domestic premises to decarbonise, there is the whole business of getting people off gas and oil and on to air or ground source heat pumps or other electricity-driven technologies. Alongside that there is a similar setup with people getting kitted up for electric vehicles. However, we are not looking at that in any integrated way.

The main part of the question is to focus on a good document, the January 2023 EV smart charging strategy, which was gung-ho about things that needed to be done and were going to be done. Could I ask some specific questions about that and then broaden it out to my mad vision? It seems to me that if what we need to do is to re-engineer domestic premises to be zero carbon for both energy and transport, we should be doing that in an integrated way.

Let me ask my specific questions first because they are germane to that. The smart charging strategy talked about an evidence base on how far smart charging and vehicle-to-grid charging would reduce energy system costs. When will we see that work? Are the Government thinking—and if so, when—of prioritising appropriate asset metering standards to allow smart charging and demand flexibility for electric vehicles to happen, so that we can see a future where smart charging and vehicle-to-grid technology is fundamental to the way in which homes operate: the home, the heat pump, the battery wall, the charging point, the talking to the grid and bidirectional, the smart charging? Are we anywhere near getting that as a package, and my two specific questions on things that were promised in the smart charging strategy?

Anthony Browne: You make an interesting point. Obviously, the evolution of charging for electric vehicles is at a different pace from heat pumps. I cannot talk about the heat pumps policy, but clearly it makes sense to try to co-ordinate it as much as possible from a domestic point of view.

On your view of smart charging, there is already a requirement that all the charge points being installed have smart charging functionality so that they are future-proofed so that we will not need to replace the charge points in the future when smart charging comes in. We have laid that groundwork, but it has not come in yet. There are no particular barriers to it coming in.

Richard Bruce: That work is being led out of DESNZ. Rather than giving you a waffly answer, I would rather write to you with specific answers on those specific questions about the assessment of the costs and the stuff on metering.

Your broader point is well made, which is picking at the problem of electrifying the economy mode by mode rather than holistically. That is changing. The approach of DNOs, distribution network operators, the

local grid companies, to investing has been changed in the latest period, where they are able to anticipate, far better than they were previously, upcoming demand for things like heat pumps and for electric vehicles, to make sure that the local grid is being reinforced accordingly.

That was not always the case. It used to be the case that if you installed a power shower in the street and you tripped the need for a new local substation, you were liable for the cost of that. That is changing and I think that that is a very good change. So the landscape is changing, and it is all part of pushing the envelope and changing the entire system. However, I will write to you with the specific answers to specific questions on smart charging regulations.

Baroness Young of Old Scone: Does your wish to consult another government department on this highlight Baroness Bray's question that perhaps there needs to be a co-ordinated approach?

Richard Bruce: No, the people doing that work with colleagues in OZEV. We have dedicated DESNZ people working in OZEV. I just do not have it in my head at the moment to give to you; it is a mere phone call away.

Baroness Young of Old Scone: Will you write to us on both of those questions?

Richard Bruce: Yes, I am happy to.

Q95 **Baroness Jones of Whitchurch:** My question follows on from this. We heard from National Grid that overall, in its perspective, there was not a problem about the supply of electricity, but we have the DNOs underneath all of that. We heard a lot of evidence in individual regions or individual places where the supply of energy simply was not good enough. You have started to address that, but part of this comes back to who is responsible for what.

Ofgem is going some work on it, your department is doing work on it and DESNZ is doing work on it. Give us some more reassurance that there is strategic thinking going on there about the supply. We have National Grid, but unless we are addressing it at a regional and local level there are going to be the bottlenecks that we have identified. It feels as if there is not a grand plan to roll this out in a systematic way.

Anthony Browne: Again, I will give the high-level answer and then hand to Richard. I know that this is a concern of the Government and that DESNZ is doing work on it. As we decarbonise and electrify the economy more widely, clearly demand for electricity goes up rapidly as we have vehicles and homes and all these other things that we used to use fossil fuels to power. The National Grid infrastructure needs to keep up with that. There are a lot of projections that the Government have done about the increasing demand for electricity as we head for net zero by 2050. There definitely is a lot of work across government looking at that.

Richard Bruce: The terms of this sometimes get a bit confused. It is worth separating out generation, transmission and distribution. The

impact on the overall electricity demand for the UK, which National Grid is offering, which we do talk about and are very bullish about, from the transition to EVs is not that significant, because most of the demand will occur in the off-peak at night.

If you look at demand through the day, it is up in the morning, level in the day, with a big peak and 7 pm and then there is a big trough. Most people will charge then because they will be incentivised to charge then. With generation there will be an increase, but it is not, as some people have done in their myths, which is to add up all the cars, multiply that by a number, stick it on the peak and say that that is X new gas-fired power stations or Hinkley Bs. That is not what will happen. Generation is in the planning. It will happen, and it will be far less for transport than it is for other sectors.

Transmission also is not a problem. It is an issue in terms of new transmission connections. That is pylons, connecting up wind farms and so on, which National Grid is in charge of. There is work ongoing to speed up that connection process. Once the transmission comes down, it is then stepped down in voltage terms into the distribution network. It is not a question of: is there enough electricity, is there enough electricity in this particular location, do we need to upgrade the fuse in your house, the substation on the street, the substation further down and is that part of the planning?

There are two issues. First, is that network ready and how do we get it future-proofed quickly so that we do not have people who are being turned away from electric vehicles because there is not enough power in the local area? That is not happening yet. The second question is the speed of getting connections. A lot of work going on with this, called the connections action plan, which should be published very, very soon. That is looking at the broader transmission network point and the speed of connections at the distribution level. It is top of the list with us and with DESNZ.

Q96 **Baroness Jones of Whitchurch:** The evidence that we have received is that the DNOs are working on a first-come, first-served basis. That is not helpful in the current climate, and it goes back to Baroness Young's point, which is that they need to have a bigger strategic overview of the future and they need to plan for the future, where the real demands are going to be. Are we facilitating that with National Grid and the DNOs so that they are not doing it on first-come, first-served, because they need to plan strategically for the future?

Anthony Browne: They are starting to do that now, and prioritising electric charge points.

Richard Bruce: There are two issues there. At the macro level, is the transition to electric vehicles planned into generation transmission distribution? Yes. The mandate is very helpful in that respect because it gives you a given minimum level of uptake, which you can very easily turn into demand and what it will mean in local areas. There is ongoing

work to address the delay issue, but there is also going to be work—I do not want to steal the plan's thunder—to look at the spatial planning aspects regionally of electricity demand.

My role is not just cars and vans, it is the transport system as a whole. Although cars and vans are in the vanguard of this move to electrification, other modes will come, including, potentially, ports and airports, not necessarily for planes but for ancillary vehicles. Thinking about where big demand will happen across the country in the decades ahead is a key part of that process. That thinking is starting to happen.

The queuing process is part of the system being set up historically one way. If you are a developer building a housing estate, you get your foot in the door with your plan for a connection to the grid, then investment falls away and you still have your place in the queue. The queue-management process is DESNZ's lead and it is looking at that.

Q97 **Lord Grantchester:** On the back of that, can I quickly add the point about the rural areas that Lord Duncan brought up? Yes, the standard historical supply to houses reduces the voltage right down to 11 kVA. In the rural areas, it is even more; there are longer distances involved. To upgrade those homes so they are not supplied by what I would call a piece of wet string will be substantial. I do think that Baroness Jones has a good point when you analyse the challenge for the rural areas.

Richard Bruce: I agree; that is right. I am not pretending that this will be simple, but there are plans in place. Some of the historic ways of connecting up houses, with a connection going into one house and then going through the wall between them is highly suboptimal for electrifying transport and heating.

Lord Grantchester: Or a looped supply to two or three houses in a remote rural area.

Richard Bruce: Yes, and fuse upgrades, ancient cabling in the ground. All these things need to be addressed. The question is whether they are addressed, who bears the cost and how fast it happens.

Q98 **Baroness Young of Old Scone:** That was the question that I wanted to ask, but now that you have given an answer, the question is: when will we know who pays? When we had a DNO in front of us, we were told that the looped connections were going to be funded centrally rather than by the individual householder and that that was a programme that was going to be addressed rapidly, but we were not sure how rapidly. If you then add that on to the rural challenge of dodgy remote connections and pieces of wet string, the big question is: when will we know what the timetable might be and who is going to pay? The two are linked.

Anthony Browne: That is a valid question. However, this is DESNZ's lead because it is not about decarbonisation of transport, it is about electricity supply, so you will need to ask DESNZ Ministers about that. In terms of funding, the Treasury will have a particular interest in that. I am not trying to be evasive, but it is not within my remit to answer that.

The Chair: That again is highlighting the need for co-operation.

Anthony Browne: Absolutely. It is a very valid question, and I am happy to raise it with my fellow Ministers in other departments about that the plans are for that.

Q99 **The Duke of Wellington:** A quick supplementary. One or two references have been made to the mandate that by 2030 80% of cars should be electric. How do you enforce that? Is that a target, and how do you ensure that the industry does indeed comply with that target?

Anthony Browne: It is a step target. It will start at 22% in 2024 and ramp up to 80% with progressive increases. We know the sales figures for the car companies, so we know what their figures are. There are flexibilities in there. If they sell fewer in one year, they can move it forward to the next year, or if they oversell in one year, they can sell fewer the next year. There are also particular schemes to encourage—the way that it is structured encourages sales to certain groups, like car clubs or wheelchair-accessible vehicles, which count as one and a half normal electric vehicles.

They can then buy credits off each other. Where companies are massively over their target of producing electric vehicles, companies that are underperforming can buy credits off them. However, if they do not meet their target, they will pay £15,000 for each vehicle, which is a significant penalty. So they have a huge financial incentive to make sure that they will meet their targets.

The Duke of Wellington: If the target is not met, there is a financial sanction?

Anthony Browne: £15,000 per vehicle is incredibly punitive, given the cost of vehicles.

The Duke of Wellington: Thank you, I did not know that.

Q100 **Lord Lucas:** Where are we, since we have a bit of time to spend, with catena charging for HGVs? How is that experiment going?

Richard Bruce: That is a very interesting question. For those who do not know, catenary charging is often referred to as an electric road system. You put a pantograph arm on top of a truck, like you have on a train. You have wires above the road and the truck can charge as it moves along, like a train would, thus requiring a far smaller battery. The issue with trucks is whether the heaviest trucks, 44 tonne trucks, could be electrified with batteries, given the weight of the batteries and the size of the battery pack that you would need. Therefore, why not have a smaller battery pack and have a pantograph arm?

The other option for the heaviest trucks could be hydrogen fuel cells, where you can pressurise hydrogen into fuel cells and use that to power a vehicle. It is not yet clear what the dominant technology will be in the heaviest vehicles. We could say with a degree of confidence that

wherever you can directly electrify with batteries, that would be the first option, because that has the most compelling running costs compared with hydrogen.

With catenary, in system-wide terms you can make a strong case because you need smaller batteries, the vehicles would be lighter, and they do not need to spend time charging. However, you need to dig up a lot of motorways. Given our history on electrifying railway lines, electrifying our motorways as well would be very disruptive and could be quite challenging. The issue is you could do that, only to find that incremental improvements of batteries mean that it is not required. It is not off the table. There is a short run of this in Sweden and there is another one in Germany. The technology works, because it is the same as a tram or a train. The issue is what you would need to do wholesale across the country to make it viable.

The UK cannot work in isolation. If trucks that are coming across from Europe are being powered by hydrogen and are not fitted with pantograph arms, we have bet on the wrong technology. It is tricky to foresee the future. We have just announced £200 million of funding in the zero-emission road freight trials to put a load of really big fuel cell and battery electric trucks on the road with charging infrastructure to work out how the operate. Do the duty cycles work? Do the companies like the way that they work in terms of logistics? What are the running costs? This is to get firm data to speed up the point at which we are clear on the technology required for the heaviest vehicles. With things like the rapid charging fund, we are making provision in that for MSAs, so we are thinking about electrifying trucks as well.

Anthony Browne: There is an important, high-level point here that, as Richard says, we do not know the way that technology will evolve. Car battery technology is improving significantly on a steady basis. Previously, the car companies had no incentive to invest money in developing new ways of constructing batteries. We do not know what battery technology will be like in 10 years' time or 20 years' time. It could be transformative and many of the models that we are looking at now will be completely different. The role of government there is to remain flexible for the evolution of technology so that we do not put all our eggs in one basket that ends up being a dead end, to mix a metaphor. As Richard says, we should be testing out different technologies and pushing the boundaries to see where it goes. We do not know what the final solution of transport technology will be eventually.

We often get asked, and I do not know whether you are asking this in your inquiry, about the optimal number of charging points. We do not know, because we do not know how people are going to use the charging point in terms of their patterns of transport. You mentioned autonomous vehicles. We do not know whether many people will end up not having private cars and they will all use pooled autonomous vehicles. The future is very difficult to predict. That is why Governments need to remain flexible.

The Chair: Could you write to us, Richard, with more detail on the strategic preparation and prioritisation of viable EV standpoints and what needs to change in the different protocols? It would be very helpful to have more information, and details of when these various announcements will be made that you referred to.

Q101 **Baroness Young of Old Scone:** This is a bit of an off-the-wall one. You mentioned, Minister, when we were talking about the driving tests, about significant differences between electric vehicles and others. One of them was more rapid acceleration at low speeds. Having had a conversation with an insurance company about the fact that I managed to write off my vehicle in the driveway, it said that there was an alarmingly large rise in the number of insurance claims caused by unfortunate accidents through misjudging the rapid acceleration at low speeds. Is that an issue of which you are conscious? Could that be addressed by design or by a driving test? Or am I just panicking because I have done it?

Anthony Browne: It is an absolutely valid question. This would be a responsibility of the Department for Transport and the Roads Minister. I know that we are looking at insurance issues, because there are many insurance issues about electric vehicles, more in relation to the batteries. We would definitely need to ensure that insurance is affordable.

Richard Bruce: One of the attractive aspects of EVs is their instant torque from the very beginning and the fact that they can accelerate quite quickly. Manufacturers cottoned on to the fact that it can be too fast. They are calibrating the throttle response depending on what the market is telling them. Not everyone wants to drive a sports car, potentially. There have been other concerns about EVs because they are very quiet. They accelerate quickly and they are silent.

That is why there is now a requirement for all EVs to make a noise at low speeds, so that people can hear them coming in the way that they could not previously. Most of the speed of a car below 12 miles an hour is the engine. Above 12 miles an hour it is the tyres, so they do make a noise when they are on motorways, but locally, at low speeds, it can be disturbing for people.

I have not heard of a spate of issues with people crashing on their driveways with EVs yet, but I am sure that if there were a spate of those, people would come and talk to us, and we would have to think about it.

Q102 **Lord Bruce of Bennachie:** Scotland had a scheme for providing loans for buying second-hand cars, motorbikes and so on, electric ones, which has now closed. Have you had an evaluation of that? Was it closed because of lack of demand, was it successful, was there too much demand? Is there anything to be learned, positively or negatively? It was a scheme that ran for a while, and it has closed. I am not clear what effect it had.

Richard Bruce: I knew about the scheme. I have not heard an evaluation of it, but, since you have prompted it, we will talk to them about their experience. We did look at it in the UK, but obviously it can

be very, very expensive. All those big market interventions can be difficult to administer and can potentially be riddled with fraud. We looked at it and decided against it in the UK for those reasons, which is why you end up with simple-to-administer but clunky schemes such as plug-in grants for new vehicles, because ultimately subsidised new vehicles are cheaper vehicles in the second-hand market.

There are interesting things happening without any government intervention where companies such as Octopus are offering salary sacrifice schemes for second-hand EVs. That is a powerful incentive, because that gives all the benefits of in-kind company car tax benefits for private buyers of second-hand EVs. There is movement on that and it is clearly an issue that can help. We will talk to our colleagues in Scotland about their experience.

The Chair: Thank you. On behalf of the committee, huge thanks for being with us today and for allowing us to keep to our schedule. We know from the weeks that we have been doing this inquiry what a complex and technical subject this is when you start to explore it. Huge thanks for the way that you have answered our questions, particularly to you, Anthony, for being with us eight days into your time and engaging with us so comprehensively. Thank you very much indeed.