

PARLIAMENTARY DEBATES

HOUSE OF COMMONS
OFFICIAL REPORT
GENERAL COMMITTEES

Public Bill Committee

AUTOMATED AND ELECTRIC VEHICLES BILL

First Sitting

Tuesday 31 October 2017

(Morning)

CONTENTS

Programme motion agreed to.
Written evidence (Reporting to the House) motion agreed to.
Motion to sit in private agreed to.
Examination of witnesses.
Adjourned till this day at Two o'clock.

No proofs can be supplied. Corrections that Members suggest for the final version of the report should be clearly marked in a copy of the report—not telephoned—and must be received in the Editor’s Room, House of Commons,

not later than

Saturday 4 November 2017

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The Committee consisted of the following Members:

Chairs: † MR ADRIAN BAILEY, SIR EDWARD LEIGH

| | |
|---|---|
| † Argar, Edward (<i>Charnwood</i>) (Con) | † Mann, Scott (<i>North Cornwall</i>) (Con) |
| † Brown, Alan (<i>Kilmarnock and Loudoun</i>) (SNP) | † Rodda, Matt (<i>Reading East</i>) (Lab) |
| † Duffield, Rosie (<i>Canterbury</i>) (Lab) | † Stephenson, Andrew (<i>Pendle</i>) (Con) |
| † Efford, Clive (<i>Eltham</i>) (Lab) | † Stewart, Iain (<i>Milton Keynes South</i>) (Con) |
| † Foxcroft, Vicky (<i>Lewisham, Deptford</i>) (Lab) | † Tracey, Craig (<i>North Warwickshire</i>) (Con) |
| † Hayes, Mr John (<i>Minister for Transport Legislation and Maritime</i>) | † Turner, Karl (<i>Kingston upon Hull East</i>) (Lab) |
| † Jones, Graham P. (<i>Hyndburn</i>) (Lab) | † Western, Matt (<i>Warwick and Leamington</i>) (Lab) |
| † Kerr, Stephen (<i>Stirling</i>) (Con) | Farrah Bhatti, Mike Everett, <i>Committee Clerks</i> |
| † Knight, Sir Greg (<i>East Yorkshire</i>) (Con) | |
| † Letwin, Sir Oliver (<i>West Dorset</i>) (Con) | † attended the Committee |

Witnesses

David Williams, Technical Director, AXA Insurance, and Chair, Autonomous Driving Insurance Group

Iwan Parry, Head of Connected and Autonomous Vehicles, Transport Research Laboratory

Ben Howarth, Senior Policy Advisor, Motoring Liability Insurance, Association of British Insurers

Diana Holland, Assistant General Secretary for Transport, Unite Union

Adrian Jones, National Officer for Road Transport, Unite Union

Rob Johnston, Assistant General Secretary, ITF

Robert Llewellyn, TV Presenter, Fully Charged

Public Bill Committee

Tuesday 31 October 2017

(Morning)

[MR ADRIAN BAILEY *in the Chair*]

Automated and Electric Vehicles Bill

9.25 am

The Chair: Before we begin, I have a few preliminary announcements. Please switch any electronic devices off or to silent. Tea and coffee are not allowed during sittings, but there is an adequate supply of water. Today we will first consider the programme motion on the amendment paper. We will then consider a motion to enable the reporting of written evidence for publication and a motion to allow us to deliberate in private about our questions before the oral evidence session. In view of the time available, I hope we can take those matters formally, without debate.

Ordered,

That—

(1) the Committee shall (in addition to its first meeting at 9.25 am on Tuesday 31 October) meet—

- (a) at 2.00 pm on Tuesday 31 October;
- (b) at 11.30 am and 2.00 pm on Thursday 2 November;
- (c) at 9.25 am and 2.00 pm on Tuesday 14 November;
- (d) at 11.30 am and 2.00 pm on Thursday 16 November;

(2) the Committee shall hear oral evidence on Tuesday 31 October in accordance with the following Table:

TABLE

| <i>Time</i> | <i>Witness</i> |
|------------------------------|---|
| Until no later than 10.30 am | Automated Driving Insurers Group; TRL; Association of British Insurers |
| Until no later than 11.00 am | Unite; ITF |
| Until no later than 11.25 am | Robert Llewelyn, presenter, Fully Charged |
| Until no later than 3.00 pm | Society of Motor Manufacturers and Traders; RAC Foundation; Petrol Retailers Association; Institute of the Motor Industry |
| Until no later than 3.45 pm | Quentin Willson, Journalist and TV presenter |
| Until no later than 4.15 pm | National Grid; UK Electrical Vehicle Supply Equipment Association; UK Power Network |
| Until no later than 5.00 pm | TRL; FiveAI |

(3) proceedings on consideration of the Bill in Committee shall be taken in the following order: Clauses 1 to 16; Schedule; Clauses 17 to 19; new Clauses; new Schedules; remaining proceedings on the Bill;

(4) the proceedings shall (so far as not previously concluded) be brought to a conclusion at 5.00 pm on Thursday 16 November.—(*Mr Hayes.*)

The Chair: The deadline for amendments to be considered at the first line-by-line sitting of the Committee was the rise of the House yesterday, and the next deadline will be the rise of the House on Thursday for the Committee's

meeting a week today. [*Interruption.*] I have just been informed that the deadline will in fact be one week on Thursday.

Resolved,

That, subject to the discretion of the Chair, any written evidence received by the Committee shall be reported to the House for publication.—(*Mr Hayes.*)

The Chair: Copies of written evidence that the Committee receives will be made available in the Committee Room.

Resolved,

That, at this and any subsequent meeting at which oral evidence is to be heard, the Committee shall sit in private until the witnesses are admitted.—(*Mr Hayes.*)

The Chair: We will now go into a private session to discuss the questioning.

9.27 am

The Committee deliberated in private.

Examination of Witnesses

David Williams, Iwan Parry and Ben Howarth gave evidence.

9.34 am

Q1 The Chair: We now resume our public sitting and will hear evidence from the autonomous driving insurance group, TRL—the transport research laboratory—and the Association of British Insurers. I remind all hon. Members that questions should be limited to matters within the scope of the Bill and that we must stick to the timings in the sittings motion agreed by the Committee. For this session we only have until 10.30 am. Will the witnesses please introduce themselves?

David Williams: I am David Williams. I am technical director at AXA Insurance and chair of the Autonomous Driving Insurance Group.

Iwan Parry: I am Iwan Parry, the head of connected and autonomous vehicles at TRL, the Transport Research Laboratory.

Ben Howarth: I am Ben Howarth. I am senior policy advisor for motoring liability insurance at the Association of British Insurers.

The Chair: The first question is from Clive Efford.

Q2 Clive Efford (Eltham) (Lab): This is a question about insurance, but it is open to any of the witnesses to answer. When automated vehicles and conventional vehicles share our roads, will questions of who is liable for accidents become more complicated?

David Williams: I do not think they will become more complicated, because I think the information that should be made available from the autonomous vehicle will make it much easier to establish what has happened. If you think of the sensors that are involved in getting the vehicle around safely, there are traditional cameras, lidar, radar, ultrasound and all those sorts of things; that will give a much more complete picture than we currently have. A lot of insurance claims at the current time are based on different opinions with very little evidence to substantiate them. We still send people out

to measure skid marks in the road, for instance; so we will be moving to a much clearer but more granular position. There will be a lot more data, so I suppose it will be more complex in that way, but I think, in terms of establishing who is responsible, things should be clearer.

Iwan Parry: I would add that it is quite important that we establish with these technologies that that capture of the data that David has described is a requirement of the vehicles. That really builds on the kinds of data that are captured by vehicles today but which are not necessarily available for investigators when it comes to investigating road traffic accidents, which could be very useful for in-depth investigations, in some cases. Therefore, as vehicles become more complex, with a greater ability to capture external data in the moments before a collision, we believe that it is very important that those vehicles are able to preserve that information and make it available to the appropriate and authorised investigators, in terms of understanding what has happened during that incident sequence.

Q3 Clive Efford: Should the Bill actually specify what information should be retained and recorded?

Iwan Parry: It could do. There is a mechanism in the Bill, in terms of the list of vehicles that would be approved as an automated vehicle, and potentially part of qualifying for that list might be that a vehicle would fulfil certain required criteria.

Q4 Clive Efford: Will vehicles continue to record driver performance, for instance, and collect data when it transitions to being driven manually?

David Williams: The capability is there. I think we are then drifting into data that motor manufacturers would not necessarily want to share with third parties. They would argue that maybe that driving information is something that they could use for different business purposes. There is currently a big debate in the telematics market about whether there will still be a future for separate telematics boxes being fitted in these vehicles to provide insurance and other solutions when the vehicles are being driven manually; but certainly there would be the capability to record that information.

Q5 Clive Efford: Can I ask about the transition from an automated vehicle to manual? There is a time lag; research has been done into that. At what point is the driver responsible, therefore becoming the insured party, during the transition from automated vehicle to the driver taking over?

Ben Howarth: My view on that would be that when the transition is from the driver to the car, the driver has to be responsible for what is happening to some degree throughout the whole of that transition phase. Once they have actually got confirmation that the car is in autonomous mode, that is the point when they are no longer responsible. In reverse, when the car is transitioning back to the driver, the same applies, but the driver is not responsible until they have taken full control of the vehicle. I think that is the easiest way to deal with that.

Q6 Clive Efford: You started your answer by saying, "In my view," and that suggests that there are other views.

Ben Howarth: I do not know whether other people dispute that. That would need to be consulted on in the process of—

Q7 Clive Efford: So in all the data we collect it is possible to pinpoint the moment when the car transitions from manual to automated and back again.

David Williams: We are involved in a number of the Government-backed consortia. There is Venturer in Bristol; the first trials that were carried out with the Venturer vehicles and in the simulator were with regard to the handover. There are two elements that need to be decided on. I agree with Ben that you should not make somebody responsible until they have fully taken control, whether that is the machine or a human being, but nobody has really worked through that. The other aspect is about making sure that the vehicle has controls that do not try to hand over too quickly. As insurers, one of the things we are very concerned about is that handover. People may be surprised at how long it actually takes a human who has been disengaged to get up to speed, so to speak, so that they are alert enough to be able to drive the vehicle safely. That is why it will take a while for European vehicle manufacturing regulations to catch up, but there will be regulations that require minimum periods and indicators and signalling during that handover phase, because that is essential for keeping these safe.

Ben Howarth: A key point is that while there are lots of data that other parties—police, investigators—might want, insurers are clear that we only want the data when a collision has occurred to confirm whether the car was in automated mode or not. I do not think we are looking to use the Bill as a way of grabbing loads and loads of data and tracking cars from A to B.

Q8 Clive Efford: I have one last question. If you have all your data from an accident from the software in the vehicle, which tells you that the vehicle performed perfectly, but there was an accident with a driver who is driving the vehicle manually, is the assumption from the insurance company that you are not going to pay out because everything functioned perfectly with the machine?

David Williams: No, that is the opposite of what the Bill is trying to achieve. There will be accidents on the roads where nobody is to blame, as there are now. If you can have an accident with a human driver where nobody is to blame, you can have that with an automated vehicle. For instance, a vehicle is driving carefully down a road but there is some black ice and it skids off and takes out a bus queue—I know that is a bit of a dramatic scenario—but everything has functioned perfectly. The Bill makes it clear that is an accident—injury has been caused by the autonomous vehicle—and it would be paid for by the insurer. In that circumstance there is unlikely to be any recovery from the motor manufacturer, but the whole point of the Bill is to give the general public the confidence that if somebody is injured, we do not have to worry about whether we are going to claim that the software was defective. If somebody is injured by an automated vehicle, there will be virtually a strict liability on the insurer and we will deal with that claim.

The Chair: I have had Graham Jones, Karl Turner, the Minister, Iain Stewart, Oliver Letwin and Craig Tracey indicate that they want to ask supplementary questions. Is there anybody else? I will take the Minister next.

Q9 The Minister for Transport Legislation and Maritime (Mr John Hayes): Ben, some of us have obviously been round this track before with the previous incarnation of

[Mr John Hayes]

the Bill, and you will know that since then we have made some changes to it. One of the changes was the agreement to define a list of automated vehicles to create clarity. One of the criticisms of the earlier incarnation of the Bill was that that was not clear enough. Do you think we have made progress there?

Ben Howarth: Yes, I think so. I think the definition that you have used in the Bill is clear. To me, it is pretty unambiguous that we are talking about cars that are being entirely driven themselves. I anticipate that there will be a pretty detailed consultation on how you actually draw up the list of vehicles and define what is and is not an automated vehicle. We are obviously very keen to be involved in that and to provide views. Within the industry and within the Association of British Insurers' work, we have made a bit of progress in working out what we think the criteria for an automated car are, and those are views that we definitely want to feed in. So, yes.

Mr Hayes: May I ask another, Chairman? Would that be allowed?

The Chair: Yes.

Mr Hayes: I do not want to hog the questioning.

The Chair: I will see that you do not.

Q10 Mr Hayes: I take that as read, Chairman. There was a lot of debate on Second Reading about the possible safety benefits of automated vehicles, and questions were asked about what that meant for insurance premiums, for example. What is your view on that? Clearly it is early days, but do you anticipate that safer vehicles will lead to easier insurance and lower premiums?

Ben Howarth: Yes, I think it is very clear. We have a very competitive market for insurance. If we see claims costs coming down, which much safer vehicles would definitely do, we would be looking at a similar effect on insurance premiums. We cannot say exactly what will happen until we have seen the cars in real life.

Q11 Mr Hayes: So the legislation is welcomed by the industry.

Ben Howarth: Yes, it is very welcomed by the industry. I think it is very clear that the legislation and broadly the development of automated driving are something that insurers are genuinely enthusiastic about. In terms of the work we do in the ABI, it is one of the areas where we get the most engagement and interest from our members.

Q12 Karl Turner (Kingston upon Hull East) (Lab): Off the back of the Minister's question, clause 1(1) defines "autonomous", or rather the vehicles that could be classed as "safely driving themselves". That does not seem very tight to me. Does the definition not need to be tighter? Does it not give the Secretary of State an awful lot of power? I do not know whether you have a copy of the Bill in front of you. Clause 1(1) states that autonomous vehicles

"are in the Secretary of State's opinion designed or adapted to be capable, in at least some circumstances or situations, of safely driving themselves."

The clause allows the Secretary of State to come up with a list of vehicles that he or she thinks are capable of being driven safely without being operated manually at all. The definition does not seem tight to me.

Ben Howarth: I would make two points on that. On the one hand, we would obviously want to see robust and good consultation on how that list is put together. We would want it to be transparent and we would want the opportunity as an industry to feed into that. The wording does have an advantage in that it clearly states "safely driving themselves". One of our views is that we want a clear and unambiguous distinction between cars that are completely hands-off—maybe not for the whole of the journey, but for parts of the journey—versus cars where the manufacturer might be saying, "You can do a lot with the automated functions, but you need to be there hovering over the steering wheel as a backstop." We do not want those things to be blurred, and the definition in the Bill does that.

If I can make one further point, being on the list is clear—there is a definition—but there will also be a role for insurers to play in thinking about, "We have a claims history and car A is brilliant and has a really good safety record, while car B might not be a very good functioning car, but it has got itself on to the list." Insurers will want to take a view on that in terms of how they approach those vehicles in offering products.

Q13 Karl Turner: Thank you very much for that answer. Clause 4 describes vehicle software updates. It concerns me that—if this is a vehicle that is completely autonomous—the onus is put on the passenger, if you will, to update the software. They have to agree manually to update software. Is that the right position? Should it not be automatically updated?

Ben Howarth: I think the onus to do those software updates should definitely be on the manufacturer. They should ensure that the system works, and I think that links back to part 1. The Bill says that where a wilfully negligent person deliberately ignores what the manufacturer wants them to do and finds a way around the manufacturer's systems and still takes the car on the road, it would be unreasonable to say that that person is still a victim. I think you need this protection in the Bill, but you also need robust measures to ensure that people cannot override the safety-critical updates.

I think "safety-critical" is the key phrase. That places a strong incentive on the manufacturer to say, "If the update is safety-critical, you have to ensure that the driver knows." We have got to be absolutely clear that there is a distinction between "nice to have" upgrades, that perhaps involve a slight improvement in the maps functionality or something like that, and an upgrade where if you do not have it, the car is potentially unsafe and we have a problem.

Q14 Karl Turner: Finally, while I have you here, the current situation for vehicle insurance is driver-centric. The driver of the vehicle is the insured person. The Bill provides for a situation where the vehicle is insured. Is that definitely the way we should be going? Should there be some more provisions?

Ben Howarth: I think what we have in the Bill is the right way. When these cars first come to road, most users/drivers will probably use the automated function

for 10% or 20% of the journey. That is why we want to keep to a system with an all-in-one approach. The Government have described this as

“a rolling programme of regulatory reform”,

so if we really move to having cars without steering wheels or genuinely A-to-B autonomous cars we probably need to look again at what the right approach to insurance is, but I think the technology is a long way from that.

Q15 Karl Turner: What would happen with an uninsured vehicle, then? At the moment, the Motor Insurers Bureau compensation scheme kicks in. Would that apply to automated vehicles? If not, should that be stated in the Bill?

Ben Howarth: We think it definitely should apply. I know that there have been discussions between the MIB and Department officials about the correct way to do that, and it will be interesting to see how the Committee approaches it. My understanding is that the reason for not having the MIB scheme in the Bill is that it is not in the Road Traffic Act 1988 either, so the existing system is not directly in primary legislation. I think the MIB will be assured so long as the Government confirm that it is still the ultimate fund of last resort, which it definitely should be. It does not necessarily need to be in the Bill, but we would like absolute clarity on how it will work.

Q16 Iain Stewart (Milton Keynes South) (Con): I would like to follow up on Mr Turner’s point about clause 4 and the respective obligations of the manufacturer and the driver to update software. Clause 4(1)(b) refers to “updates that the insured person knows, or ought reasonably to know, are safety-critical.”

That strikes me as very woolly. I would be grateful for your opinion on where the balance should lie. I accept that if someone has wilfully not installed updates or overwritten them, or something, they become liable. However, if the manufacturer has sent through an update, but the person has not taken it to the garage or downloaded the software—or whatever—at what point do they become liable? I have an update waiting for my iPhone, but I have not got round to doing it. That is not safety-critical, but is there a parallel? Do we need a tighter definition than “ought reasonably to know”?

David Williams: It is interesting that you mention the iPhone, because that is exactly the debate that we had in our early discussions. Currently, for most things you buy, you have the right to refuse a software update. You are allowed not to get round to doing your iPhone update; you can continue to bypass it. Our view was that when we are talking about a tonne of metal travelling at high speed on the road, people should lose that right, because it would enable them to take risks with other people’s lives. We think the updates should be implemented straight away, because we see them as being improvements. As for whether they are safety-critical or not, it would be a damn sight easier if all updates had to be implemented immediately and the responsibility fell on the manufacturer, but then you are drifting into trying to impose something in UK legislation that some European territories and motor manufacturers have probably not really thought through yet.

The idea of saying that people have to install safety-critical updates immediately is something that we recommend. As for the detail of how it should be dealt with in the Bill, I have to plead ignorance, but the

reason for pushing for it is that we honestly believe that if a manufacturer has updated the software, it is to make the vehicle perform better. These are not iPhones that can only annoy other people; these are vehicles that can kill other people. Those updates should be mandatory in whatever way we can make them so.

Q17 Iain Stewart: Forgive me, but I am not clear how these updates would actually happen—whether you would have to take the vehicle into a dealership or garage.

David Williams: Tesla currently does them over the air.

Q18 Iain Stewart: If you were rushing out of the house at 9 o’clock and you got an email from the manufacturer that said, “Version 1.7 is now available and you need to install it”, and you thought, “I’m running late for a meeting—I’ll do it at the end of the day”, would that fall foul?

David Williams: I think the Bill is trying to allow for some delay, but a reasonable delay, and does not want people to deliberately and unnecessarily stall. If an update is coming through—if they have found a fatal flaw in the software that is likely to make your vehicle veer off the road—my view is that that vehicle should be immobile until the software update is implemented. The motor manufacturers would be able to build that into their technology and machines if they wanted to.

Q19 Iain Stewart: If the upgrade is so safety-critical that the car will not function without it having been installed, is that something we should put in the Bill?

David Williams: My understanding is that that sounds very good in principle, but how do you define that extent? Many upgrades might have a degree of safety-critical improvements in their nature. How would you define the seriousness of the upgrade?

Ben Howarth: Clause 4(6)(b) is a definition—that feels to me like it means that it is unsafe to use. If you started saying at this stage a car must be immobilised, we would potentially be legislating for things that we do not know the manufacturers will do in every circumstance. There might be times when the car could move. It might be safe to move it at 20 miles per hour or so—I am just speculating. Is it right to put it in the Bill at this stage? I would definitely say that it is something that needs to be carefully defined and thought about when you create the list of automated vehicles. I know we keep coming back to “the list is everything”, but I think the list is the mechanism by which many of the potential problems of the Bill will get solved.

Q20 Graham P. Jones (Hyndburn) (Lab): I am interested in the collection, retention and distribution of data and also the issue that has just been raised by my colleagues about the software prescription; whether it will be prescribed that software must be updated and all the problems that might ensue from that.

Let me lay out an example and ask your view of the Bill. If somebody switches to manual from automated and is involved in an accident while in excess of 30 miles per hour. What happens next? How much of that data becomes available in the case that ensues? For instance, I presume that speed would be used, but what about the on-board cameras or anything else? How much of this data will be kept, retained and used from the functions

[*Graham P. Jones*]

of the vehicle for a case in which there is an accident with a driver in manual mode? Does the Bill provide a robust framework for accidents and insurance claims and what about road safety? Will it enhance road safety or are we stopping at legitimate information for insurance companies? Should the Bill also include data made available so that road safety is improved?

Iwan Parry: The basis of the question is around the availability of data. My technical background is in forensic accident investigation and in order to investigate accidents—to get to the root cause—we need to start at the before-accident period and understand as much as we can. We are limited today to things such as skid marks, as David referred to earlier, as the tools to reconstruct those accidents. The kinds of data that are potentially available from electronic vehicles increase the amount of data significantly. With the cameras, radar, lidar—light detection and ranging—and ultrasonic sensors we can get a very clear picture of what was going on around the vehicle at the time of an incident. When we look at the consequences of an incident, we can put the two together and have a very clear understanding from establishing liability and whether that indicates that the vehicle in some way behaved unreasonably—or that the driver, pedestrian or cyclist that it was interacting with behaved unreasonably given the context of the situation. That gives us the information that would allow us to make a determination on liability. I think that is critical to insurers, to police investigating such incidents and to road safety in the future.

To advance the future legislation on autonomous vehicles, we will need a method to understand what is going wrong in the real world. We will also need a method to use that information to improve our understanding of vehicle functioning in the real world and how that can be improved by manufacturers or by legislators applying the right tools to ensure that vehicle performance is improved over time.

Ben Howarth: If I could add the insurance perspective on that, for what we need to do for this Bill—to establish whether the car was in automated or manual mode—we need a fairly limited amount of data. You mentioned speed, but we do not necessarily need speed to do that. We just need to know whether it was in automated mode. There are potentially lots of other uses for car data for the police and for accident investigators. In a disputed claim with contradictory evidence in court, you could find it a lot easier to solve cases with data, but I would draw a distinction between the data that insurers need to make this Bill operational and the data from cars that would be useful to understand claims. That might be a valid concern for vehicles not covered by this Bill; as cars get more technically sophisticated with more assisted functions, you might want to understand more about how it works for any car. I think whether it is reasonable to ask for data is still best managed via a judge.

It is also important, if we want the data, that manufacturers record it. My understanding is that at the moment, if you hit a pedestrian in an accident, you will not necessarily trigger an airbag so the data that the car keeps on a rolling basis are not automatically recorded or stored and they would not be available. As part of the work to define an automated car, we need more

clarity about what data are recorded and stored and about the process to ensure that the data are sent to the right people at the right time. An insurer is one party that would want some of the data.

Q21 Graham P. Jones: I am interested in your final comment that there needs to be discussion about what data are kept—perhaps the Bill does not go into that in detail. Road safety is important, and some of the data could be used to improve it. I have concerns, therefore, and I ask the question again that you partially answered: does the Bill provide a robust framework for improved road safety through data retention, collection and distribution, particularly with insurance companies? You answered by saying that perhaps it does not, but I wonder what the other two think.

David Williams: My view is that the Bill undoubtedly aids road safety because it will encourage the use of safer vehicles on the roads, but in terms of data, no—the Bill does not have a robust framework for provision, storage and transmission of those data. I think that is partly because of the stage that we are at. Some things are contentious and some are not. Data sharing is really contentious, whether because of general data protection regulation or because motor manufacturers are concerned about infringement of their intellectual property. We are very keen for there to be some clarity about the storage and transmission of data, the form that data are transmitted in so that they are useful, and the speed of transmission—there is no point us getting the data three months later. That is not in the Bill.

When we had the original discussions, we talked about data. We were still forming our opinions about what data would be required—as I say, that is very contentious. Our view was that it was better to support a Bill that would be part of a rolling programme of legislation and acknowledge that more needed to be done on that data piece than to delay it. We feel that delaying connected and autonomous vehicles hitting our roads would have a negative impact on road safety.

The Chair: Waiting to ask questions, I have Sir Oliver Letwin, Craig Tracey, Alan Brown, Edward Argar, Scott Mann and Sir Greg Knight. Is there anybody else? Clive Efford, you wish to come in with another?

Clive Efford: If we have time.

The Chair: If the questioners and the panellists could be very pithy and pointed, that would be helpful.

Q22 Sir Oliver Letwin (West Dorset) (Con): My first question requires just a yes or no answer, and I am interested to know whether the answer is the same from all of you. As has been mentioned, in clause 2(1)(b) there is a reference to the vehicle being insured, which is a new concept, and at the end of clause 2(1), as David Williams said, strict liability of the insurer is established. Do you read that combination as meaning that strict liability attaches to the insurer of the vehicle?

David Williams: Yes.

Iwan Parry: I am not an insurance professional, so I will not answer that question.

Ben Howarth: Yes.

Q23 Sir Oliver Letwin: My second question: do you agree that it is perfectly possible that the person who is the passenger/driver, who is in the vehicle, might have a different insurer?

David Williams: They may have another motor policy that would cover them for driving other vehicles. That is common practice in the UK but not every policy provides that.

Q24 Sir Oliver Letwin: No, but it could happen.

David Williams: There is a chance, I suppose, but I do not think that we would have a dual insurance situation, because the other insurance would insure the actions of that individual, whereas the autonomous policy would cover the actions of the autonomous vehicle. If the vehicle is operating autonomously, it is not being controlled by that driver and therefore they would have no liability.

Q25 Sir Oliver Letwin: I understand that logic, but if I have understood you, both of you are accepting that the driver/passenger—the person—could have a different insurer.

David Williams: They may have, but it may not apply in the event of an accident.

Q26 Sir Oliver Letwin: Indeed. My third question: do you accept that strict liability would operate for the insurer of the vehicle, even if the driver had inappropriately transferred control of the vehicle to the vehicle?

David Williams: Transferred control of the vehicle to the—

Q27 Sir Oliver Letwin: Yes, so the driver is sitting there driving the vehicle, and he does whatever it is that you do to switch it to automated use, but does so under inappropriate circumstances. Do you accept that under clause 2(1), as it is written at the moment, strict liability would nevertheless attach to the insurer of the vehicle and not to the insurer of the driver?

David Williams: I think so, because if the vehicle is operating autonomously, strict liability applies. If it is about to crash into a wall and he has flicked the vehicle into autonomous mode, but it has not had the opportunity to take control, we come back to one of the earlier questions—

Q28 Sir Oliver Letwin: No, I am assuming that it has had the opportunity to take control.

David Williams: So it has taken control.

Sir Oliver Letwin: It has taken control, so strict liability attaches to the—

David Williams: That is my take on it, but I would say that it is difficult for me to imagine circumstances where doing that would be inappropriate and where someone would still be able to switch a car into autonomous mode.

Iwan Parry: I think it is unlikely that an autonomous system engaged in that kind of transfer would accept control in a situation where it was then unable to avoid a high-risk scenario of some type, resulting in some kind of incident.

Q29 Sir Oliver Letwin: But if I have understood you, that would entirely rely on whether, as a matter of fact, the technology had that effect. In other words, there is nothing in the Bill to prevent that situation.

David Williams: But we want the man in the street to know that if a vehicle is operating autonomously, compensation will be available. That is why there is strict liability. We might not like the particular scenario, if we can think of one that might happen, but I agree: my interpretation is that strict liability would apply.

Ben Howarth: The difference being that the driver might not have the same rights.

Q30 Alan Brown (Kilmarnock and Loudoun) (SNP): If we go back to control of data, Ben, you said that more clarity is needed on what data will be kept and shared. David, you said that the Bill does not look like a robust enough framework, but that you would not want it to be held up. Surely if it is believed that the Bill does not provide a robust enough framework we should look at making amendments, rather than holding the Bill up. Are there amendments that we as parliamentarians should consider?

David Williams: I am not aware of the planned timetable. There are two aspects: first, the vehicle has to get on the list and insurers then need to decide whether they will insure those vehicles. If, for some reason, a motor manufacturer decides they are either not capable of making or are not going to make any of that information available even if it ends up on the list, it will struggle to get insurance in the UK market.

There are lots of things that do need further discussion. These vehicles are not really going to be on the road for a number of years, so setting out the UK's intention from a headline regulatory view and commenting that data need to be available while we work on that is one thing. I am not fussed as to whether or not it is an amendment, but it would be sad if the amendment took two years to get through because the motor manufacturers' lobby blocked it.

Ben Howarth: I would also point out that a lot of the technical side will be taken up at a UN/ECO global level, so it might not be feasible to define it in the Bill and then have to change it. The more sensible route might be to see how the technical discussions go at global level and ensure that the way the list operates is robust, rather than put it in the Bill.

Iwan Parry: There are also a number of projects going on right now that will be helping insurers and safety experts to define what those kinds of criteria should be, and the data that should be retained. It would be worth giving those projects time to report on those requirements.

Ben Howarth: If you are interested, we have put a report out and defined what data we think we would want as part of this Bill for the insurance industry, and we have published that.

Q31 Alan Brown: The hon. Member for Hyndburn has talked about safety in relation to these projects looking at data protocols. Should that also encompass looking at safety and how the car was being driven or controlled, whether manually or in automatic mode? It has been said that insurance companies would only want data in the event of a collision, but it would be very tempting for insurance companies to want a lot more data. Even now, you can get an insurance policy for young drivers that involves fitting a black box into the car. The insurance company is obviously monitoring the operation of that car to keep the premiums down. Surely there is temptation to want more data and to do

[Alan Brown]

more. It may seem hypothetical, but if you use the internet then your history is used as an advertising and promotion tool. Therefore should there not be strict controls in terms of data control in the future, so that the data are not used?

Ben Howarth: I think there is a distinction to be made in relation to the data that the insurers would need as a condition of this Bill. The industry would love more data, as that helps with pricing. However, it is appropriate to ask what the insurance company needs and then to regulate that in order to make this Bill work. I refer to insurance companies, but actually it concerns what information the claimant would need for the purposes of verifying whether or not they have the right to make a claim. That is a key distinction. The more data that the insurers can potentially get on a commercial basis the better, but we recognise that there have to be controls on that.

Iwan Parry: I would add to that: as mentioned earlier, there is a difference between the limited amount of information that an insurer might require to understand whether the vehicle was being controlled by the vehicle or controlled by a driver, and information that could be beneficial from a road safety point of view that could also act as evidence from a capture and perspective point of view. This information will inform future policy at governmental level and potentially at legislative level. That is a more detailed source of data, and it would also be of the type that would assist more detailed investigations of what went wrong if an automated vehicle had an accident.

Q32 Craig Tracey (North Warwickshire) (Con): I declare an interest as chair of the all-party group on insurance and financial services. I would like to pick up on two points. Coming back to data: obviously, claims prices hinge on the quick sharing of data. In order to pay a claim, it will be necessary to know whether or not the car was in automated mode. Are there any current technical barriers between insurers and manufacturers that are going to delay that? Are there issues that you foresee causing problems?

Ben Howarth: We probably do not yet know enough about getting the data from the car to the insurance industry. Some work has started to be done via the Motor Insurance Bureau: as well as being the guarantee fund, they do a lot of data-sharing for the industry. We are confident that once we have data from a car, then the process of getting it to the insurer and settling the claim will be efficient. We would want confirmation that we can get it from the vehicle, but we have already started discussing that with the Society of Motor Manufacturers and Traders. That is something that can definitely be achieved within the timescales required.

Q33 Craig Tracey: May I make just one quick point? I echo some of the concerns colleagues have raised about clause 4(4)(b). The Bill talks about the damage suffered by an insured person arising from an accident occurring as a direct result of failure to install safety-critical updates. How would it be assessed whether the accident was a result of an installation not being made? Who would resolve those disputes? Can you see any problems around the insured potentially not seeing it as being a contributory factor to the accident? How would those disputes be resolved?

Iwan Parry: That relates directly to the point I have just made about the detail of the data. In that scenario, in order to resolve the question you would require a more detailed amount of data than purely who was in charge of the vehicle. It would be a question of what the variety of contributory factors to that collision were, what the vehicle systems saw and what they did in response to what they saw, and whether that can be related back to the functionality of the piece of software that was due for install. You would require a much more detailed set of data to resolve that question.

Q34 Craig Tracey: Would you envisage disputes going through the same channels as they currently do for disputes on liability?

Ben Howarth: In that kind of event, yes, I would.

Q35 Edward Argar (Charnwood) (Con): I have a very quick question, following on, I think, from the answers that were given to the Minister's question, in which you all said you anticipated that, if this goes to plan, it will see safer vehicles and therefore a reduction in accidents, leading to a reduction in premiums, which is clearly a positive for all those paying them. What assessment has been made, or what is your view of, any likely impact of that on the insurance market and industry? As I understand it, car and vehicle insurance premiums to a degree underwrite other insurance policies across the industry—that is the way it is structured. What impact do you think significant reductions in premiums would have in terms of disruption of the insurance market?

David Williams: Lots of work has been done on this by insurance companies and by market consultants, and they predict substantial reductions in the total premium pot. A couple of statistics—we think that 93% or 94% of accidents are caused by human error. I have driven in these machines; they are already much better drivers than most human beings. When we look at things like automated emergency braking systems—that is just one component of what will be the autonomous vehicle of the future—we know that they reduce accidents by 15% and injuries by 18%. So even if they cannot prevent the accident completely and absolutely, because they are braking better and faster there are fewer injuries.

We see a substantial impact. There will probably be a slight increase initially because you will have more expensive gadgets strapped around the periphery of vehicles, but once we see a higher proportion of these vehicles on the road, consultants predict a 50%-plus reduction in the total motor premium market. From our perspective, we are planning in that regard. The good thing is that it will not happen overnight, and therefore as we see motor premiums reduce we can move our staff and our capital on to other lines of business.

Q36 Scott Mann (North Cornwall) (Con): According to some of the figures I have seen, 63% of the adult population hold a valid driving licence, so by definition 37% of people currently do not. Of the 63% who do, many are precluded from driving because of health conditions or because they have lost confidence behind the wheel. My question is, first, do you think that this Bill will increase social mobility? Secondly, do you think it will increase car insurance volumes in your marketplace? Thirdly, you mentioned to my colleague that premiums will be lower for automated vehicles,

so I want to seek reassurances about whether you think the Bill will reduce premiums for people who have mobility problems.

David Williams: One of the consortia we are involved with, Flourish, is looking at cyber-risks and also at mobility, at segments of society that currently feel cut off—people, who perhaps are disabled, living in a rural area and not able to get out and about. That is one of the reasons we want this Bill to go ahead and are keen to support it. Absolutely, it will support that.

In terms of volumes of cars on the road, there are numerous different models. Overall, the view is that there would be fewer vehicles, because this will enable car sharing on a scale that has not previously been seen, but in terms of number of miles covered, there are diverging opinions. One thing that might happen is that, because it will be as easy to get a car even if you do not own one as it is to get a train or similar, more people will move to transport on the road, which will drive up the number of miles. There are other views that there will be an integrated transport network, meaning that more people use public transport because they are much more able to link into it than they are now. I think the jury is out in that regard.

It will absolutely reduce premiums. The other aspect is that even when we have a mixed car park of manual and automated vehicles, because 50% of those vehicles will be safer, although the premiums on manual vehicles will decrease less, they will be less exposed and involved in fewer accidents, so overall that will have a positive impact from a premiums perspective, even on manual vehicles, as the number of automated vehicles increases.

Q37 Sir Greg Knight (East Yorkshire) (Con): So what you are saying is that if the owner of a vehicle that is capable of being fully automated updates his or her software, has a vehicle with no warning lights displaying that there is something wrong and uses the vehicle in fully automatic mode in circumstances where it is proper to do so, there should be no liability on the owner, who is actually travelling as a passenger?

Ben Howarth: Yes.

Q38 Sir Greg Knight: So you are saying that in a scenario where a vehicle is in fully automated mode on a smart motorway, the Highways Agency suddenly drops the speed limit from 70 to 50 and the car in automated mode is slow enough in responding to be clocked by a police speed camera on a bridge, in those circumstances, the insurers of the vehicle should pay the speeding fine?

David Williams: No.

Q39 Sir Greg Knight: Why?

Ben Howarth: We are covering the liabilities. I think they are already there in the Road Traffic Act 1988, on insurers, but it would be extending those existing liabilities to the vehicle. I do not think we are responsible for criminal offences such as speeding now. I think you would have to find another way of—

Q40 Sir Greg Knight: But surely the passenger cannot be held responsible if he is relying on the car to drive him safely to his destination.

Ben Howarth: You may need to look at whether or not there are additional criminal offences associated with automated cars. Certainly, this Bill does not compel insurers to pay speeding fines or any other. Ditto if an autonomous car parked illegally in a parking space. If it injured someone or damaged property, that would be the insurer's responsibility; if it parked and received a parking fine, that would be the responsibility of the owner of the vehicle or another party. You may need to look at that in legislation, but I definitely do not think the Bill does that at the moment, and we would not support it if it did.

Q41 Sir Greg Knight: But you agree that it would be wholly unjust for the passenger in those circumstances to have his licence endorsed and be fined when he is relying on the vehicle, which is slow to respond?

David Williams: But in all honesty, if someone was on a smart motorway and had connected an autonomous vehicle, they would be more likely to notice the reduction in speed than you or I would. It is a hypothetical question. I think the point, from our perspective, is that the Bill does not compel insurers to pay these sorts of fines. Yes, there are some other legal aspects that need to be debated, but this is about extending the Road Traffic Act 1988 to provide protection in line with the RTA, not about other criminal offences.

Q42 Sir Greg Knight: So do you think it is fair in those circumstances that the passenger gets a fine?

David Williams: I think the vehicle will be more likely to notice the reduction in speed than a manual driver.

Q43 Sir Greg Knight: As far as the data are concerned, you are saying, I think, that you would prefer clarity. You would prefer some rules to be laid down about what data should be kept and who has access to them. Is that right?

Iwan Parry: Yes.

Q44 Sir Greg Knight: Rather than a free-for-all before the courts, with the court deciding in each case who gets what.

Iwan Parry: Yes. I think there should certainly be some clarity around the types of data that we would regard as beneficial and that could qualify for the list that will be established. The vehicle's ability to make available those data would potentially be a qualification criterion.

Q45 Clive Efford: Mr Parry, following on from the questions from the right hon. Member for West Dorset, can you clarify how the vehicle knows when it is not appropriate to be in automated mode and therefore prevents the driver from flipping over to that?

Iwan Parry: This is very much part of the research and development that industry is doing right now, but the expectation on manufacturers providing access to an automated control system would be that, in that handover situation, the vehicle would be assessing the circumstances of the traffic and the road conditions surrounding it and would accept the handover only if it was able to respond appropriately to that traffic scenario.

Q46 Clive Efford: So the vehicle is constantly taking in data on its environment—the surrounding area—and therefore is switching itself off, making it impossible for the driver to switch over to automated mode.

Iwan Parry: The vehicle would be expected to be aware of what is around it at all times, and during a process—as it was described earlier—of handover, whereby the person or the vehicle that is in control at a particular time will remain in control until the other half of the equation is ready to assume control, that readiness to assume control can be determined only by sensing what is around it in the specific scenario that the vehicle is driving in, and accepting that it is now able to assume that control in a safe manner.

David Williams: This is a key point, because there will be many vehicles that can operate autonomously—initially, at least, only in certain environments, certain designed domains. For instance, I would imagine that the first ones that come to market will be able to operate on motorways and dual carriageways. *[Interruption.]* Exactly. Therefore, if you are travelling down Clapham High Street and you want to flick the vehicle into autonomous mode, it will not accept control.

Q47 Clive Efford: Let me ask about transition, because the studies in Bristol suggested that vehicles slowed down significantly after the transition from automated mode to driver mode, because the driver was being excessively cautious or very cautious, which can lead to more dangerous circumstances. Is that an issue for insurers?

David Williams: It is something we need to be aware of, which is why we asked Venturer to do handover first of all; I think guidance needs to be provided. I think it is less likely to be a safety risk and more likely to be a congestion risk, but the other aspect is that when we are doing these tests, we are deliberating doing on, off, on, off. In my vision of the future and, I think, the way motor manufacturers are designing vehicles, it will not be like that. It might be that you drive on the country roads because you enjoy that and then you hit the motorway and flick the vehicle into autonomous mode for the next couple of hours. But yes, we need to understand and provide appropriate training and guidance on the handover; that is something we still need to understand more about.

Q48 Alan Brown: As insurance premiums come down, as predicted, in the future, is there a concern or risk that the Chancellor of the Exchequer will increase the Government's take from insurance premiums, so that all the savings are not passed on to the driver?

David Williams: We always worry about insurance premium tax increasing.

Q49 Mr Hayes: You talked, in relation to the question from my hon. Friend the Member for North Cornwall about people who are disadvantaged not currently being able to access transport and so on, and subsequently, in answer to the question from the hon. Member for Eltham, dealt with predictable, standard routes. Where an autonomous vehicle is acting more like a bus in effect—it is on a standard journey—presumably it will be particularly appealing to those who currently cannot access transport of their own, because it will be, as you put it, in straightforward mode; even in a straightforward mode, many people currently cannot drive a car, because a visual impairment or a disability prevents their doing so. Is that a future you envisage?

David Williams: I think there will be, in the same way as there are many variations even to the Uber model now, many variations to autonomous vehicles. I think

the advantage will be that you will not have to stick your hand out to stop a bus; the vehicle could potentially come into your drive and then go back out and continue its journey.

Mr Hayes: Precisely. A journey to a hospital where there is not currently a bus route would be a good example.

The Chair: Order. I am afraid that brings us to the end of the time allotted for the Committee to ask questions. I thank our witnesses on behalf of the Committee for their evidence and I also thank Members for their admirable self-control and brevity.

Examination of Witnesses

Diana Holland, Adrian Jones and Rob Johnston gave evidence.

10.30 am

The Chair: We will now hear evidence from Unite and ITF. We have until only 11 am for this session. Will the witnesses please introduce themselves for the record?

Adrian Jones: I am Adrian Jones. I am Unite union's national officer for road transport.

Diana Holland: I am Diana Holland, Unite's assistant general secretary for transport.

Rob Johnston: I am Rob Johnston, assistant general secretary at the ITF.

The Chair: I am going to start again with Clive Efford.

Q50 Clive Efford: I do not know if I need to declare an interest: I am a member of Unite and the GMB. When automated and conventional vehicles share our roads, will questions of who is liable for accidents become more complicated?

Diana Holland: I think that is the crux of the matter. Obviously, while the Bill covers a very limited aspect of what the important role of these changes can mean, we are particularly concerned, as the previous discussion demonstrated, that the only concentration is assuming issues around private drivers, whereas the implications of this go into all modes of transport where automation will apply.

We are particularly concerned about the current methods of employment, particularly within certain parts of the road transport industry. That means that liability will be very unclear. There are all sorts of drivers who are accounted as owner-drivers but, actually, in the way in which the contract has been established they are workers to all intents and purposes.

We are very concerned, for example, about bogus self-employment contracts and leasing of vehicles: all those things that will mean that all kinds of people could end up being held liable when they should not be in those circumstances.

Q51 Clive Efford: So should the Bill address those issues more directly and in more detail?

Diana Holland: We have two areas of concern. One is about issues that are not addressed by the Bill but have implications for the impact of driverless technology on the transport industry and on transport policy in our communities. I think there are problems and the House

of Lords report is extremely clear about all the outlying issues: job losses, job creation, job shifts. We would want that to be part of the discussion that goes on around this.

We are very concerned about some of the wording, specifically in clause 3(2) and clause 4(4), (5) and (6) around the software engineers. All sorts of people could be encompassed within that or it could lead to knock-on effects on people who work in the transport industry or in software engineering. They could be implicated either by the employer concerned or by the policies of the insurance company. We would want that to be addressed.

Q52 Clive Efford: We have just heard from insurance companies that for many years to come automated vehicles will not operate in many areas but mainly on major routes such as smart motorways, which clearly has an implication for people who drive long distances. There is the issue about transition from being automated to manual and vice versa. Is that an issue of concern for you and the people you represent: the delays in transition and the impact that taking over a vehicle has on the behaviour of a driver?

Adrian Jones: It absolutely is. As was said in the previous session, when a driver is not concentrating on driving, their attention is elsewhere and the transition back to driving is a slower process. The agreed trials for platooning are part of the debate and should not be forgotten. If you have three vehicles in a platoon, you have a driver in the front vehicle that is controlling the other two vehicles, what are the other two drivers doing? When they come to the end of the motorway or road where the platoon is taking place, what do they then do?

We also have the concern raised in this very room about 18 months ago. The report from AXA suggested over £5 billion a year savings in labour costs, due to the introduction of automated vehicles. That clearly says to me that there is either a downgrading or lack of recognition of professional drivers who are carrying freight, passengers or anything else. I think there is a real concern that the Bill does not cover any of those aspects at all. If it is not covered in this Bill, it needs to be covered somewhere.

Q53 Mr Hayes: Dealing with your point, Diana, I think you are right. Perhaps I can provide some reassurance. I do think you should contextualise this debate in a bigger debate. I do not think it is something you can do in legislation. You are absolutely right that the implications over the longer term oblige a proper lateral discussion—quite a serious discussion—about our transport future. If I can briefly make a case for the Bill, Chairman, it tries to steer a way between being too prescriptive about what that future looks like and putting enough of a framework in place not to inhibit research and development and further technological change. There is a big contextual discussion to be had, and I hope the Bill might stimulate that in the time we have here and in Committee, but it is going to take place over a longer time in a bigger forum, I suspect.

On the specific point about job growth and job shift—you made a very balanced point about how some jobs will change, some will grow and some will shift—I want to come back to the issue raised by previous witnesses about people who currently cannot or do not drive. In rural areas, for example, in many places in Cornwall, Lincolnshire, Dorset and similar places, half

the parishes do not have access to public transport. Can you imagine a future where autonomous vehicles will fill that void and provide a link to public transport, perhaps buses, trains and so on, and therefore boost the use of that transport for people who currently cannot get there. They will have access to autonomous vehicles because they are straightforward things to drive.

Diana Holland: Cards on the table: Unite is not opposed to technological advances, autonomous vehicles or anything in this area. It is about how it is done, the basis on which it is done and making sure that safety is absolutely critical. We are slightly concerned about the current moves. We believe that risk-based health and safety management needs to be properly built into this and we are slightly concerned that that is not recognised. We are not opposed to this in any way—it provides all sorts of opportunities—but because the overall approach is about private individualised driving rather than about the implications for the whole road transport industry of passengers, as Adrian was saying, with road haulage and taxis, it is also going to operate on a marine basis, in agriculture and all those other things. The concentration on private vehicles is going to advance this in such a way that I think there is a danger that it skews the potential for developments by concentrating on one aspect to the exclusion of the others. Does Rob want to mention your wider point about the commissioners?

Rob Johnston: To pick up on a couple of points, I think some of the challenges are about the definition of automation, which is at the root. We work with a number of global institutions, employers' bodies and manufacturers. We have developed a framework of five layers of automation. When you look at what we are discussing, at least three or four of those layers need to be included. On the point just made about people who cannot drive potentially being able to drive, there is also a question about the definition of the amount of automation needed to give them that mobility. It is very difficult not to consider the whole piece. In the end, it will not be a journey from where we are today to suddenly having fully automated vehicles. It will be a process as technology slowly comes through. In particular, platooning, which is one of the areas that we are likely to see in a relatively short time period, would not be covered under the Bill in its current format.

Q54 Mr Hayes: May I add a quick point? I am grateful for your welcome—I am not surprised; I have worked very closely with Unite—and I take your point on that. Would it be fair to say that you hope, as I do, that as well as this necessary legislation we can have a bigger debate to ensure that this fits into the broader narrative about the transport future?

Diana Holland: Absolutely. We believe that representatives of the workforce need to be part of that discussion but, as trade unions, we are often not included in those kinds of debates. We have discussions with employers where we have recognition, but plenty of people operate in the industry and there are areas where our voices are not heard. We think it is essential that they are.

Q55 Mr Hayes: Wherever my ministerial footprint touches, the unions are always involved.

Diana Holland: We are, and we will place on record that that is the case.

Q56 Karl Turner: I declare my interest as a member of Unite, the GMB and the RMT. I wonder whether you have any concerns about the skills gap and training. Should there be something in the Bill about forcing or encouraging manufacturers to train people?

Diana Holland: I think it is absolutely essential that there is the transport skills infrastructure body that exists at the moment. I was looking at its terms of reference—

Karl Turner: I am grateful that the Minister is nodding very enthusiastically.

Mr Hayes: It is a good point.

Diana Holland: I was quite concerned when I looked at those terms. Although there is some implication about developments in technology, it seemed that we would need to look at the way it is worded to ensure that it properly reflects this. Otherwise, the Bill will not provide the opportunities that it needs to. So yes, that is a really important point.

Q57 Clive Efford: On the issue of vehicles being connected in convoy on the motorway, are you saying that there should be a specific reference or clause in the Bill about connected vehicles and how they behave?

Rob Johnston: There is a definition that the ITF and a number of organisations such as the European Automobile Manufacturers Association and the International Transport Forum at the OECD have worked to establish. It sets out five layers of automation. We believe that will be a useful reference point for looking at how to define what automation really means. In those five layers are different degrees of automation. The previous evidence alluded to that in some ways.

Q58 Clive Efford: So those layers go from driver assisted right through to full automation?

Rob Johnston: Yes, absolutely.

Q59 Clive Efford: Are you satisfied that that is covered in the Bill or should there be reference to those five?

Rob Johnston: No, we believe that the Bill should be expanded to cover those five areas. If you look at technological development, it is likely that those layers will come to fruition in their current format.

Q60 Clive Efford: Would those five layers cover all forms of transport as time goes on, not just lorries on smart motorways but vehicles that are passing one another, approaching one another in built-up areas and communicating with one another? Would it cover all those areas of automation?

Rob Johnston: Yes, it would. The layers run from driver assistance at the lowest level to full automation at the highest level, and everything in between.

Q61 Clive Efford: Is it your understanding that automation governs all aspects of the vehicle, so they cannot speed and will obey the speed limit at all times?

Rob Johnston: I think that there is a question, which the Bill tries to deal with, on regulation. In order to accept the fully automated vehicle, you would have to

accept a number of criteria around the algorithms that would do that, and they pose some questions. Essentially, the vehicle would need to be able to make choices between certain decisions. For example, if the vehicle was involved in an accident or there was a crash, it would need to have an algorithm that would define which course of action it took. I think that area really needs further regulation. In Germany, for example, they have established a body to deal with that: High-Tech Strategy. In September 2017, they came up with some guidance on how they believe these algorithms should be programmed, and that is a useful reference point.

Clive Efford: Thank you. That is very interesting.

The Chair: I have Scott Mann and the Minister. Does anybody else want to ask this particular panel a question?

Graham P. Jones: Yes.

The Chair: I have got Graham as well. I will take you next, Scott.

Q62 Scott Mann: Briefly, in the last session I talked about some of the conditions and the loss of confidence that people have. Do you accept that the Bill increases social mobility?

Diana Holland: On the face of it—

Scott Mann: Just a simple yes or no.

Diana Holland: The potential is there, but it is not automatic unless a range of other things are followed up at the same time. It would be fantastic to find ways of developing this so that there is social inclusion for both rural areas and for disabled people, who are currently denied opportunities, but it has to be part of an overall approach to an integrated transport policy. Otherwise there is a danger that we just end up replicating congestion of one kind with another, with different insurance. However, there is a way of using this to develop a whole range of things, including much broader social inclusion.

Rob Johnston: I would add, as I did earlier, that if we are providing transport mechanisms, whatever they look like, for individuals who cannot drive for whatever reason, we need to provide a transport mechanism that allows the transport method to make decisions for them. That needs to be regulated and we need to be confident that the decisions being made by that vehicle, whatever type it is, are the right ones. That is determined by the algorithms and software behind it, so we need to have confidence that those are right. That is because you could potentially take vulnerable people and put them into a vehicle they are not in control of.

Q63 Graham P. Jones: What impact will the Bill have on employment if it goes through?

Diana Holland: Again, it does not have to have any impact on employment in terms of the two relatively minor areas that it could be argued that it covers; but the potential is there to enable a wholesale change to a different method, and ultimately saying that the professional driver no longer has a role. There are extremes in approaching this. We would say that it does not have to do away with employment, but plenty of estimates have

shown that if it is introduced in one way, that is the effect it will have.

Our immediate concerns regarding the phrasing of the Bill are on the impact on those people currently employed, or under a range of contracts, and responsible for a vehicle, who would find themselves potentially liable in a way that we hope is not the intention. We really think that needs to be looked at to ensure that it does not encompass all kinds of people who we do not think should be liable in those circumstances. There are specific concerns around taxi drivers who own their own vehicles. There are issues around road haulage, where certain people are required to establish themselves as a limited company or to be self-employed to have jobs, but the definition bears questions. We need to ensure that we are not extending liability here beyond where it ought to be, when the operation is run and owned by a third party.

Rob Johnston: If I can briefly add to that answer, KPMG produced a report that said there are potentially 25,000 additional jobs directly working in the automation industry by 2030. A potential 320,000 jobs that could be created, but there is a caveat to that: Government policy is needed to address the growing skills gap, otherwise there is a risk of losing more than £50 billion in GDP per annum. Those are statistics provided by the transport systems Catapult.

Q64 Mr Hayes: Finally, I want to return to Mr Turner's point on skills, which I nodded vigorously at, as he noted. Presumably to facilitate the discussion you are suggesting—the bigger debate about the transport future—it would be helpful now to begin dialogue with the FE sector and with manufacturers on apprenticeship frameworks. That is beginning. As you described, Rob, you are having those kind of discussions, but I am of a mind that the Government should now facilitate some more of that. Would you welcome that? I am inclined to take the view that while it is true that we cannot exactly predict either the character or timing of the technology, initial discussions of the kind that you proposed would be helpful. Is that about right?

Adrian Jones: Yes, I would certainly say that we would welcome the opportunity. While the date for roads full of fully automated vehicles is an unknown, as is the impact, our members already have concerns. In manufacturing, the apprentices needed are not engineering apprentices in the traditional sense; they are software engineer apprentices. In road transport, we have fitters and engineers who are up to their elbows in grease, but in just a few years' time they will be up to their elbows in keyboards, iPads and screens, which is a completely different skillset.

We also need to recognise that there is concern about skills. As you know, Minister, there is a widespread acknowledgement of a driver shortage in the UK. You already know my views on that. Our members already have concerns that the technology is being used as a smokescreen in effect to say, "We can use this technology to address that skills shortage", but it will not do that, because employers will see it as a way of reducing cost, rather than filling the skills gap.

One expert that I heard on the venerable Radio 4 was asked about the job shift of a bus driver when that bus was fully automated. The expert said, "Jobs will be created. There may be a café on the bus and they could

work in the café." That is not comparable work. Yes, it is a job, but going from a skilled position to working in a café—no disrespect to any café workers—is not maintaining a standard of living or the same income to that family or the Treasury. There has to be a real debate now, not only on the future, but on the impact that new technologies are having on the transport industry and workers today.

Q65 Mr Hayes: So you would welcome an initiative, if I launched one, to have that kind of dialogue.

Diana Holland: We would, very much.

Adrian Jones: Yes.

Q66 Mr Hayes: While you acknowledge, reasonably so, that we cannot be definitive about exactly where this will lead, we need to start engaging with all the partner organisations that can make the skills you describe a reality.

Diana Holland: I think the approach we see all too often is the race to the bottom that means that even those employers that want to invest are forced to undercut in order to win contracts. There is an opportunity here for Government to say that nobody can undercut on the basis of the standards we think should be set and operating in this industry. If we are approaching skill levels in that positive way, that can be extremely helpful, because it means we are saying that people are recognised for the skills they have, and having those skills will mean we get the kind of industry we want.

Q67 Clive Efford: If, under clause 4, an employer were to compel a driver to take a vehicle on the road that does not comply or have all the safety-critical software downloaded, should that be a criminal offence on the part of the employer? What should be included in the Bill to deal with that?

Adrian Jones: I am not sure if it would be included in this Bill. There are already regulations in force through the Traffic Commissioners' office for operators who infringe on maintenance, for example. The key, for this Bill, is how the driver would know whether or not that vehicle is fit. At the moment, a driver is expected to carry out a daily check to ensure that the mechanical aspects of the vehicle are fit for road use. How can they check that the software has been updated appropriately, and who will be held responsible if it is not? The Bill does not cover that, and it would be helpful, certainly for drivers and for the confidence of other road users, if, when I see an automated vehicle on the road, I know that it has been properly updated and the vehicle has a professional driver or worker who has ensured that the updates have been made.

The Chair: If there are no further questions, I will move on. I thank the witnesses for their evidence.

Examination of Witness

Robert Llewellyn gave evidence.

10.57 am

The Chair: We will now hear oral evidence from Robert Llewellyn. We have until 11.25 am for this session. Can you introduce yourself for the record?

Robert Llewellyn: Hello. My name is Robert Llewellyn; I am a writer, TV presenter and electric vehicle driver.

Q68 Stephen Kerr (Stirling) (Con): The Bill addresses

fundamental issues involving electric and automated vehicles that are revolutionising how drivers and we as a society see driving. Do you think that the Bill as it stands will address the issue of public confidence in new technologies?

Robert Llewellyn: It starts to go towards that. I am doing many public appearances to discuss the impact of electric vehicles. It is effectively a disruptive technology, in the same way as cell phones and the internet. It has elements of those disruptive aspects, which are never all positive. There are some positives, but there are definitely some negatives. One of the things that it highlights is the ownership model. That is certainly something that motor manufacturers are very focused on: the way we use cars at the moment.

It is the 90:90 dilemma; I have never heard anyone dispute that. At the moment, 90% of the cars we own are idle 90% of the time. When you look at it from that point of view, any other business or industry that kept 90% of its assets idle for 90% of the time would not be in business. It is a really difficult challenge, and I do not have an answer. One of the answers that is emerging, as you have just been hearing, is autonomous vehicles. There are so many complexities, as you have listed wonderfully in the Bill so far. When I started to read it, I got a bit of a fuzzy brain, but that is the actor side of me; it is not an enormous intellect.

The challenges that it raises are fascinating. I fuel my own cars with my own fuel, which I make in my house. That has never been possible before. It is conceivable that, if I lived in the right part of the world, I could have drilled down, extracted oil, built a small refinery and filled my car, but that is pushing it a bit. This technology allows you to do that, although not all year round and not 100% of the time. How do you legislate for that? How do you tax that fuel? All those things are thrown up in the air. It feels a bit wild west at the moment.

That is one aspect of it. The other aspect is the charging infrastructure. Anyone who has an electric car will talk to you about it for a year, because it is such an emerging area. When I first started driving electric cars in 2010, there was one rapid charger in the country. That belonged to Mitsubishi in Cirencester and you had to arrange to go and visit it, so it was like a day out to go down to Cirencester and use a rapid charger. For 90% of the time it did not work; all the instructions were in Japanese; and no one understood Japanese at Mitsubishi, so it was not very reliable.

However, now, if you are stupid enough—I have done it in the winter—you can drive from London to Edinburgh in a Nissan Leaf. It takes a long time, it is a miserable trip, and it is quicker on the train, but it can be done. I have driven all over the country in various electric cars, now relatively easily, so there has been a dramatic change in the infrastructure, but there are very few electric cars on the road. If you doubled the numbers overnight, there would be issues with that. I think 40% of the people in this country do not have somewhere off the street to park their car, so where do they charge them? I will not go on too long.

Q69 Stephen Kerr: So is there anything that needs to be addressed in the Bill?

Robert Llewellyn: Sorry, yes, that was your question. There is one crucial thing that I think could be addressed. It has been addressed in other countries. Ireland and

California are two places that I know about where there is one system for paying for electricity. Everyone who uses an electric car is happy to pay for the electricity, but the system is so complex. I could get the collection of cards out of my wallet that I need to be able to use all the chargers, and very often I do not have the specific card for that charger. In Ireland there is one system, an app that you have, and you can use any charger. It is operated by many different companies. They all get paid for it, but you just have one thing. A combination of either that or touch to pay should be addressed.

You can buy a bag of crisps with touch to pay, but you cannot buy electricity from a charger. I know there are complexities and legal difficulties and expense, but that would really make a huge difference. The most common complaint I hear is, “I haven’t got a wallet big enough to hold all the cards.” And you need membership and subscriptions. All that needs to go so that you literally go up to a charger, pay for the electricity you are using and move on. You do not have to join a club to use a Shell petrol pump. You just pay for it. That is a really essential thing.

Q70 Karl Turner: You have described very well the problems that we have. I declare an interest as the owner of an electric vehicle. Finding somewhere to charge it is often extremely difficult. One of the other problems is home charging and the requirement for off-street parking. I noticed very recently Hackney Council’s lamppost charging. What do you think about that? Do local authorities need to do more to support councils to provide charging points?

Robert Llewellyn: That is a very good system by Ubitricity, a German company. My primary enthusiasm about it is that it is incredibly easy to use. You drive up to it and plug your wire in. The wire has a box that communicates and tells the company how much electricity you use. You plug the other end into your car and it starts charging. You do nothing. We need that frictionless ability to do that.

I cannot remember the figures, but there are many hundreds of thousands of suitable lampposts. One of the aspects of the technological change we are seeing is when a lamppost is converted to LED lights. It has extra juice—electricity—that you can take off it without blowing anything up. It does not need any other infrastructure changes. It is a very simple system. It requires lampposts that are on the kerb side of a pavement, which not all lampposts are, but there are certainly hundreds of thousands of them. They have fitted a great deal of them and they have been very popular.

Q71 Karl Turner: I suppose my point is that the cost to install this will be reduced. It will probably be a lot less costly.

Robert Llewellyn: It is in the hundreds rather than thousands.

Q72 Karl Turner: It is, but we have a situation where local authorities are cash-strapped. Not every local authority has a lot of electric vehicles; I think Hull City Council has two charging points. They are hoping to get to the dizzying heights of 70 at some point before 2020, and they are doing their best. Should we not encourage local authorities with incentives—crudely, I mean cash incentives—to ensure that the equipment is available for everybody?

Robert Llewellyn: That would be ideal. One of the other problems is that the technology is changing so fast. I recently drove over a strip of road just outside Paris that has an induction-charging strip set in it. I do not think that is going to happen, because I cannot imagine the cost of putting that in the M1—it would be in the billions—but these induction plates for static charging, so when you are parked the car starts charging, are quite common now. That technology is getting cheaper.

It is really difficult—I would feel nervous suggesting that anybody invest an enormous amount. There have been failures in public-invested charging points: they are in the wrong place, they break down, they are not maintained or they are not run by the company that set them up. There have been plenty of examples of that. This is a rapidly emerging technology that keeps changing. Take even the wire you use. Finally, a bit like phones, there is a standardised type 2 connector that goes in every socket and goes in every car, but even that was a mystery a while ago. I would have a certain reluctance in saying, “Yes. Make all councils install thousands of chargers,” because they might be the wrong ones in the wrong place.

An organic development is happening with private companies, including supermarkets, that are starting to put them in car parks. Shell is now putting rapid chargers in its forecourts. It is happening, but quite slowly. I think it is probably chicken and eggging like that—so there are more cars, then more chargers, then more cars, then more chargers. I would not know how to suggest where to put them.

Q73 Karl Turner: Finally, the Bill makes it mandatory for fuel stations to provide charging points. Does that need to be in the Bill?

Robert Llewellyn: I think that is a really good idea. If there is one group of fuel suppliers that could probably afford it without too much stress, it is the garage chains. They seem quite keen to do it. I think they can sense a change in public attitudes, which is why Shell has gone ahead and has done what it is doing. I know BP is doing the same. I do not know about any other companies, but it makes sense. All I would beg them to do is to put in nice chairs, wi-fi and reasonable coffee, because you tend to be in the garage a bit longer with an electric car than you are with a petrol car.

The Chair: Before I call the Minister, I have him, Graham Jones, Iain Stewart, Matt Western, Scott Mann and Matt Rodda indicating that they wish to ask questions. Are there any more? No. Well, you can do the maths as well as I can. Will Members be as brief as possible with their questions? And Robert, we really enjoy your eloquence and insight, but if you could be as pithy as possible in responding, that would be helpful.

Q74 Mr Hayes: Robert, I will try to be pithy too. Broadly, from what you have told us so far, you welcome the Bill. Your journey to Edinburgh will be helped by the fact that the Bill suggests that fuel retailers should have charging points, because you could access them on the way, but you also say that we need to do more on the spread of charging points. Is that a fair summary?

Robert Llewellyn: Yes, I think so—I am trying to be pithy.

Q75 Mr Hayes: I have one other point—an old chestnut that I make no apology for roasting one more time—about the look and feel of charging points. I am keen that they should have some familiarity, so that people see a charging point and know what it is. Is that a good idea?

Robert Llewellyn: Yes, very much so. That has certainly been discussed a lot. If nothing else, like at a garage forecourt, if a row of charging points are under a canopy—say, at a motorway services or at a garage forecourt—with a specific kind of colouring to attract you to it, that would be nice. I do not know whether you can legislate for that, but it would be a great benefit so that you are not standing in the rain when you plug your car in.

Q76 Mr Hayes: And you hope that Her Majesty’s Opposition will move an amendment on the provision of coffee, do you?

Robert Llewellyn: A bit of coffee. Or a herbal tea.

Q77 Graham P. Jones: Robert, you are a great enthusiast for automated and electric vehicles, so the Bill must please you no end. I have just a broad question and then a specific question. Broadly, what is missing from the Bill? We heard from Unite about integrated transport, rather than this just being about the relationship between the driver and the vehicle via the insurance company, as well as some other small matters. So on the bigger issue, what do you think is missing? What would you like to see if you were the Minister in charge?

I want to ask a particular question at the end about vehicle variations. Does the Bill accommodate what we will see in the future? I believe we will see different types of vehicle variation, because there will be electric vehicles instead of just the four-seater saloon car.

Robert Llewellyn: There are three things that would be wonderful. I am definitely not an expert, but when you have seen this you can see how popular it is: community electric car sharing/ownership/use. When those little systems organised by local communities appear, they are very popular with the local community. I have seen this in small towns rather than big cities.

Q78 Graham P. Jones: Boris bikes for villages.

Robert Llewellyn: Almost, yes. Also, they would have a dedicated place where you would park and charge them, so you would remove that problem. There are a lot of benefits to that.

The thing I have not seen in the Bill, which is a vitally important part of this, is vehicle-to-grid technology, which is appearing rapidly. It has an enormous impact, potentially, not on vehicles but on the grid. Say there were 3 million electric cars plugged in overnight, that would be a staggering amount of electricity—a very large power station’s worth of stored energy. You only need take a small amount from each vehicle. That technology is available now, not much in this country but it is certainly being used. I have been—I am trying to keep this pithy—to an office in Tokyo that is run by 100 Nissan Leafs that are plugged in outside. They do

not use electricity from anywhere else. Those cars are discharging and charging all day, with a guaranteed amount for the owner to get home at night. So that technology already exists.

On fast charging, from my experience of driving many hundreds of thousands of miles in electric cars, slow charging is really good. Destination charging is really good. When you go to a car park and you are there for two hours topping up, it is not rapid charging, not “Gotta fill it in 10 seconds”. That, in a way, is a petrol or diesel mentality: “I’m driving a really long way. I need to fill it really fast”. You do do that, but way less than you might expect—way less. I use a rapid charger 15 or 20 times a year.

But if I can go to a car park where I can just plug the car in while I am in a meeting, or have gone to the movies or to a restaurant, and I add 20, 30 or 40 miles, that is an enormous benefit. Having more places where you can do that, more car parks with chargers fitted—that you ping your card on to pay for the electricity—would be a fantastic change. Those are emerging, and every time I can use one it is an enormous benefit. Two or three hours gives you 20 or 30 miles. You think, “That’s not very much”—well, it is 20 or 30 miles.

The Chair: I think we have got the message.

Q79 Iain Stewart: This is just a supplementary question on your earlier point about Ireland and California having a harmonised payment mechanism. Did that come about just from the industry creating it or was there Government regulation or legislation?

Robert Llewellyn: Absolutely from legislation, yes. The system in California, which I am more familiar with, was chaotic. I do not know quite what happened in Ireland, but it was catastrophic. It was a simple bit of Government legislation from the Californian state legislature that insisted that there was one system, that you could use all public chargers. I believe it is a dongle rather than an app. That might have changed—I have not been there for a while—but it certainly was that.

Q80 Iain Stewart: So that is something you would like this Bill, or another piece of legislation, to do.

Robert Llewellyn: That would be an amazing change, and I think it would ease in a lot of people who have not adopted electric cars: “How do I charge it?” “You just walk up there and it charges.” That would be a big change.

Q81 Matt Western (Warwick and Leamington) (Lab): It is great to be in the company of someone so evangelical about EVs. You have probably seen the ambition for the introduction of electric vehicles and the replacement of petrol and diesel by 2040, and an outright ban by 2050. Do you think we are being ambitious enough compared with other nations, and what it is that other nations are doing that perhaps we could learn from?

Robert Llewellyn: I was very pleased when I heard that announcement. Technology might overtake it. There is a strong argument for that among the evangelical electric vehicle users, from whom I try to stand one step back and be a little more objective. But it is such a hard thing to do. I have seen so many graphs to describe the uptake of new technologies and how this will be what happens with electric vehicles—the S-curve of adoption.

Our emotional relationship with cars is really complicated. It is deeper than our emotional relationship was with landline telephones or how television is viewed—all those things. It is more complex than that; I do not think it is quite as simple. I think you could be more ambitious. You could go with 2030, the technology is advancing so much.

The simple fact is that the car I have had the longest—a Nissan Leaf—has a 24kWh battery. There is now the new Nissan Leaf and the battery pack is exactly the same size and it is a 40kWh battery. That more than doubles the range of my very battered dirty old Nissan Leaf that I drove to the train station today. Sorry, no more piffle.

Q82 Scott Mann: I just wanted to ask briefly about your experience of driving in very rural areas. We have a lot of energy generation around the country happening in rural areas, through solar and wind. I just wanted to know whether there are enough charging points in rural areas and whether we could do something to decouple the national grid in some of those areas, so that some of the farmers producing that energy could effectively provide charging points.

Robert Llewellyn: There is a whole other area of fascinating stuff going on with micro-grids and local community-owned generation. That is something that I am involved with in my village. I think it is actually in many ways easier to have an electric vehicle in a rural area—I live in one—because you have generally got, even if it is a muddy drive or field entrance, somewhere you can park the car off the road. Far more people in a rural area have that ability.

You also generally have a bit more space to install solar panels or wind turbines. There is certainly a lot of that activity happening on a community level, of people generating their own power—they own the assets that do that—and they also install electric car chargers. A farmer local to me who is putting 20kW of solar on his barn roof wants to open a café with car chargers. You would have to drive miles to go there—I do not know why anyone would—though he has some nice cows.

Q83 Matt Rodda (Reading East) (Lab): My question is similar, but from an urban perspective. What would you see as the most effective way to encourage urban residents, particularly those who do not have off-street parking, to convert to electric vehicles? Secondly, how would you incentivise landowners who have car parks, such as large employers, railway stations and supermarkets, to have chargers?

Robert Llewellyn: I feel more confident in answering the second part. When people do install destination chargers—the common term for it—they all notice an increase in time spent by individual customers, because they are there a bit longer, and repeat visitors. Convincing supermarkets that, if they put chargers in their car parks, they will get more customers is the argument that I always try to use.

Certainly, hotels and restaurants have noticed a marked increase of a specific type of customer, particularly if it is a high-end electric vehicle. If they put those chargers in, they appear on the map on the satnav and they get more business like that. That is an argument. I do not know whether you could legislate for that but that is

certainly an argument in favour of doing it. As more electric vehicles appear, I feel that will kind of roll itself out in a way.

Q84 Matt Rodda: Do you feel there is a need to look at the way the planning system could incentivise that, to get the market started?

Robert Llewellyn: I would hope that there would be. It would be wonderful if there were encouragements and nudging pressure to say, “When you build this new supermarket with a car park, can you put in 40 car chargers? Not two or four down the far end but to have one whole side for electrical vehicle charging.” It is not that expensive to do low-cost top-up charges; that is not a big expense.

Q85 Alan Brown: Past UK Government policy led to an increase in uptake of diesel vehicles, which we now know are huge contributors to problems of air pollution. Therefore, to achieve future deadlines, would it make sense for the UK Government directly to incentivise the purchase of EVs or low-emission vehicles, through scrappage schemes and so on?

Robert Llewellyn: I am very uncomfortable about pressuring people in that sense. We should encourage them, certainly, but not pressure them, because of the result of the misinformation that we all suffered from. I had a diesel car, as did a lot of people. I think that is a really difficult area. I feel very unqualified to know how to do that. I work on encouragement and enthusiasm; I would not know how to instigate legislation that would insist on people buying electric cars.

Q86 Alan Brown: Incentivise, rather than insist.

Robert Llewellyn: Yes—incentivise, certainly.

The Chair: If there are no further questions from Members, I thank the witness for his evidence.

Ordered, That further consideration be now adjourned.
—(*Andrew Stephenson.*)

11.20 am

Adjourned till this day at Two o'clock.

PARLIAMENTARY DEBATES

HOUSE OF COMMONS
OFFICIAL REPORT
GENERAL COMMITTEES

Public Bill Committee

AUTOMATED AND ELECTRIC VEHICLES BILL

Second Sitting

Tuesday 31 October 2017

(Afternoon)

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Examination of witnesses.

Adjourned till Thursday 2 November at half-past Eleven o'clock.

Written evidence reported to the House.

No proofs can be supplied. Corrections that Members suggest for the final version of the report should be clearly marked in a copy of the report—not telephoned—and must be received in the Editor’s Room, House of Commons,

not later than

Saturday 4 November 2017

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The Committee consisted of the following Members:

Chairs: MR ADRIAN BAILEY, † SIR EDWARD LEIGH

| | |
|---|---|
| † Argar, Edward (<i>Charnwood</i>) (Con) | † Mann, Scott (<i>North Cornwall</i>) (Con) |
| † Brown, Alan (<i>Kilmarnock and Loudoun</i>) (SNP) | † Rodda, Matt (<i>Reading East</i>) (Lab) |
| † Duffield, Rosie (<i>Canterbury</i>) (Lab) | † Stephenson, Andrew (<i>Pendle</i>) (Con) |
| † Efford, Clive (<i>Eltham</i>) (Lab) | † Stewart, Iain (<i>Milton Keynes South</i>) (Con) |
| † Foxcroft, Vicky (<i>Lewisham, Deptford</i>) (Lab) | † Tracey, Craig (<i>North Warwickshire</i>) (Con) |
| † Hayes, Mr John (<i>Minister for Transport Legislation and Maritime</i>) | † Turner, Karl (<i>Kingston upon Hull East</i>) (Lab) |
| † Jones, Graham P. (<i>Hyndburn</i>) (Lab) | † Western, Matt (<i>Warwick and Leamington</i>) (Lab) |
| † Kerr, Stephen (<i>Stirling</i>) (Con) | Farrah Bhatti, Mike Everett, <i>Committee Clerks</i> |
| † Knight, Sir Greg (<i>East Yorkshire</i>) (Con) | |
| † Letwin, Sir Oliver (<i>West Dorset</i>) (Con) | † attended the Committee |

Witnesses

Steve Nash, Chief Executive, Institute of the Motor Industry

Brian Madderson, Chairman, Petrol Retailers Association

Steve Gooding, Director, RAC Foundation

David Wong, Senior Technology and Innovation Manager, Society of Motor Manufacturers and Traders

Robert Evans, Chief Executive Officer, Cenex, and Chair, UK Electric Vehicle Supply Equipment Association

Suleman Alli, Director of Strategy, UK Power Networks

Marcus Stewart, Head of Energy Insights, National Grid

Quentin Willson, Journalist and TV Presenter

Stan Boland, Chief Executive Officer, FiveAI

Denis Naberezhnykh, Head of Ultra Low Emission Vehicles and Energy, Transport Research Laboratory

Public Bill Committee

Tuesday 31 October 2017

(Afternoon)

[SIR EDWARD LEIGH *in the Chair*]

Automated and Electric Vehicles Bill

Examination of Witnesses

David Wong, Steve Gooding, Brian Madderson and Steve Nash gave evidence.

2 pm

The Chair: Welcome to our afternoon session. We will now hear oral evidence from the Society of Motor Manufacturers and Traders, the RAC Foundation, the Petrol Retailers Association and the Institute of the Motor Industry. We have until 3 pm, when there may be votes. Would the witnesses please introduce themselves for the record?

Steve Nash: I am Steve Nash, chief executive of the Institute of the Motor Industry.

Brian Madderson: I am Brian Madderson, chairman of the Petrol Retailers Association, which is part of the Retail Motor Industry Federation.

Steve Gooding: I am Steve Gooding, director of the RAC Foundation.

David Wong: I am David Wong, senior technology and innovation manager of the Society of Motor Manufacturers and Traders.

Q87 Karl Turner (Kingston upon Hull East) (Lab): Thank you very much indeed for attending. The Minister suggested on Second Reading that the Bill would deliver a cost saving to people who are insured on automated and autonomous vehicles, because they will be safer. Do you think that that is correct? Will insurance be cheaper?

Steve Nash: I will kick off, if you like. Right now, electric vehicles can cost anything up to 50% more to insure than comparable vehicles that are not electric. There are couple of reasons for that. An element of that is the cost of the vehicle, but a large part of it is the relative lack of skilled people to work on them. The insurers, naturally, load the premium because they expect to pay a higher cost to get the vehicles repaired, but provided the right mechanisms are in place to ensure a competitive market to service and maintain those cars, there is no reason they should be more expensive. In fact, if you take it to its logical conclusion, with sufficient fully autonomous cars on the road, accidents should go down.

Steve Gooding: May I echo that? It is a question of penetration—the number of autonomous vehicles out there. In the transition, when there are still a lot of conventional vehicles, someone in a driverless car might be a lot safer but will still face the risk of someone colliding with them. In the early stages, because of the technology built into the vehicle, that might be quite an

expensive accident, which might put premiums up. In the longer term, however, as Steve says, as we see greater penetration, a lot of the human error that is the cause of crashes on the roads today will be ironed out by the technology.

David Wong: On the basis that 94% of all crashes involving a fatality are put down to human error, and that the modelling we published two years ago suggests that connected and autonomous vehicles are expected to save 2,500 lives and contribute to the avoidance of 25,000 serious crashes between 2014 and 2030, we certainly hope that with autonomous vehicles, insurance premiums will go down.

Q88 Karl Turner: Thank you. Do you think that there is a necessity for licensing and accreditation for technicians? Should that be in the Bill?

Steve Nash: I feel very strongly that there should be, on a number of counts. First, we have electricity at work legislation that was put in place at a time when electric vehicles were virtually non-existent, although it does refer to electric vehicles—believe it or not, it actually tells people to talk to my organisation about them. But it is patently obvious that there is an inconsistency in regulating people who work on mains electricity, which is 240 V, while being happy for anybody to work on a vehicle that could be between 600 V and 1,000 V if we include commercial vehicles. To be really clear and specific, I am not talking about general licensing. I am talking about regulating people to work on the high voltage elements of these cars, not to change the tyres or to do the mundane stuff. These vehicles are wholly different to internal combustion engine vehicles. In the fullness of time, and it will not be that long, quite large numbers of them will start to come out of warranty and find their way into the open market. Right now, only 1% of those who work on the maintenance of vehicles in the whole country are actually qualified to work on the high voltage electrics and they pretty much all work for franchised dealers. Putting a regulation in place would open up the market to the wider industry and provide a standard that everybody could recognise.

Q89 Karl Turner: Why can you not just let the industry get on with it? Why does it need to be in the Bill?

Steve Nash: Because it will not happen. I have been in the industry for 40 years. We have a great deal of support for this from huge independents such as Halfords, from a lot of manufacturers and a great many independent garages. When we talk about the independent sector, it is an indeterminate number, roughly 40,000 businesses, we estimate, but we do not know exactly who is working on cars, because they do not belong to a body. It could be anyone; there is nothing to stop anybody setting themselves up to service and repair these things tomorrow. It will only be when somebody kills themselves—there have been incidents outside this country already of people being killed or seriously electrocuted working on these things. Don't get me wrong, they are perfectly safe to ride in and operate, but once you get under the skin, if you do not know what you are doing, you are in just as much danger as you ever would be playing around with mains electricity without knowing what you are doing, except that it is potentially more fatal, because it is direct current and it will not throw you off, it will just keep electrocuting you.

It would definitely help the market, because manufacturers will do what they have to do to sell the cars and make sure that their own people are competent, but it will not automatically happen. It is a coin-operated business outside the main dealers. We have investigated what happened when Corgi or Gas Safe were put into place, similarly with the electricity at work legislation. Very quickly you would undoubtedly have had a lot of practitioners who should not have been doing what they were doing back in those days, but very quickly the industry raises to that level and it becomes a competitive market again and you do not get unreasonable costs introduced. We believe that is the right thing to do here. It establishes a common currency across the industry for knowing what competence means.

Karl Turner: With Sir Edward's permission, does any other witness want to comment?

The Chair: It is not necessary for all the witnesses to answer all the questions. I am anxious as many colleagues as possible get in. I know the Minister is anxious for his voice to be heard, which we await with alacrity.

Q90 The Minister for Transport Legislation and Maritime (Mr John Hayes): Thank you, Sir Edward. Steve, you were previously very supportive of the Vehicle Technology and Aviation Bill, the forerunner of this Bill, particularly of the measures on AVs. Can you tell me why and why you think it is right that the Government bring this kind of legislation forward now? How important is it that in order to encourage further development we establish a legislative framework?

Steve Nash: We are going through what is the biggest change in the industry—

Mr Hayes: Sorry, I directed the question to Mr Gooding

Steve Nash: Sorry, I beg your pardon.

Steve Gooding: There are two Steves.

Mr Hayes: That is the trouble with two Steves. I do apologise.

Steve Gooding: I am sure Steve will come in in a second. Yes, the foundation has been very supportive of both aspects of the Bill before you today. Specifically on the electric vehicle side, we think that while there have been significant percentage increases in the take up of ultra-low emission vehicles, they are still a tiny fraction of the overall vehicle park. There are many reasons why the ordinary consumer could get confused by what is on offer to them with various different charging packages for how to pay; with big uncertainties about the availability of different charge plants and on-street charging. We think that if the Government are serious—and we know that you are—about rapidly increasing the take-up of ultra low emission vehicles, something needs to be done to make the world of those low emission vehicles easier for consumers.

The Bill takes the perspective of asking, “What are the things that may currently cause a consumer to think twice or just to think, ‘Not now?’” There is concern about range. Well, the auto companies are dealing with that, because the range of the vehicles is getting longer,

but there is also concern about the complexity and ease of recharging, about whether a particular charge point will be available and working when someone pulls up, and about whether it will be the right sort for the vehicle that they have. If we are able to clarify those things and make them simpler, the market will be a lot more attractive.

Q91 Mr Hayes: I want to pick up a point that Mr Wong made about safety. Is it your estimation that there will be a graph, if you like, and that as vehicles become automated in part they will become safer, and as they become safer accidents will fall? We now have assisted parking, for example, and my wife tells me that that means I am less likely to bump the car, because I get a bit of help with reversing. Could we develop an understanding of a growing level of safety as a result of partial automation?

David Wong: The best way to answer that question is to look at what is already available today in terms of automation. We do not have autonomous vehicles yet, just to be clear—we are unlikely to have autonomous vehicles until around 2020 or 2021—but what we do have is increasing levels of automation. The best example to quote is autonomous emergency braking, which is essentially level 1 or level 2 technology, using SAE International's definition. AEB has already been shown to have contributed to the reduction in real-world rear-end crashes by 38%.

Mr Hayes: How very interesting.

David Wong: That is an empirical study.

Q92 Sir Oliver Letwin (West Dorset) (Con): We heard earlier from the insurance industry that they had been led to believe that autonomous vehicles, as they evolved and eventually came to market, would inevitably contain software that would enable the vehicle to reject a transfer from the driver to the autonomous system if it was in a location that made it unsafe for the autonomous system to operate. I am talking about the period during which we do not have cars without any steering wheels but we have ones that are sometimes autonomous and sometimes used by drivers. Do you share their confidence that vehicles will always be manufactured with software that prevents handover to the autonomous system except where it is totally safe?

David Wong: I think it is more likely to be the other way around. That is, it will be a question not of whether the system rejects a request from the driver to hand control over to the vehicle, but of whether the system serves up the offer of automation to the driver, given the right and safe conditions.

Q93 Sir Oliver Letwin: Does that mean that if the system does not make the offer, the driver will not be able to give it control?

David Wong: Correct, and I can give you an example. It is not autonomous yet, but it is level 3, which is very close to autonomous; this is the next step towards autonomy. Audi is the first vehicle manufacturer in the world to launch a level 3-capable vehicle. It launched it in the summer, and it will be available on the market, all being well, next year. Its system, which is called traffic jam pilot, is designed to operate at speeds of no more

than 38 mph, on dual carriageways with clearly marked road signs as well as lane markings, and where the vehicle is hemmed in by other vehicles on the left and right, and front and back. If the system detects that all those conditions are met and the weather is sufficiently good for the operation of traffic jam pilot, it will offer the driver the option of giving the system control during that use case. Once one of those conditions is no longer in place, no longer valid—perhaps traffic has dispersed and the vehicle is able to travel at more than 38 mph—then the vehicle will ask the driver to take back control. So it is the system that will detect and serve up the offer; it is not the driver requesting.

Q94 Sir Oliver Letwin: Thank you. A question about charging points, which you were talking about: how important do you think it is that there should be a charging point in every place where there is a lawful parking space by a pavement in a city or town? What kind of timescale would you envisage for needing that level of penetration?

Steve Gooding: I doubt whether we would need precisely that level of penetration. A report that we recently published—and thinking about how the Bill's powers might be used if the House grants them—draws out the important point which is to think about the sort of trips that people actually make. For example, in large parts of London, in residential areas where there is no off-street parking, if we are to see a wide-scale move to plug-in electric vehicles, we would need to see quite a lot of roadside recharging capacity, because lots of people would be charging overnight, because that is what is most convenient for them. Elsewhere, if people are charging overnight at their homes and perhaps looking to top up the charge at their destination, it is probably more likely that that destination might be their place of work where there is off-street parking, or it might be a shopping centre or a multi-storey car park. So we are probably not talking about universal coverage but certainly more than we have today.

Quite how fast that needs to happen, I am afraid I could not give you a figure for now. All I can say is that at the moment there are various figures. Research by Addison Lee, for example, suggests that a very intense increase in on-street presence would be needed if we were to have the sort of ramp-up of vehicles that it would be willing to engage in. I would probably focus on making sure that the grant scheme for home charging carries on, so that we encourage more people to have the facility to charge at home. Then I would probably focus on motorway service areas, which will be very important for short and rapid top-up for people making a longer journey but who are possibly anxious about managing the whole journey there and back.

David Wong: If I can quickly echo what Steve said, it is no longer about the number of charge points, because we have around 14,000 in the UK at the moment, which is one of the highest numbers in Europe, if not the highest; it is about where these charge points are—being in the right place to serve particular needs, so it is not every charge point in every corner of a neighbourhood. First and foremost, what the Bill will provide is actually a step in the right direction, and so this is something we totally support in terms of the infrastructure. This calls for a co-ordinated approach involving the Government, the SMMT, the industry, vehicle manufacturers, charge point operators, energy companies and local authorities

to come together, convened by Government of course, using the Government's convening power, to determine and plot where the right charge points ought to be, depending on usage, the likely needs of people to charge and the type of charge points, because they might be fast chargers—rapid chargers—as Steve hinted.

Q95 Sir Oliver Letwin: Do you think that there needs to be, in effect, a national plan for the location of the charge points as we approach 2040?

David Wong: We would suggest a nationally co-ordinated approach.

Brian Madderson: I speak for 75% of the motorway service areas and the one thing that they are really against is any form of mandating, because they want the market to be able to choose what is the best form of charging at the time for them. This is in a great state of flux. Some of them have already entered into agreements that are more binding than perhaps they would have wished with the knowledge that they have just 12 months on. The mandating process seems to be all stick and no carrot. These motorway service areas fully recognise the need and, in fact, many now have both Tesla charging and other forms of charging, so they are working towards that but they think mandating is not appropriate in this case.

One of the other issues the motorway service areas have is that there does not seem to be joined-up government, which I think David was probably referring to. There are planning difficulties in getting car park extensions to put in extra parking bays for Tesla charging, for example. One of the things the Government should perhaps be mandating is not where the charging points go, but that where there are planning applications for charging points, local authorities must deal with them quickly, efficiently and sympathetically.

Q96 Clive Efford (Eltham) (Lab): What is the incentive to develop the automated car technology? Is it large fleet owners who employ a lot of drivers wanting to cut down on their overhead staff costs? Or is it the private car industry?

Steve Gooding: From a consumer perspective, I would have to say that we do not really know yet, but there is a broad spectrum of what might happen next. For example, there is a clear incentive for a fleet operator who is counting every penny to be thinking, "How could I reduce my costs of operation?" Whether that is a fleet of vans or trucks, the operator would be looking at automation as a way of, first, saving money, and secondly, sweating the asset of that truck for longer hours. In turn, we are seeing a huge amount of investment in the auto sector in vehicles for the private market.

If I were to bet my money, I would say that the guys who are counting every penny will probably be the first in—people running fleets and large numbers of vehicles—but some people are clearly very attracted to the thought of having driverless capability. That could be from time to time, or it could mean freedom and independence for people who are currently denied that by the fact that they cannot drive, and we have just been engaged in a report on what it means for people with disabilities.

Q97 Clive Efford: Are we not a long way off from those sort of automated vehicles?

Steve Gooding: I think David would say we are four years off. Personally I think it is probably nearer 10.

Steve Nash: Ten.

Q98 Clive Efford: There is a difference between an automated vehicle that can undertake a journey on a motorway and a vehicle that would have to drive around the roads here in Westminster. If it is going to provide that sort of access for someone who cannot drive at the moment because of a physical disability, it has to be that high level—level 5—of automation.

David Wong: Correct. In the first instance, when I referred to 2020-21, I was referring to level 4—vehicles that will still have a steering wheel. That means under the right conditions, in the right use cases—for example, from junction to junction on a motorway—someone could let the system drive the vehicle, but could take back control outside that use case. If level 5, which is without a steering wheel, is not going to be as far off as 10 years, it is likely to be deployed in the first instance for first and last-mile journeys, perhaps even in pedestrianised areas—on pavements—as we have seen with some of the trials in Greenwich, as well as in Milton Keynes. As to when those level 5 vehicles without steering wheels are capable of performing end-to-end journeys—from my house in the village to my office in the city—that is anybody's guess. That will probably be some time in the 2030s. It is quite complex.

Q99 Clive Efford: Can I ask about the figure of 95% of accidents caused by human error? Who else can drive a car and cause an error? At the moment we do not have automated vehicles. Is that not a bit of an obvious point—most accidents are caused by humans because cars, de facto, are driven by humans?

David Wong: I suppose you could—

Q100 Clive Efford: Can we expect that figure to go down as a proportion of the accidents, as we increase the level of automation?

David Wong: Yes. In principle, one would not argue that a computer is less safe than a human being. Obviously, the capability of a human being to perceive and perform the driving of a car is limited and depends on the human being's condition and the road conditions, as well as the environment in which the human being has been conditioned to perform the dynamic driving task. Lots of evidence has been published. The figures range from 90%; some are at 97%. We are taking the average figure, which is that 94% of all serious road accidents involving fatalities are caused by the human being. I mean that in the sense that it is not mechanical fault, lack of road markings or slippery roads, but the human being that caused the accident, perhaps by being inattentive or sometimes even perhaps by doing things that they are not supposed to do.

Clive Efford: But even the slow-moving vehicle in Greenwich hit a plastic chair when it was put in front of it, did it not? We are going to see accidents during a journey where the vehicle is being driven by software. Those accidents are going to happen. The periods when a vehicle is not driven by a human are going to increase, so we are likely to see an increase in the number of accidents that are not human error. Is that right?

David Wong: We think that overall the number of accidents will fall, but if anything can be learned from one of the trailblazers of the self-driving car experiments and trials—Google—it is that the earliest accidents that

they encountered a number of years ago when the car was being trialled were the result of the cars being rear-ended by manually driven vehicles. The learning from that was that Google had to tweak the algorithms to ensure that the self-driving vehicle—the computer—behaved a little bit more like the human being. They succeeded in doing that, and today you do not get so many of the rear-ending accidents.

Steve Nash: It is also important to say that these vehicles will be connected. When one experiences something, the knowledge is passed to all of them, which does not happen today.

Q101 Clive Efford: I was going to come to that, if the Chair indulges me. You touched on the issue of the vehicles making decisions. In an incident where a vehicle is being driven by software on an automated journey and a child runs out in the road in front of the vehicle, the vehicle can either veer to the left into oncoming traffic or to the right on to the pavement, or it can knock down the child, because the child is too close for it to be able to stop. How do we make a moral judgment about how a vehicle should behave in those circumstances?

David Wong: This is the classic trolley problem question that we get asked almost at every single conference that we attend—

Q102 Clive Efford: Yes, but we have to legislate.

David Wong: Not at this point, but at some point certainly. First, if you take a cue from the ethics commission report that was published in Germany just a few months ago, it suggested that in any case, human life should always be prioritised. If it is a decision between a human and non-human, obviously the human life would have to be prioritised. That is No. 1. Secondly, we should not expect the car to do anything massively different from how a human being would behave. The car should perform a minimal risk manoeuvre to stop and brake in such a way that the impact will be minimal. To expect the car to make an ethical decision to kill A or B is probably not the right approach. I would suggest that none of us has the divine power to decide who to kill. At the end of the day, someone who writes the algorithm will have to decide. If you insist that the car must decide, it is incumbent on the engineers to programme that into the algorithm.

Q103 Clive Efford: So no evasive action would be taken. The vehicle would just—

David Wong: There would be a minimal risk manoeuvre, depending on the situation. There may be evasive action in such a way that it would be the safest possible option. If it needs to stop, it will brake and stop. May I point something out? I mentioned autonomous emergency braking. It has been demonstrated that the technology is improving all the time. Previously, autonomous emergency braking worked perfectly at 30 mph, which is urban speed, but it is becoming increasingly sophisticated. AEB can work well even at 50 mph. It would not surprise me if the technology improved in years to come to the stage where autonomous emergency braking could kick in at motorway speeds of 70 mph to prevent an accident or lessen the impact of an accident.

The Chair: I have a growing list of people who want to ask questions, and I want to try to get everyone in. We want brisk questions and brisk answers. It is not necessary for every witness to answer every question.

Q104 Edward Argar (Charnwood) (Con): This is probably more to Mr Madderson. You touched on mandating or not mandating particular solutions. Do you have any assessment, either anecdotal or based on research, from your members? The big retailers may well be able to adapt over time and have different types of fuel supply, charging points, conventional fuels and so on. What is your assessment of the ability to adapt of smaller local retailers of fuel, or your feeling about the impact?

Brian Madderson: They are all extremely interested in this new technology and we, in fact, are providing a route to market for many of the charging point suppliers. They come to our regional forums—Northern Ireland, Scotland, England and Wales—and they appear in our market review book, so there is a thirst for knowledge.

The real problem with the Bill as it is currently written is that in mandating motorway service areas and, indeed, large fuel retailers there is a key missing ingredient, and that is the carrot I referred to before. There is funding for charging points at home, on the street, in the workplace and in other public areas but there is no funding available for the fuel retailers who would like to embrace this technology in order to provide a diverse range of refuelling options for their customers. It is the big rump of the medium to small-sized filling stations right across the country that will find this more difficult, because the investment decision at the present time is not something that banks would support. There is almost no money to come back on a perceived return-on-investment basis. So they are the ones who will be holding back the growth of charging points right across the country—it is not just city-centric.

Q105 Karl Turner: To be honest, I think Mr Madderson has answered the question I was about to ask: what are the carrots? He said it was all stick and no carrot.

Brian Madderson: It does have to be some form of funding, because if you go to your bank and say that you want to put in a charging point that might cost you a lot of money, you will immediately be asked, “What do you see as the return on investment? I’ve got to get my interest back.” They have no idea at the moment, because the market is in such a state of flux. New systems are coming on. I heard of one relatively recently called ZapGo. I do not know whether it is a big runner, but it is looking at putting storage tanks into a traditional forecourt with charging posts, and being able to meter out the electricity on a basis that I am told Her Majesty’s Revenue and Customs would enjoy because you might be able to get fuel duty back on it. This is relatively new. There are all kinds of development in the marketplace, and I think it would be precipitous to ask them to invest 100% of the money now—they could not do it.

Q106 Karl Turner: Could I ask what the average cost is? Am I right to say £50,000?

Brian Madderson: It can be up to £50,000 per instalment. What has been happening is that certain companies have gone along and said, “Look, we will take over that cost but we want from you two parking bays for 30 years on a lease basis.” If you are thinking about 30 years, that is a very long time. It precludes you, as the owner of that freehold property, from perhaps expanding your shop or putting up a new car wash—

indeed, from perhaps even selling the property to someone else. So most of them have opted away from that style of investment.

Q107 Mr Hayes: To jump back to your point, Brian—it is nice to see you again, by the way—you will know how supportive I am of small and medium-sized business of the kind you represent. Is it fair to say that the Bill begins a process of spreading the number of charging points by picking on and mandating those larger retailers, but that to get the coverage we all seek there will need to be other mechanisms, because in rural areas, for example, where many of you are based, there might be no large retailer conveniently situated? Can you see the Bill as a welcome start?

Brian Madderson: First, I do not agree at all with any form of mandating because this is interventionist by the Government in a market that is so new and in such a state of flux that there should not be mandating. This is a perfect example of where market conditions should encourage investors to invest in the product that is right for them at the time. Mandating may make them make a false decision, which would prove very costly and certainly not be beneficial for the consumer.

Q108 Mr Hayes: So Mr Wong thinks we should have a co-ordinated national strategy, whereas you think that the market should prevail. Is that the difference between you?

Brian Madderson: Yes, I think it is good to have a market strategy, but you would certainly need to have proper funding available to not only small retailers but large retailers as well. By this, I mean the independents, certainly. The big oil companies today count for relatively few of the total number of filling stations—less than 15%—across the UK.

Q109 Graham P. Jones (Hyndburn) (Lab): Obviously, you represent the motor manufacturers, and I am concerned about the shape and size of vehicles going forward and the adequacy of the legislation. My hon. Friend the Member for Kingston upon Hull here has, I think, a Twingo—do you have a Twingo?

Karl Turner: A Twizy.

Graham P. Jones: Twizy—that is it. I notice even on the continent, particularly in urban areas, we are getting smaller and smaller electric vehicles and cars driving around. Is the legislation adequate for the type and size of electric vehicle that might come on to the market? What changes do you see, for example? How will an automated vehicle work when you add a trailer to it or make some other changes to it? The shape, size and form of vehicles is probably going to change, as you are well aware, so will the legislation be adequate for those vehicles to be on the road when they are automated—of course, when they are operated by an individual manually, there is a human choice—and the automation is making choices?

Steve Gooding: I will start with a very short answer, as the Chairman seeks, which is no. But that is because this is a very immature market. We do not even have the vehicles in the marketplace yet. Having also driven a Twizy, which is great fun, I think the construction

and use standards, based on a mechanical testing of roadworthiness, should be sufficient for most of the concerns you are voicing, but they are certainly not sufficient for guaranteeing the roadworthiness of the autonomous software systems; you are going to need something new for that.

When it comes to the size of the vehicle, again, their crash-worthiness, for example, needs to be tested in the circumstances in which the vehicle will be used. Maybe then there will need to be something in addition either to prevent or constrain what other purposes—whether it be towing a trailer, a caravan or whatever—are appropriate for that vehicle.

Q110 Graham P. Jones: It is not just that. What if I set off with a trailer in manual mode but I suddenly decide to be sneaky and switch it over to automated and go to sleep? There are a whole bunch of issues around the change in form, shape and size of vehicle and going between manual and automated.

Steve Gooding: I would say a similar thing as to Mr Efford: as a consumer, if I am being invited either to travel in one of these vehicles because it is the equivalent of private hire, or to buy one, I expect to buy something that has been certified as safe for the use to which it is going to be put. If it is inappropriate for me to hitch a trailer to it and use it in autonomous mode, that had better be made clear to me at the point when I buy it.

Q111 Mr Hayes: I have one further question, on a slightly different subject. This morning, we talked about how these developments will change the nature of the skills required. Steve I, if I may call you that, mentioned that earlier. Presumably you will also acknowledge that it will give rise to new skills. There will be a shift in skills and new kinds of jobs and skills will develop. Is there not an exciting prospect of a whole range of new competences coming as a direct result of this technology? Is that fair?

Steve Nash: Absolutely, yes. There is probably more opportunity than threat from the new technologies. We are interested in ensuring that those skills develop in the right way. If you look at autonomous vehicles—I mentioned electric vehicles earlier—we only know as yet what manufacturers have said about their plans in the future. It may well be, for example, that when we get to level 5, or even level 4, a lot of those vehicles are not sold in the way that they are sold today. A new electric vehicle was launched a couple of weeks ago by a new brand called Polestar, which is owned by the same people who own Volvo. They say that the car will be sold on a subscription model, so it would remain within the possession of the manufacturer.

There is a lot of road to cover between now and then. Whoever is looking after those cars—I have already talked about electric cars, but when we get to autonomous cars as well—they will still have accidents. Things will drop on them and things will happen to them that are not caused by the car. When they are repaired, we have to be assured that they are repaired to a standard that returns them to exactly the same capability they had before the accident, which means we need people who are certifiably competent to do that. That is where we are interested in seeing some clarity.

We have cars with quite substantial autonomous capabilities already—Tesla is a good example—and I have seen second-hand examples of them that have

gone beyond the dealer network. You have to wonder about the competence of the people who will work on that car—I am not saying that they are incompetent, but I do not know that they are competent. When someone next engages the autonomous capabilities of that car, will they do the things they are supposed to do? We cannot just leave that to chance. We have to be sure that there is some way of assuring ourselves about the people who work on them. This is not like the days when there was somebody who was “a bit handy”, as I think the phrase used to be, and you could give your car to them and they could look after it. This is a paradigm shift. We need to move with that and recognise that these cars, even though they have four wheels and look a bit like the cars that we have today, are entirely different. The skills base needs to be elevated to deal with them because they are an entirely different prospect.

Q112 Rosie Duffield (Canterbury) (Lab): If there was one aspect of the Bill that members of the panel could change, what would it be?

Brian Madderson: The mandating of motorway service areas and large fuel retailers should be taken out at this stage because the market is just developing far too rapidly. We have even asked the Department for Transport what the definition of a large fuel retailer is, and it has said that it does not know yet and it will consult on that. Is it the size of the plot of a single one? Is it a multi-site organisation that might have filling stations all over the UK? Is it the amount of existing fossil fuel that a retailer is supplying? There is no definition, so I do not think it is reasonable or fair to mandate a large fuel retailer when you do not know what that is.

For similar reasons, I do not think that is fair and reasonable for motorway service areas either. There is just no money in it at the moment to justify huge investments, but there will be at some stage in the future and that is when the market will be able to say, “Let’s move on this now, and quickly too”. Hence my plea that the planning authorities are fully engaged to be able to allow effective planning applications as and when they are required for charge points.

Steve Gooding: Rather than changing something in the Bill, I think we would say that the powers—particularly in relation to electric vehicles—are drawn quite broadly. We would like to see how they are going to be used in succeeding regulations. We published some suggestions on how they might be crafted. There will obviously be some concerns—Brian’s perhaps first among them—about the implications for the operators of service areas, for local authorities and for householders. We would like to see the detail and to be confident—as I am sure we are—that the Department will get it right.

Brian Madderson: I would come back to that and say that the RAC’s report suggests that forecourts—filling stations, as they are at the moment—are probably one of the least best places to put a bank of charging points because of constrained space and alternative use, and because the few that we have today are all pretty busy selling diesel and petrol.

Steve Gooding: Apart from motorway service areas.

Q113 Craig Tracey (North Warwickshire) (Con): Could I just follow up an answer you gave earlier, Mr Wong? You talked about the Audi model of traffic jams, where a car will offer to take over when a series of conditions are met. Is that how you see this working in the short term? Is it phase four?

David Wong: Level 3.

Q114 Craig Tracey: My question is: if one of those conditions is not met, then you said that it will invite the driver to take back control. What happens if the driver either does not or cannot take back control? How quickly would that process need to happen? Given that, why does that not give the potential for there to be more accidents in the short term?

David Wong: In the first place, the limiting conditions are such that the vehicle can only operate under the traffic jam pilot functionality at 38 mph, so that is a relatively low speed. If the driver is required to take back control at that low speed, Audi has said that there will be a minimum period of 10 seconds for the hand back to take place at 38 mph. This is completely different from some of the things that may have been heard in the press, where people were saying, “Oh, at 70 mph there is a three to five second hand back, it’s impossible to do that.” It is perhaps impossible. Audi will have a minimum hand back period of 10 seconds at 38 mph.

If the driver still fails to react within those 10 seconds, then a minimum risk manoeuvre will be performed whereby the car will slow down and grind to a halt in the lane safely, flashing the emergency indicators and strapping the seatbelt tight across the driver. The driver might have passed out, or may have become incapacitated. That is the assumption. In the intervening period, there would be a series of warnings within those 10 seconds including visual, acoustic and eventually haptic warnings. So there will be lots of measures that Audi has in fact built in. In any case it is travelling at 38 mph, so it is perfectly possible for the car to gradually grind to a halt in the lane with those measures in place.

Steve Gooding: Some of us are entirely unpersuaded that level 3 makes any sense at all. I accept all of the reassurances set out by David, but you should consider for a moment the Department for Transport’s own research showing that you are much more likely to kill someone when travelling at 30 mph than at 20 mph. I wonder if, at 38 mph, the window being created by Audi in which its system can operate is going to be too narrow. I am not sure that I have ever seen a dual carriageway in an urban area that is free-flowing with clear signs in this country. I think, personally, that we ought to say that level 3 is something that we do not want.

Q115 Stephen Kerr (Stirling) (Con): In connection with what has been discussed today in relation to these five levels from manual to automated: in the context of the Bill, is the definition of “automated” in the Bill adequate for the purposes of the Bill at this point?

David Wong: We are informed that the policy intent behind the Bill is to do with the new insurance framework—the single insurer model framework—to cover level 4 and above. Insofar as that is reflected in the spirit and letter of the Bill, then that is adequate because it is at level four that the human being is—technically speaking—out of the loop, to use engineering parlance. The human being has surrendered control to the vehicle. At anything below level 4, the human being is still technically responsible and in the loop. So for these purposes the Bill is adequate.

Q116 Stephen Kerr: So there is no need to delineate the different levels and so forth within the Bill.

David Wong: From an industry perspective it is always helpful if the levels are spelled out very clearly in the Bill. Our understanding is that it is rather unhelpful to spell out levels.

Steve Gooding indicated dissent.

Stephen Kerr: You are shaking your head.

Steve Gooding: I would say that the definition in the Bill is adequate because of what David has said. It contemplates a world in which the vehicle can operate in autonomous mode without the driver being responsible. That is fine. It does not facilitate level three and that is fine too.

Q117 Sir Greg Knight (East Yorkshire) (Con): Do you think that there is a case for the Government to introduce rules requiring the providers of these electric charging points to have to advertise the price they are going to charge the motorist, with the price visible before the vehicle actually parks up to the charging unit, as it has done for autogas, petrol and diesel sales?

Brian Madderson: I have no problems with that.

Q118 Sir Greg Knight: It is necessary really, is it not?

Brian Madderson: Yes. It is definitely a good idea. We do that all round—on autogas, diesel, petrol, super-unleaded or whatever it might be—at the present time. The price is displayed, and I think it is a fine idea to do that with electric charging as well. It must be said, however, that since April 2016, when some of the charging point providers moved to pay as you go, the demand on motorway service areas for those chargers has dropped by 50%.

Q119 Matt Western (Warwick and Leamington) (Lab): I was interested in Mr Madderson’s point about not mandating. The car industry has often reacted well when it has been mandated to do things; when things such as Euro NCAP were introduced, it followed suit and made dramatic improvements. Given the ambition of the Government and across all parties to see more adoption of ultra low emission vehicles, and given that markets such as Norway’s are much further ahead than ours, what should we be doing to ensure that we are in a leadership position in electric vehicle technology?

Brian Madderson: It is also about providing the carrot by way of funding. That is going to be the big spur to encourage firms, in a rapidly changing market, to take that investment decision and to ensure that such decisions are supported by their banks, lenders, shareholders and others. At the moment, you do not appear to be mandating hotels, leisure centres or workplaces, all of which are admirably fine locations for charging points; you just seem to be mandating motorway service areas and large fuel retailers, whatever that description means. We do not think that is fair, reasonable or necessary.

Q120 Sir Oliver Letwin: I just want to clarify something that Steve Gooding said. Why do you think that it is clear that clause 2(1), which refers to “an automated vehicle when driving itself”, applies only to level 4? Why does it not apply to level 3?

Steve Gooding: I am not a parliamentary draftsman, so I would have to be reassured about this, but to me “when driving itself” means that the driver of the vehicle is not legally responsible for the vehicle; the vehicle is driving itself. That is what I intended to convey.

The Chair: Thank you very much for your attendance today and for your answers. We are very grateful.

Examination of Witnesses

Marcus Stewart, Robert Evans and Suleman Alli gave evidence.

2.54 pm

Q121 The Chair: We will continue our session by hearing oral evidence from National Grid, the UK Electric Vehicle Supply Equipment Association and UK Power Networks. Will you please introduce yourselves and say where you are from?

Robert Evans: I am Robert Evans. I am chief executive officer of Cenex and chair of the UK Electric Vehicle Supply Equipment Association.

Suleman Alli: Good afternoon. My name is Suleman Alli. I am director of strategy for UK Power Networks. We distribute electricity to 8.2 million homes and businesses in the east of England, London and the south-east.

Marcus Stewart: Hello. My name is Marcus Stewart. I am head of energy insights for National Grid. We are responsible for the balancing of the electricity and gas networks, and for managing all the energy across the UK.

Q122 Karl Turner: On charging infrastructure, we have just heard evidence from the Petrol Retailers Association, which is very worried about being mandated to have charging points on the forecourts of its members. What is your prediction of what would happen if we did not mandate them to do that? If it was not required by law physically to invest and have them on their forecourts, would they bother?

Marcus Stewart: At the moment, the majority of people who own electric vehicles charge them at home, but there is a limit to how many houses have off-street parking. About 43% of properties do not have access to off-street parking, therefore other forms of charging facilities need to be available. They could be a mixture of charging types at destinations, workplaces, supermarkets, and so on.

From the evidence that we have gathered when we have talked to and interviewed people, key locations on the motorway and strategic network are seen as key enablers for the roll-out of electric vehicles and will help to remove some of the concerns around range anxiety which is seen as one of the main barriers to the take-up of electric vehicles at the moment. Charging and plus charging in particular at key locations across the country will facilitate the roll-out. If you do not have that, it is likely that the roll-out will be slower.

Suleman Alli: I support that. I would say that there is going to be a paradigm shift. It is a bit like when we used to get water from a well and we now get it from a tap in our home. In the same way, I do not think that petrol forecourts will be the only place where we will recharge our vehicles in the future. In our engagement with the marketplace, we are seeing major supermarkets looking at how they can offer fast charging to be a key differentiator for their customers. We are seeing hotels considering the same and local authorities looking to explore how on-street charging can be part of the solution. Based on the engagement we have done, I believe that it will be a much more diversified charging environment: it will not just be petrol forecourts.

Robert Evans: We have members who are very interested to install charge points at these locations. They see them as locations where there will be high utilisation rate and a good economic case for those charge points to be used. We are also talking here about an insurance policy—it is not a mandating per se. If the market does not deliver, the Act gives Government the ability to step in. It is not by definition a mandating until you pass additional legislation.

The members are very interested in installing in these locations, but they are other people's land. Part of the issue here is the ability to encourage landowners to install charge points at their locations. In some cases it is a fuel supplier, in other cases it is one of the three main companies that operate motorway service areas. You have to recognise that there is a desire to install in those locations, but you cannot put your asset on someone else's land.

Q123 Sir Oliver Letwin: I am delighted to hear what you say and absolutely agree with you. If the problem of range anxiety is addressed or partially addressed by fast charging at service stations and so on, we are still left with—I think you said—40% of homes that do not have off-street car parking. Have you done any assessment of the kinds of costs involved for the distribution network operators if over the period between now and 2040 there was a roll-out of universal charge points on the street in towns and cities—probably not all areas—where there is lawful parking?

2.59 pm

Sitting suspended for a Division in the House.

3.11 pm

On resuming—

The Chair: We are now quorate. Sir Oliver Letwin asked a question, which you of course have remembered exactly, and you may now answer it.

Robert Evans: I think your question related to the aspect of there not being so many people with off-road parking, so how do you make provision available for them? Certainly in this city, in London, that is an issue. It is also an issue in many cities across the UK. The availability of charging infrastructure in supermarkets, shopping areas in market towns and leisure facilities is certainly helpful, but obviously if you do not have home parking you are at a disadvantage compared with other motorists. So it is partially self-selecting, in a way, but certainly in London and other locations if you have a certain amount of public infrastructure it will help those people who want to buy an EV to have one.

Q124 Sir Oliver Letwin: Have you looked at the cost associated for a DNO in London, say?

Robert Evans: From our perspective, no, we have not. We know that UK Power Networks have done extensive study work in their projects, and we know from dialogue with Western Power Distribution that they have also looked at the same. Some of the councils here in London—for example, Hammersmith has a scheme that is looking to leverage the street lighting—

The Chair: Will you speak up a bit, please?

Robert Evans: Sorry. Hammersmith has a scheme that is looking to leverage the street lighting in order to provide charging for residents on the street. Part of that is largely around civil works and some of it is around the electrical works. The DNOs will be able to advise in these cases whether the low-voltage network needs reinforcing, but otherwise it is predominantly a matter of civils and equipment. Members are developing charge points, and have charge points, that can charge from street lighting, albeit that the power supply to that lighting is limited.

Q125 Sir Oliver Letwin: Has UKPN done an analysis?

Suleman Alli: Yes. It is very difficult to give you a definitive answer on the exact cost. The reason why it is so difficult to do that is that in order to come up with a cost, you have to understand the impact that it is going to have on the network. To understand the impact on the network, you have to understand when people are likely to charge, where they are likely to charge, the amount they are going to charge and the type of charger they are going to use. There are multiple permutations of that.

The only approach that we thought was appropriate to consider was to look at scenarios. Our peak demand across our three networks is around 15 GW. We think that up to 2030, when we might have between 1.2 million and 2 million vehicles, their peak demand could be between 2 GW and 5 GW—so between 10% and 30%. If you think of our track record over the last five years, we have connected 5 GW of distributed generation on our grid. That is equivalent to one and a half Hinkley Point Cs, without much fuss or bother. We have until about 2030 to work out how we are going to do this. My view would be that we are not complacent, but we are confident that we are going to come up with some solutions.

We think the Bill as it is currently presented provides us with a lot of help. In order for us to understand the impact, you need the visibility and the smart charging functionality. If you have the smart charging functionality combined with smart tariffs, you can start actually to deliver the infrastructure at lowest cost. I am sorry that I do not have an exact number for you. Anyway, if I did give you a number, it would 100% be wrong—but we are doing a lot of modelling and work to understand what the permutations are.

Q126 Sir Oliver Letwin: Have you looked at the other side of the coin—the peak locked-in capacity of the cars that are attached at a given time of day, say in the mornings or evenings, that could be used as a sort of battery resource?

Suleman Alli: That is a really exciting area of development at the moment. We are looking at it. As part of the Innovate UK funding, we are going to be supporting five EV trials, one of which is including a vehicle to be trialled with Nissan.

If you look at where distributed generation is connected in the UK today, it has mainly been at grid scale. A lot of our research on storage has been focused on grid-scale storage. We commissioned the largest battery in the UK at the time, 6 MW or 10 MWh, and we are very clear that storage can help peak shaving for the distribution networks at grid scale. We think that same concept can be applied to vehicles, but the trials need to take place for us to understand it fully. That is happening at the moment.

Q127 Sir Oliver Letwin: When do you anticipate results from those trials?

Suleman Alli: I believe within the next 12 to 24 months. We are looking abroad as well at other countries to see how we can generate learnings from those trials. Certainly, in the next 24 months we will start to see concrete evidence that we could present.

Q128 Mr Hayes: I wanted to bring up two or three things. The first is that you presumably agree with the changes we made from the first Bill, which was the forerunner of this Bill—the Bill that did not make the cut before the election. You will remember that what we have done this time is clarify the definition of automated vehicles, as a result of previous scrutiny. We have tightened that definition. How important do you think that is in providing confidence to the industry in respect of further developments?

Robert Evans: Automated vehicles are not strictly my area of operation, so I find that that is something that I cannot strictly answer.

Marcus Stewart: In some of the work that we have done when we have projected forward and looked at various energy scenarios, we see automated vehicles as having an impact on total energy usage. More automated vehicles, and clarity around the question, will allow different business models to come forward. Car sharing is more likely as part of that, and that will reduce the overall demand on the energy system, but we believe that it is still quite a long way out—maybe 2030-plus—before we start seeing any significant impact from that.

Q129 Mr Hayes: In terms of electric vehicles, I take it that the availability of a robust charging infrastructure is critical to the further take-up of those vehicles. I know there are other barriers to entry—market price, reliable battery technology and so on—but presumably in your view the charging infrastructure is an important part of encouraging more people to buy electric.

Robert Evans: Yes, absolutely. This is part of a process that the Government have played a key role in seeding—the introduction of charging in key locations and providing support to Plugged-in Places and now to the Go Ultra Low cities and others, to create exemplar projects and to encourage the roll-out of infrastructure. Making that infrastructure visible is a key part of reassuring people that owning an electric vehicle is a good thing. Being able to have a home charger, with support from the Government, that meets very high technical standards is also really important, so that people are not charging their electric vehicle from an extension cable or similar on a three-pin plug, which we would not advise.

The Government have played a very important part in dialogue with industry about the process of seeding. Now we are in a situation where we have more than 100,000 electric vehicles on the road, and the car industry is committing to introduce the vehicles, and so the roll-out of infrastructure is occurring largely with market forces, in the sense that businesses and locations are realising that they need to have charging as part of their offer. If it is a tourist destination, it wants to have electric vehicle drivers come to its location rather than another one, and so on.

We have good momentum, but it is still really important that where there is workplace charging, for example, we get conversion of people who work at that location because they see that there is charging that they could

use, they start to think and then they buy electric vehicles. We thoroughly commend the Government's workplace scheme, because we can see the catalytic effect that it is having.

Q130 Mr Hayes: Finally, we heard a lot earlier about the development of skills. The point was made across the Committee that we need a co-ordinated process by which we encourage the further development of relevant skills as the technology moves on. What is your thinking about that? Clearly, the industry is doing a lot of work on skills, but how can we more effectively accelerate the acquisition of the necessary skills so that we are not left in a situation where this technology can be serviced at only a very limited number of places?

Robert Evans: Skills is one of those challenging areas where we have a plethora of schemes. I was told that there are currently about 220 different skills initiatives for the motor industry. The challenge is not necessarily to create another skills initiative, but to work out how best to blend the relevant content into existing initiatives. Certainly on the garage side of the motor industry, greater skills or a spreading of skills for mechanics and engineers in terms of them being familiar with and able to operate on electric vehicles would be helpful. There is a general skills shortage in the motor industry, and that is something that training and development at a local level can assist.

Mr Hayes: Thank you.

Q131 Iain Stewart (Milton Keynes South) (Con): Following up on the question asked by my right hon. Friend the Member for West Dorset, I have a question about the capacity of the grid to cope with the expected increase in demand, and in particular the timing of that demand. While researching for the Second Reading debate, I came across an Atkins report that draws on findings from the Energy Technology Institute that peak demand is likely to be in the early evenings—particularly Sunday evenings—and that that could increase demand on the grid by 10 GW, or 20%, at the time when it is least able to cope. Is that a finding that you recognise?

Marcus Stewart: One of the key things that affects the impact on the grid is people charging their cars. Smart charging is absolutely key to mitigating that. I will give you some examples from the work that we have published. We published our "Future Energy Scenarios" report in July. In a high-growth scenario that aligns with the Government's target to ban sales of diesel and petrol engines in 2040, we would expect to see around 9 million electric vehicles in 2030. That would add something like 17% to peak demand, which occurs on a Monday or Tuesday evening in the winter, if there was not smart charging. If there was smart charging and people responded to that through time of use tariffs or other incentives, that could be reduced to around 6%. How people charge and how they are incentivised to do it has a real impact.

At the moment, the technology exists—the charging posts that have been put in have that technology—and we support the measures in the Bill to ensure that all charging points have that capability, which would make a significant difference to how easily electric vehicles are accommodated by the network nationally and locally. Smart charging is absolutely key, and we support the approach in the Bill.

Q132 Iain Stewart: Are you content, given the content of the Bill, that the industry will come up with those incentives itself, or will there be a requirement for further guidance or direction?

Marcus Stewart: I believe that the industry, in terms of energy suppliers, will offer smart tariffs. We have already seen that; OVO has published a proposed smart tariff that will actually support vehicle-to-grid when that becomes available. The market is likely to respond. There are also changes in the electricity market around billing for half-hourly meter reconciliation, which will drive the supplier to optimise their portfolio and to offer similar types of tariff. The mechanisms are there to make that happen. At the moment there are only 100,000 to 120,000 electric vehicles, so there is a very small impact, but when we get to millions of cars, we need to have that smart charging capability. People in the market are seeing that opportunity already and want to participate in that. Having the framework and rules that facilitate that and mandate the technology and infrastructure will go a long way to facilitating that.

Robert Evans: I would just like to add that on the one hand I am very reassured by my colleague's contribution, which recognises that this is a market opportunity and that we have members who are very keen to provide the charging technology and the market mechanisms that would allow a motorist to make their electric energy—their battery—available, so that they do not charge at night, but they can provide power back to the grid when it is needed and manage those smart services.

We are concerned about mandating a specific technology. There is a context around the Bill that says it will mandate a certain technology or approach. We would like to see a recognition of the need to create a market rather than have a situation where, for example, a DNO can effectively turn off charging for somebody because they feel that that is necessary under certain conditions without involving the motorist or without market mechanisms coming in in the first place. We are particularly keen that this paves the way for a market-based approach. We welcome variable tariffs and vehicle-to-grid technology and we see the storage of electric vehicles as exactly what you need in an energy system with a high element of intermittency, as we add more and more renewables. The storage element is going to be a lot more valuable and there need to be market mechanisms to unlock that, rather than a mandated approach that is purely a situation where someone can turn off as they choose to, without the motorist or business—

The Chair: Thank you very much. Alan Brown.

Q133 Alan Brown (Kilmarnock and Loudoun) (SNP): On the smart grid that we are aspiring to, the panel has already alluded to the fact that they think smart charging will come by market, but there is a lot more that the Government need to think about in the wider energy mix, because there is also decarbonisation of heat and further decarbonisation of electricity. There is the future scenario of an influx of electric vehicles, but a whole lot else is going on in the energy mix as well. The point is to make sure that is all captured to get the smart grid we need.

Marcus Stewart: We see smart charging for electric vehicles as a key starting point for that. You can get smart technology in your home today—smart thermostats, for example. Commercial premises have smart air

conditioning and smart lighting that help to balance their load and can provide services back to the grid today. An electric car will be the biggest asset in the home that uses energy, unless you convert to heat as well, and that will have a big impact on the system. Making that smart at the start is the right thing to do.

Suleman Alli: It is a bit like the concept of offset mortgages in the financial services sector, where you pay your salary into an account and that offsets against the mortgage interest you pay. We are starting to see a new business model emerge where people say, “We can give you price certainty or reduced energy bills if you plug your vehicle in and allow us to provide services to the wider network operators or the system operators.”

I think the market will innovate and start to provide those services. We are already seeing that in the internet market, for example. Some of the trials we are doing will look exactly at that area. It is intuitive for us to think that if you have an electric vehicle you are going to go home and plug it in straightaway. The research that we have undertaken shows there is a diversity. When you have a large population of EVs, not everybody goes home and charges at the same time. In fact, we have seen about 30% of the impact materialise—of the capacity of charge that has been installed. There is an element of diversity that we incorporate into our planning that is based on evidence from the trials we have undertaken.

Q134 Alan Brown: Can I ask one more question about the model scenarios? You are modelling how many vehicles might be coming in, among other things. Is that based on mass volume modelling, or does it look at existing restrictions in the network and at where the uptake might be? Clearly, uptake depends on the roll-out of the charging system and some local authorities in some areas are much more at the forefront of that than others. That potentially impacts their work as well.

Marcus Stewart: I could talk about how we would do that. The primary reason to do it is to understand what network capacity expansions and reinforcements are needed on a national level. We will have different assumptions for different locations, where we have evidence. For example, there may be clustering in cities that we will make assumptions around. I imagine that the DNOs will look at similar things for their networks as well. We look at it on a spatial basis; it is not just a single-number basis.

Suleman Alli: What we are looking to do, particularly with electric vehicles, because there is a lot of data available out there, is try to apply much more advanced analytic techniques. For example, how can we marry up Land Registry data, which gives an indication of people who might have driveways, together with Acorn data about people who might be more able to buy an electric vehicle, together with data on charge points, in order to get a better and more granular view of our network? That is what we are doing at the moment to improve our planning.

Q135 Alan Brown: So it is a live, ongoing process.

Suleman Alli: Absolutely. I do not think we can ever say we are done.

The Chair: Thank you. We have a lengthening list, so let us have one question and one answer.

Q136 Stephen Kerr: Are there global standards within the industry for the connections between the cars and the charging equipment? Is there a global standard for

the charging equipment? Should there be a universal way of connecting, so that you do not travel somewhere and find you cannot plug your car in? Should there be a railways gauge Act for electric cars, so that we get that uniformity?

Robert Evans: There are standards. There has been a difference between a Japanese product coming to a Japanese standard versus a European product coming to a European standard. Charge points typically have several connectors to accommodate different vehicles. That has been the simple solution.

Q137 Stephen Kerr: Should there eventually be one?

Robert Evans: I do not know that we in the UK can necessarily say that this is the charger that is required for the global motor industry to produce. In the past, the Office for Low Emission Vehicles has set grant funding regimes that encourage particular types of charger because they are better for safety and for the motorists' general use. That is to be commended.

Q138 Stephen Kerr: You do not see legislation playing a part in this?

Robert Evans: At this stage I would say that was not necessary.

Q139 Scott Mann (North Cornwall) (Con): A couple of my questions have already been answered. One was on the car-to-grid technology and the other one was on peak capacity. I want to ask the National Grid this: does your grid mirror some of the main arterial roads that run through the country? How effectively could you put your grid capacity into locations? I am firmly of the view that we should not necessarily assume that we want all the charging points to be in current service stations—there might be opportunities outside the existing ones—so how easy will it be for you to deliver that with your current grid locations?

Marcus Stewart: The high voltage network does mirror parts of the motorway network, but not all of it. There will be locations where there is a clear opportunity to build a connection for high voltage to supply charging, and there will be other locations where it is just not that simple. It has to be looked at on a case-by-case basis. Some of the options around that are maybe connecting at a lower voltage tier but using onsite storage, so you are not taking too much stress from the grid in one go. You are managing exactly the same as a petrol station does today, where it fills up a tank of petrol under the ground and feeds it to the cars as they need it.

We have talked to different developers and people who are looking at those kinds of options, and we describe it as a sort of mosaic of different charging routes out there. One of them could be high voltage input, with 350 kV of charging, backed up with a megawatt-scale battery to minimise the connection to the grid and that impact.

Q140 Scott Mann: I have one small supplementary question, if I may. Do you see yourselves as being an end-to-end provider or do you see other companies coming in to fill that middle gap?

Marcus Stewart: From a national grid point of view, my role is to balance the network and ensure that the energy is balanced. We have a transmission owner part that would own the high voltage network, and certainly the element up to a connection. Anything beyond the

connection is available for third party competition. Any service provider could put that in. A deregulated version of the National Grid or another third party could put that in. Our primary role is the reinforcement element upstream to support that.

Q141 Mr Hayes: On the back of that, between you there is immense expertise in managing complex systems—I have read your CVs. On the issue of grid management, earlier today we heard a call for some kind of co-ordinated approach on where charge points were located to ensure their spread, and to ensure that there were no areas that would become black holes where there were not enough charging points. Presumably, any such co-ordinated plan would need to be married to the supply of electricity via the grid. The Bill does not yet do this. It is a first step down this road, and it simply increases the number of charging points. Do you see the sense of putting together a co-ordinated national strategy that ties together the provision of the charging points with the provision of the power?

Marcus Stewart: I think it would have some merits. I am not sure whether it needs to be mandated or not.

Q142 Mr Hayes: I was not necessarily suggesting that it ought to be mandated; I was simply arguing that it might be facilitated. There could be a co-ordinated approach that might facilitate—this is the word that was used earlier—both the provision of charging points and the other considerations.

Marcus Stewart: It certainly makes sense to look at where there is good capability on the local or national network, and to consider that in respect of good accessibility for people; for them to be able to come in, connect and charge up their cars. I would expect those to be offering the early take-up points. Effectively there would be a least cost route to getting fast charging points delivered, in particular. A number of parties would have to come together and look at those opportunities: the National Grid, local network operators, charge point owners, service station owners and people like that. That would make sense.

Q143 Matt Western: I was interested in what you were saying about the workplace uptake, the conversion and how it switches people. Do you think we are doing enough—with all the housing developments and the local plans being put in place across the country—either to mandate or to encourage a rapid and widespread adoption of electric vehicles?

Robert Evans: The answer is no. We are not doing enough.

Q144 Matt Western: What could we do?

Robert Evans: Two different things. One is that the size of the power cables running into new developments is typically capped by the developer or by processes, so it is not built to add further capacity at later dates. That is what charging would require, so that is one part of the equation. The second part would involve effectively putting wiring in new homes in such a way as to ensure that a charge point could easily be added. We have repeatedly asked about this but been told that even putting a smoke alarm in some houses is too much for some developers. Any additional input in that area would be very welcome.

Q145 Matt Rodda (Reading East) (Lab): Air quality is a huge issue, particularly in many urban areas and some other parts of the country. What do you believe

could be done to increase the roll-out and take-up of electric vehicles in urban areas to help tackle the problem of air quality?

Suleman Alli: From our market, first we need to engage with people to talk about range anxiety. It is down to motor manufacturers to produce vehicles with a longer range. The second thing is availability of charging infrastructure. We have certainly seen an increase in activity from both TfL and local authorities in wanting to understand that more effectively, and we have done a lot of engagement with local authorities to demystify the process and explain what the costs are likely to be. The third thing is just the up-front cost—the capital cost—of buying a vehicle. There is no silver bullet; we would need to do a range of things to increase adoption.

Q146 Matt Rodda: If you do not mind, I will ask a brief supplementary question. Those points all sound very valid, but they may apply to the whole country. Are there specific measures that you would suggest the Government ought to be considering for urban areas?

Suleman Alli: In urban areas, where people do not necessarily have a driveway and perhaps live in flats, they have to have provision of charge points on the street for on-the-go charging and destination charging—at railway stations, supermarkets and so on. In urban areas you would need to identify those locations—car parks and so on—that have the space to provide destination charging. In that case, it would probably have to be rapid charging to provide the charge that you would need.

Robert Evans: We would be very keen as an industry to work more closely with the DNOs for the roll-out of the charge points, but also the grid reinforcement needed to get charge points in strategic city locations. For example, London, with UK Power Networks, has provided support that has effectively created locations where the power is available for rapid chargers to be deployed. The same is happening in other Go Ultra Low cities. We would like to have a partnership approach whereby we could work with the DNOs in particular cities to make sure that we could get infrastructure in strategic locations. *[Interruption.]*

The Chair: Given that there is now a Division, I think we can let you go, because it would be unfair to keep you. We will start straightaway in 10 minutes with our new set of witnesses. Thank you.

3.41 pm

Sitting suspended for a Division in the House.

Examination of Witness

Quentin Willson gave evidence.

3.53 pm

The Chair: We are now quorate, so we can hear from Clive Efford, but first I should say to our witness, as I do not want to be rude, that perhaps you should introduce yourself.

Quentin Willson: I am Quentin Willson, motoring journalist and television presenter, who has been an electric car advocate for the last seven years. I advise and help OLEV and Go Ultra Low, promoting electric car use among the public. I have done 50,000 miles under the wheels of electric cars over the last seven years, and my day-to-day car is a Nissan Leaf.

Clive Efford: You certainly look good for having done 50,000 miles “under” the wheels.

Quentin Willson: Absolutely!

Q147 Clive Efford: Anyhow, this is about automated vehicles. When automated vehicles and conventional vehicles share the roads, will the question of who is liable for accidents become more complicated?

Quentin Willson: Enormously complicated. It is not my area of expertise, but the question I would ask is: can they co-exist peacefully? Can the connected and the unconnected in the UK’s very limited road space exist? Can those cars that drive themselves be allowed to co-exist with the cars that are driven by human beings? Will there necessarily be some friction during that period? I think that in the short to medium term, it is going to take some time.

Q148 Clive Efford: Do you think that the legislation goes far enough on that? Do you think that there should be more in the Bill?

Quentin Willson: I think we need to be very careful that we know exactly who is liable, because there will be quite a few accidents, whether it is the manufacturer, driver, network provider or road provider. It has to be established very early on.

Q149 Clive Efford: Can I move on to this issue about the transition from automated vehicle to a person taking over? We have heard various descriptions about the length of time that might take. You say that we need to be clear about the moment that the driver becomes responsible and the software is not, but is there an issue around safety caused by that transition?

Quentin Willson: Inevitably you will get a feeling of complacency, of reliance on the technology, and if there is an emergency situation or you leave the automated road system to the non-automated road system, you will have to have that moment of what we call extreme alertness. Consumers need to be trained for that and we need to be ready. If that is a legal transitional moment, where you take the wheel having been driven autonomously, that could be an issue as well.

Q150 Clive Efford: On the moral issues that are raised by algorithms that control these vehicles at a time when there is an accident, a scenario I used earlier on was that of a child stepping out in front of an automated vehicle, and to the left there is oncoming traffic and to the right there are pedestrians on the pavement. How do you legislate what you require of the vehicle in those circumstances?

Quentin Willson: I do not think that artificial intelligence will ever be trained to be able to make those moral decisions, and when we take a driving test we are not trained to make them either, so it is a difficult area to think we can resolve. Can we ever expect artificial intelligence in an automated car to make that split-second moral decision between the child in the pushchair or the old people in the Nissan Micra? I do not think we can. We are not trained to do that and we cannot. It is a split-second thing that happens and legislating for it would be enormously difficult.

Q151 Clive Efford: So what will happen?

Quentin Willson: I am not an expert on artificial intelligence in cars at the moment, but it will be, depending on the sensors, the object that has the least resistance.

Q152 Clive Efford: I will leave it there. One last question on what is driving this forward—that was not an intentional pun. Is it the desire of companies that employ large workforces that drive vehicles which are striving for automated vehicles, or is it the demand from the public, which wants to sit comfortably behind the wheel and not have to think too much for long journeys?

Quentin Willson: It is driven, I guess, by the fact that there is a huge world of opportunity here and that is predicated on the fact that people do not like driving anymore—there is congestion, it is expensive and it is difficult—and on the rent economy, whereby you summon an automated car on your smartphone and it comes to your door. When you look at the research, that is very attractive to the public. The golden era of getting pleasure from driving cars has gone, and I say that with some regret, but it is a fact. There was a survey by Catapult in Milton Keynes which asked this question: if you were to replace your current car with an autonomous car—we are not going to tell you what it is or what it looks like—would you be prepared to change to that autonomous car? Some 58% said that they would change to the autonomous car without knowing what it was, simply because of the liberation of not having to make those decisions and sit impotently in snarling traffic. It is partly driven by commerce and partly by the public.

Q153 Alan Brown: Is the Government’s target of 2044 for zero-carbon new cars ambitious enough?

Quentin Willson: I sat before this Committee a year ago and was broadly optimistic about the short and medium-term future of electric cars. I think Michael Gove’s announcement in July, coupled with Sadiq Khan’s T-zones and ClientEarth’s relentless pushing on air quality issues, has terrified consumers. It has wiped probably £30 billion off the value of diesel cars. Lease companies are now looking at a collapse in the residual values of the cars that they lease to consumers on personal contract purchase. We are looking at a real issue in the short to medium term.

The consumer now feels that he or she cannot buy a diesel car; we have seen sales of diesel cars absolutely collapse over the last quarter. They are feeling, “Right, I’ve got to buy an electric car.” We need to manage their expectations. I am quite concerned that people who rely on one car as the family vehicle will go out and buy, like me, a second-hand Nissan Leaf for £10,000. That is great, but we must understand that those cars’ ranges are nowhere near viable for an everyday, use-it-all-the-time car. They are a wonderful urban solution, but long journeys—anything more than 100 miles—are really difficult. I came down here in an alternative car; I had to leave my Nissan Leaf at home, because getting here would have required three stops to charge.

It is about managing consumer expectations. Otherwise, this whole thing will go horribly wrong. The new Nissan Leaf, which I saw in Oslo last week on its launch, has a quoted official figure of 235 miles to one charge, but the Nissan engineers tell me that in reality, it is 175 miles for everyday driving. If you drive that car on the motorway at 70 mph, that will fall to about 130 or 140 miles. The technology of the lithium ion battery still has some considerable work to do.

Again, it is all predicated—the mass adoption of electrification in the short to medium term—on having better battery density, maybe of alternative materials

such as graphene, and a very robust charging infrastructure network. I am not talking about on-street chargers; I am talking about charging hubs like petrol stations, with 20 rapid chargers that can charge 20 cars in 40 minutes. That is the only way that mainstream consumers will be able to do any form of distance. They are wonderful for town work, but if you are doing more than 100 miles, you are still compromised.

Q154 Alan Brown: To follow on from that, it is interesting what you say about the conundrum of managing consumer expectations so that people do not buy a vehicle that might not suit their purposes. Going forward, when the technology allows, given that it was UK Government policy that drove the flux of diesel vehicles, does there come a point when the Government should incentivise a diesel scrappage scheme to get that mass ownership?

Quentin Willson: I would rather spend that money on the NHS. Here is an irony: we talk constantly about air quality, but in the MOT, there is no proper smoke test, although it is called a smoke test. The particulates come out the back, and the MOT examiner will fail the car if it loses rearward visibility. If you cannot see out the back when the car is accelerating, it fails. That is why you see all these cars puffing out black particulates. If we stiffened up the MOT with a proper particulate test and then automatically scrapped these cars, a lot of which are old and worn out and pollute much more than we realise, we would not have to finance a scrappage scheme. Consumers would realise, “This car is knackered; it’s got to go anyway.” But at the moment, there is no mandate against either petrol or diesel cars that really pollute.

Again, on the air quality debate, I am not sure that we will solve urban air quality with electrification alone. Even though we get massive amounts of people driving electric cars in cities, we still have 30% of particulate and NOx from industrial combustion, 20% from domestic combustion, 14% from ground machinery such as diggers, trucks, dumpers and cranes—these are London Assembly figures—5% from HGVs, 8% from vans and 9% from buses. We do not know the contributions from aviation and shipping. Certainly in London, with 20 million tonnes of stuff coming in on the Thames tidal, the fact that that is not even quantified worries me greatly. We do not want the unintended consequences of this not to affect air quality significantly and, in the meantime, blow the GDP of a generation while doing it. That is my worry. The fact that we do not know enough about this, and that it is being pushed and pushed and terrifying consumers, is of great concern to me.

The Chair: Thank you for that admirably clear answer.

Q155 Rosie Duffield: You talked about getting drivers behind this because they know it is the right thing to do, and that drivers are frightened. We are also trying to meet the environmental targets that the Government have set. Knowing car enthusiasts as you do, do you think that people will ever feel as enthusiastic and fanatical about electric vehicles as they do about Ferraris or other exciting cars?

Quentin Willson: That group of car enthusiasts is quite small now. It is a very small percentage of the market. Most of us just see the grim business of getting from A to B as a necessity. As I said earlier, the idea of the open road with your Porsche 911 is a golden age

that has passed. The Tesla P100D is the fastest accelerating car in the world. It does nought to 60 in 2.4 seconds. It is faster than a Ferrari, which is great. But in terms of mainstream electric cars, I think it will be a while before your hardcore car enthusiast really likes them. We have a big Clarksonsque blockage here—he does not like electric cars or the people who drive them—but I think he is an irrelevance and so are those car enthusiasts.

Our concern should be mainstream consumers who have to get to work, to school, to the shops and to hospitals. We have to make it easy, effective and inexpensive for them but also give them that range. Until we get rid of range anxiety through better infrastructure and battery technology, that will not happen. What will happen is that they will buy hybrids that will do 20 or 30 miles on electric but the rest on petrol. That does not really solve the problem, does it? The people in the Mitsubishi Outlanders who hog all the charging stations will do maybe 20 miles on electricity and the rest on petrol. Again, that is something we need to manage. We need to look at the far reaching, perhaps unintended, consequences of the decisions that we are making now.

Q156 Mr Hayes: Thank you for coming again; you will remember that we had an exchange when you came to the evidence session on the previous Bill. One would accept your view that we will not switch to electric vehicles overnight. Clearly, we do not want to eliminate the use of older classic vintage vehicles—my right hon. Friend the Member for East Yorkshire challenged me on that on Second Reading—but surely there is a good case for taking advantage of the improved battery technology, the greater affordability of electric cars as volume grows, the smoother ride that they give, and their many other virtues. I do not claim that electric cars are nirvana, but given that this will not happen just like that and some allowance will need to be made for the older vehicles that my right hon. Friend champions, surely you acknowledge that it is likely to happen and in the end it is quite a good thing?

Quentin Willson: I agree. The older classic cars are a tiny proportion and their emissions are a raindrop echoing in an ocean because they are used so seldom—some for only 200 miles a year. We should not worry about them.

Mass electrification is coming, but until I see a step change in battery technology, we will not be able to give consumers the beatific vision of 300 to 350 miles to one 40-minute charge. Will that come by 2040? I do not know. You have heard from the car manufacturers. Will we be able to accelerate that technology? It is good that the Secretary of State for Environment, Food and Rural Affairs has given the 2040 cut-off date, because up to now they have broadly been compliance cars made to keep emissions down for EU regulations. Manufacturers will be throwing everything they can at developing batteries, but someone like Jaguar Land Rover does not really have any electric product at all, and Mini has only just scrambled together one electric Mini that does not have a brilliant range. They have a lot of work to do to get to that level. It has taken us 100 years to get to the efficiency of the combustion engine as we have it now. I know innovation is not linear and it will start to climb up, but we need to understand that if we do not give consumers that 300 to 350 mile range, it is going to be very difficult. You see Teslas strolling down the motorways, because they do 250 miles to one charge. That is great, but you never see a Nissan Leaf—think about it.

Q157 Mr Hayes: Let us follow the logic of your argument. I agree the battery technology is a key determinant of take-up, as you described. Clearly, capital prices are a big issue too, and we have supported that over some time, but we acknowledge that until we get volumes up, prices are unlikely to fall significantly, in the way you describe. The third thing is the charging infrastructure. Confidence about being able to recharge on long journeys is critical to people's acceptance of the technology. We have agreed that the move to electric is rather a good thing and we excluded the tiny number of vintage vehicles and classics. Do you acknowledge that the Bill is at least a step towards that? It begins to put together a framework of legislation when it takes account of infrastructure that will at least deal with one of our three shared perceptions about barriers to entry.

Quentin Willson: Completely. We have a lot more consumer awareness to do. I will be doing events with a shopping centre group across the country where we have consumers coming and they have test drives of all these electric cars, plus everything you ever wanted to know about electric cars but never dared to ask, on stage. Go Ultra Low and OLEV do great work; I think we could do even more, but we could also incentivise universities to come up with technology. Danny Alexander and I talked about a battery prize of £10 million. Let us make it £50 million for the real world-class development of a battery that is lightweight and not dependent on rare earth metals. Half the cobalt in the world is in the Democratic Republic of Congo—that terrifies me.

If you can come up with the technology that creates this new, wonderful, miracle battery, then we lead the world and a lot of these problems just disappear, but we need to accelerate that process. The two things—the infrastructure and the battery technology—really need to run, because at the moment we are running too fast with this, because the technology is lagging behind. It is absolutely laudable that we do what we do and put the legislation in place and prepare consumers, but we have to make sure that that technology can support long journeys.

I am afraid you cannot expect consumers just to charge at home at night. They cannot do it. They will want to make journeys. This morning I got into my Nissan Leaf; I had 80 miles on the charge after an overnight charge. It was cold, so I had to defrost the windscreen and put the heater on. I took my daughter to school. The charge went down to 55 miles. If I wanted to go anywhere else, I would have to stop at the end of the 55 miles and charge for 40 minutes, if I could find a rapid charger. If I could not, I would have to do two or three hours. Realistically, we cannot expect consumers to do this in the short to medium term.

The Chair: Thank you very much for your evidence, Mr Willson. As the owner of a beloved 25 year-old BMW, I am grateful that classic cars have a future. Sir Greg Knight will be even more grateful as he is the owner of several vintage cars.

Examination of Witnesses

Denis Naberezhnykh and Stan Boland gave evidence.

4.14 pm

The Chair: Welcome. Would you like to introduce yourselves, please?

Stan Boland: I am Stan Boland. I am the CEO of a start-up company called FiveAI. We are building a driverless car system, which we hope to trial in London by the end of 2019.

Denis Naberezhnykh: My name is Denis Naberezhnykh. I am head of ultra low emission vehicles and energy at the Transport Research Laboratory. We work with industry and Government to help to introduce new technologies such as electric and automated vehicles.

Q158 Karl Turner: I have one really quick question on safety. What are the safety implications for blind pedestrians, runners and people of that nature?

Stan Boland: Safety is the start and finish of whether we can bring these cars on to the streets. A huge amount of attention will be focused on making these vehicles safe, in our case, for use in urban environments, where we will have all sorts of obstacles and agents with all sorts of different behaviours. That really centres on having systems that are able to perceive what is in the scene accurately in 360° and three dimensions and classify what those objects are.

This also talks to predicting what will happen next. We actually have to predict human behaviour, and we have to learn what those behaviours might be ahead of time. Our vehicles will certainly have to be state of the art for perception, but they will also have to be very good at predicting human behaviours. In the case where we identify an object and can tell, just like a human can, that this person, cyclist or whatever it turns out to be has a certain type of behaviour, we will have learnt those ahead of time, and if we are not sure, we will have to propagate that uncertainty through our software and slow down.

The behaviour of these vehicles will be slightly different to that of human drivers, but it will be possible to attain the levels of human safety, and in the long term surpass them, by applying technology. Our systems can pay attention in 360° all the time, and that makes it a bit different to human drivers.

Q159 Clive Efford: What will be the limit of the speed that your vehicles can travel at in an urban area?

Stan Boland: We are kind of hoping that we can operate at normal driving speeds. To be able to do that, it is important that we can predict behaviours. We cannot have a system that is collision-avoidance only, because that would result in frozen robots all over the city and would make congestion worse. What we humans do is anticipate human action. We actually run more than one world in our heads, and are constantly looking to see whether that world is turning into reality or some other world is going to happen. That allows us to merge on to full lanes of traffic, for instance. We cannot just have a system that is collision-avoidance only, because we would make traffic worse. The idea is that we are operating in normal streets with normal road signs at normal road speeds and obtaining and exceeding human levels of safety.

Q160 Clive Efford: In 2019, your vehicles would be the only automated vehicles on the road.

Stan Boland: At that point it is a trial, so there is a safety driver in the car. The safety driver is able to take control of the vehicle immediately.

Q161 Clive Efford: Immediately?

Stan Boland: Yes. The safety driver has to be there, literally able to take control of the car instantly.

Q162 Clive Efford: All the research that I have seen in preparing for this Committee shows that there is a time lag in the transition from the vehicle being under automated control to being under driver control. Your vehicles will not have that.

Stan Boland: You are describing what is called level 3 autonomy, which is a system where the car is under automated control and then there is a warning to give a human driver time—there is a debate about what that warning time should be—and then the human is meant to take over. We think that system is intrinsically unsafe. It is much better if either the human is in control or the system is in control—that is a fully automated, level 4 or level 5 system. We are building a system where the cognitive capability of the car is in control, but for the purpose of testing, until it is actually legal to offer that service, there will always be a driver in the car who can take over instantly.

Q163 Clive Efford: But there is an issue about when drivers take over from automated vehicles: they are over-cautious and slow down. There are concerns about whether that is dangerous at that moment in time and also it increases congestion because you suddenly have loads of slow-moving vehicles. You seem to be suggesting a flick of a switch and that it goes from driver to automated.

Stan Boland: While we are testing it. We are talking about a period when we are testing the capability of the vehicle in our existing cities. It is level 4—a highly automated or fully autonomous system—but for the period between now and a regulatory capability of doing this and, moreover, underwriting the risk of it, we have to have a driver in the car to take over.

Q164 Clive Efford: As the legislation is drafted, as long as somebody insures you, there is nothing stopping you putting that vehicle on the road for an experimental period in 2019.

Stan Boland: As long as there is a safety driver who can take over the car. That is not the same as somebody watching a Harry Potter movie while the car is self-driving. We are talking about a qualified driver who is paying full attention to the road scene all the time and can take over.

Clive Efford: To test—

Stan Boland: To test the vehicle.

Q165 Sir Oliver Letwin: To follow on from the hon. Member for Eltham, you are talking about level 4 rather than 3. Do you envisage that the machine's design will be able to engage in autonomous conduct on every kind of road from the very first moment that they are launched?

Stan Boland: No, that would be a definition of level 5 in our parlance: something that could literally drive anywhere on the planet and be able to work out what every object was, what the semantics of every scene was, and the human behaviour in that part of the world, so we are definitely not saying that.

Q166 Sir Oliver Letwin: So a level 4 vehicle has some of the aspects of a level 3 vehicle, in the sense that there will be certain road conditions and certain kinds of roads where it needs to hand back to the human driver.

Stan Boland: No, I think it would stop in that case. In the behavioural model, we were able to bring up a system that works in a defined geography and in defined driving conditions, but if one day the place is completely wiped out with snow, we probably would not drive on that day. Our business model is to deliver a service. It is a service model.

Q167 Sir Oliver Letwin: So I am driving along a motorway where your system is happy. I diverge on to a trunk road where your system is happy. I move from the trunk road on to a B road where your system is happy. It is a somewhat rainy or snowy day. I get on to a one-track road in my constituency and your machine suddenly decides it is not going to get me to my home.

Stan Boland: No, that is not the model at all. First, you would not buy one of these cars. This is a shared form of mobility that is offered in cities. You would not buy it because the sensors and the compute you have to put in that car make that prohibitively expensive. It adds some £30,000 to the car.

Q168 Sir Oliver Letwin: So these are city-only cars.

Stan Boland: City-only vehicles.

Q169 Sir Oliver Letwin: And they are available to drivers not as a vehicle, so to speak, but as a service on certain days of the year under certain conditions.

Stan Boland: Probably all days of the year, but there may be times when humans probably should not be driving, frankly. In those conditions our vehicles would not stop just like that, because that would be unsafe, but they would be able to be carefully brought to a slowdown to stop safely.

Q170 Sir Oliver Letwin: It is basically like not being able to get a cab.

Stan Boland: If you like, yes. We think there will in any case be remote supervision so that it would be possible for a control centre to be able to monitor any cars that are stopped and then perhaps carefully move them to some other place. We are expecting a remote control room with perhaps one per 30 cars or something that would be able to take over and carefully manage the car. We are also expecting the cars to have a limp-home system, so if there is a catastrophic failure there would be a limited amount of capability where the vehicles could—at quite a low speed and with warnings—find their way back to a service centre.

Q171 Mr Hayes: I have three questions. First, you made an interesting case in response to questions from my right hon. Friend the Member for West Dorset and the hon. Member for Eltham about what you see as the likely development in autonomous vehicles. I will put two scenarios to you, and I would ask you to describe the most likely one. There is an instinctive, intuitive view that autonomy will grow gradually, partly because that is more likely to lead to public acceptance. So rather in the way that assisted parking or sat nav or cruise control have become increasingly routine, other aspects of autonomy will be added to that. Autonomous vehicles will sort of creep on us.

There is another view that we may go straight to a kind of autonomous vehicle. Indeed I have looked at some of the R and D on that. As you may know, there is an entirely autonomous vehicle at Greenwich supported by Greenwich council, with some Government funding too. That is a vehicle that travels on a straight run of road that is entirely autonomous. You get into it, and it does what it says on the tin. Which of the two scenarios is the most likely, in your view? Or are they most likely to develop in parallel?

Stan Boland: They are developing in parallel today, so I think that is the state of affairs. The first of those can be characterised as the view of the German car industry, which is that these things will happen, but in 2035 or 2040. In the meantime we can just keep adding these features, keep selling people more features, and keep selling cars that people buy. However, I think the world was really shaken up by the challenges we saw in the 2000s and the emergency of Google cars and so on, as well as the idea that it was within touching distance for science to deliver fully autonomous capability in a relatively meaningful timeframe.

That really is the difference between level 2 and level 3 autonomy and what is really a huge jump to level 4 and level 5. Our entire business is predicated on level 4 and level 5 being the dominant model. We think that that is the dominant model for getting to a situation of safety in an urban environment. Significant amounts of algorithms, computer models, training data and sensors are involved in achieving this, which will considerably increase the cost of the car. We estimate that getting the car to human levels of safety will add a further £30,000 to £40,000 to its cost. That is not a car that people buy. That is definitely a service, and if it is a service then it is fully autonomous.

Q172 Mr Hayes: My second question is about software. We debated this to some degree today. Presumably, the challenge is to develop sufficiently sophisticated software to anticipate scenarios encompassing all kinds of different eventualities. An interesting question was put earlier by the hon. Member for Eltham about the element of human judgment in driving when faced with a dilemma, where you would hit traffic rather than a child, or you might swerve and possibly cause a more serious accident. The way that scenario planning is written into software would require hundreds of thousands of scenarios being tested. I know there is R and D being undertaken in this area. Would you briefly describe that to us?

Stan Boland: It is impossible to test all of that in the real world, and it would not be safe to do so. It has to be done as a simulation, which is the key to getting to the point where we have safe systems that can operate in our cities. We have to be able to simulate all the sensors on the car and all the different failure modes and so on. We have to simulate all the cases where our predicted models break down, or where somebody in the distance who is wearing a green pullover against a green wall with a reflective window near it cannot, for whatever reason, be seen in our systems. We have to be able to simulate those kinds of things—perception failures. We also have to simulate the extent to which we may not be

able to predict human behaviours. We may never have seen a particular behavioural type before, and it may be dissimilar to anything we have seen before.

We have to do all that in simulations, so the money is invested in creating a simulated world that may be like the whole of London, photo-accurate for example, and it may be that we create generative models that allow us to create every angle of a road—instead of 43 degrees, it is 44, 45 or 46. Instead of five objects, there are six; instead of a certain kind of road markings, they are slightly different. We can basically generate all that in simulations, so we can drive potentially billions of miles in simulation ahead of that software actually going in a vehicle and being sent out on the road. That is the way we can really assure the safety of those vehicles—a heavy investment in simulation. It turns out that the UK is good at that. The UK is good at artificial intelligence, gaming and simulation, so we are in a good position to do that.

Q173 Mr Hayes: So you are not simulating what is, as I put it, a tens of thousands scenario; it is millions. It is the whole of London, in all weather conditions, in all circumstances, for all vehicles, in all eventualities.

Stan Boland: Exactly. We will find real cases in the real world which we will codify. We are working with TRL to do that, to deliver a curated set of regression test cases.

Q174 Mr Hayes: Thank you for that; that was fascinating. My final question is about skills. We debated skills earlier; Mr Turner raised the issue and I then amplified it. From what you are describing, and I discovered this in my early research, the car mechanic of the future will be a software engineer as much as he is a mechanic, and that is going to require a step change in skills. Are we ready for that, and if not, what are we going to do about it?

The Chair: We will have to have Ministers with proper skills in future too. Sorry, Mr Boland, please answer the question—that was just a facetious remark. This must be the last answer, because we might have multiple Divisions.

Stan Boland: We definitely need more software engineers as a nation anyway, so we are probably not ready for any of this in terms of the total number of skills that we need to go alongside companies the size of Silicon Valley companies, but I think there is a kind of rarity about what—[*Interruption.*]

The Chair: Order. Thank you. I apologise, but we have been interrupted.

Ordered, That further consideration be now adjourned.—(*Andrew Stephenson.*)

4.33 pm

Adjourned till Thursday 2 November at half-past Eleven o'clock.

Written evidence reported to the House

AEVB 01 Anthony Beken

AEVB 02 Simon Canfer

AEVB 03 S Richards

AEVB 04 Professor James Davey

AEVB 05 International Transport Workers' Federation
(ITF)

AEVB 06 RAC

PARLIAMENTARY DEBATES

HOUSE OF COMMONS
OFFICIAL REPORT
GENERAL COMMITTEES

Public Bill Committee

AUTOMATED AND ELECTRIC VEHICLES BILL

Third Sitting

Thursday 2 November 2017

(Morning)

CONTENTS

CLAUSE 1 agreed to.

CLAUSE 2 under consideration when the Committee adjourned till this day
at Two o'clock.

No proofs can be supplied. Corrections that Members suggest for the final version of the report should be clearly marked in a copy of the report—not telephoned—and must be received in the Editor’s Room, House of Commons,

not later than

Monday 6 November 2017

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The Committee consisted of the following Members:

Chairs: MR ADRIAN BAILEY, † SIR EDWARD LEIGH

- | | |
|---|---|
| † Argar, Edward (<i>Charnwood</i>) (Con) | † Mann, Scott (<i>North Cornwall</i>) (Con) |
| † Brown, Alan (<i>Kilmarnock and Loudoun</i>) (SNP) | Rodda, Matt (<i>Reading East</i>) (Lab) |
| † Duffield, Rosie (<i>Canterbury</i>) (Lab) | † Stephenson, Andrew (<i>Pendle</i>) (Con) |
| † Efford, Clive (<i>Eltham</i>) (Lab) | † Stewart, Iain (<i>Milton Keynes South</i>) (Con) |
| † Foxcroft, Vicky (<i>Lewisham, Deptford</i>) (Lab) | † Tracey, Craig (<i>North Warwickshire</i>) (Con) |
| † Hayes, Mr John (<i>Minister for Transport Legislation and Maritime</i>) | † Turner, Karl (<i>Kingston upon Hull East</i>) (Lab) |
| Jones, Graham P. (<i>Hyndburn</i>) (Lab) | † Western, Matt (<i>Warwick and Leamington</i>) (Lab) |
| † Kerr, Stephen (<i>Stirling</i>) (Con) | Farrah Bhatti, Mike Everett, <i>Committee Clerks</i> |
| † Knight, Sir Greg (<i>East Yorkshire</i>) (Con) | |
| † Letwin, Sir Oliver (<i>West Dorset</i>) (Con) | † attended the Committee |

Public Bill Committee

Thursday 2 November 2017

(Morning)

[SIR EDWARD LEIGH *in the Chair*]

Automated and Electric Vehicles Bill

11.30 am

The Chair: I will say a few words before we start. Obviously, everybody should turn off their mobile phones and devices. The selection list for today is available in the room and on the Bill's webpage. It shows how the selected amendments have been grouped for debate. Amendments grouped together generally deal with the same or similar issues. The Member who has put their name to the lead amendment in a group is called first; other Members are then free to catch my eye if they want to speak on all or any of the amendments within that group. A Member may speak more than once in a single debate.

At the end of the debate on a group of amendments, I shall call the Member who moved the lead amendment again. Before they sit down, they will need to indicate whether they wish to withdraw the amendment or seek a Division. If any Member wishes to press any other amendment or new clause in a group to a vote, they need to let me know.

I shall work on the assumption that the Minister wishes the Committee to reach a decision on all Government amendments if any are tabled. Please note that decisions on amendments take place not in the order that they are debated but in the order they appear on the amendment paper. In other words, debate occurs according to the selection list; decisions are taken when we come to the clause affected by the amendment. I shall use my discretion to decide whether to allow a separate stand part debate on individual clauses and schedules following the debates on the relevant amendments. I hope that this explanation is helpful.

Clause 1

LISTING OF AUTOMATED VEHICLES BY THE SECRETARY OF STATE

Karl Turner (Kingston upon Hull East) (Lab): I beg to move amendment 1, in clause 1, page 1, line 10, at end insert—

“(1A) The Secretary of State must consult on and publish the criteria that they will use to determine whether, in their opinion, a motor vehicle is designed or adapted to be capable, in at least some circumstances or situations, of safely driving itself without having to be monitored by an individual.

(1B) The Secretary of State may not change the criteria without consulting vehicle manufacturers, insurers and other such persons as the Secretary of State considers appropriate.”

This amendment requires the Government to consult on and publish criteria for the definition of “automated vehicles” that will be used by the Secretary of State.

The Chair: With this it will be convenient to discuss the following: amendment 8, in clause 1, page 1, line 10, at end insert—

“(1A) The Secretary of State may only add a vehicle to the list if the Secretary of State is satisfied that the vehicle's software has been approved for safe use on roads or in other public places in Great Britain.”

This amendment would ensure that vehicles cannot be listed as automated vehicles by the Secretary of State unless he or she is satisfied that the vehicle's software has been through an approval process (see NC11).

New clause 11—*Approval of automated vehicle software*—

“(1) The Secretary of State must set out in regulations a system for approving automated vehicle software.

(2) These regulations must, in particular, make provision for—

(a) the criteria to be used in the approval process to determine whether automated vehicle software is safe for use on roads or other public places in Great Britain, including, but not limited to the way in which the vehicle is programmed to—

(i) deal with moral judgements, and

(ii) transition between driving itself and being driven by a person.

(b) the process by which manufacturers of automated vehicles may apply for software approval, including, but not limited to, any inspection and testing that the vehicle may be required to undergo, and

(c) the process by which manufacturers of automated vehicles may appeal if their software is not approved.

(3) In this section, a “moral judgement” refers to any situation where an automated vehicle has, and makes, a choice of action during an accident while the vehicle is driving itself.

(4) In this section and section 2, the definition of transition of an automated vehicle “between driving itself and being driven by a person” may be set out by the Secretary of State in regulations.

(5) Where a statutory instrument contains the first regulations made under this section, the instrument may not be made unless a draft of it has been laid before Parliament and approved by a resolution of each House.

(6) A statutory instrument containing regulation under this section, that is not the first such regulation made under this section, is subject to annulment in pursuance of a resolution of either House of Parliament.”

This new clause would require the Government to establish a system for approving automated vehicle software. The approval process would include an opportunity for manufacturers to appeal against a failed approval process. Criteria for approval would include consideration of the way in which the vehicle was programmed to deal with moral judgements.

Karl Turner: It is always an absolute pleasure to serve under your chairmanship, Sir Edward. I am grateful for the opportunity to speak to the Bill generally and to the amendments tabled in my name, to which I will come shortly.

This is an exciting opportunity for the Committee to speak about the potential to liberate many people currently excluded from access to rural transport. The Bill also provides opportunities to improve personal transport arrangements, as well as air quality, which is crucial given the dire state of the environment and its impact on health. I begin by thanking the Minister personally for his collegiate approach to the Bill, and for his co-operation and assistance in the preparation for this sitting. He even allowed my staff access to his officials. It is genuinely appreciated.

Amendment 1 would improve the Bill, and I know that the Minister is intent on improving it. It would require the Government to consult on and publish criteria for the definition of “automated vehicles” that

the Secretary of State will use. As the Committee can see, clause 1 as currently drafted puts the onus on the Secretary of State to define, in his or her opinion, what constitutes an automated vehicle, without having to consult the sector. In my view, the Bill would be vastly improved by a requirement to consult on and publish the criteria by which “automated vehicles” will be defined.

Secondly, the amendment would prevent the Secretary of State from changing the criteria without consulting vehicle manufacturers, insurers and other such persons as the Secretary of State considers appropriate. We ask for that consultation and publication of the criteria because it is crucial that manufacturers, vehicle owners and insurers know them, whether they are making, buying, warning about or insuring an automated vehicle, and whether the scope of the legislation applies to their vehicle. In the evidence session, the insurance industry welcomed the Government taking on the responsibility of saying what is an automated vehicle, but we are still concerned that the Bill as drafted leaves the Secretary of State with total discretion on what is an automated vehicle. We therefore tabled the amendment to provide greater clarity and to help the Government by ensuring that the relevant persons and organisations will be sufficiently involved, to inform the Secretary of State’s list of automated vehicles.

The Opposition believe that the additional clarity provided by the amendment would help to create a more reassuring environment and to encourage the development and uptake of automated vehicles. As I said, the amendment would also prevent the Secretary of State from changing the criteria without further consultation, and guarantee that the criteria used will be up to date and as practical as possible in a very fast-moving sector. We have rehearsed these matters previously so I do not want keep the Committee on this point for too long.

I have had the opportunity to look at *Hansard*; in the Committee for the Vehicle Technology and Aviation Bill, the Minister promised to go away, think about it and amend the Bill appropriately to tighten the definition, but that does not seem to have happened. I do not mean to criticise the Minister personally, but the Government have had six months to think about that. The only change that I can see is in clause 1(b) but that is just semantic. We intend to press the amendment to a Division.

Clive Efford (Eltham) (Lab): It is a pleasure to serve under your chairmanship once again, Sir Edward. I have had a number of informal chats with the Minister as we have bumped into each other while wandering around the House. I appreciate his approach to the Bill. My amendments are genuinely to try to probe the area, which I find fascinating, of the interaction between artificial intelligence and human behaviour. Nowhere more than in our transport systems will this become more prevalent over the coming years. My amendments are to probe the areas where I think that that comes into sharp focus.

When we boil it down, we are legislating for vehicles that are driven by computer software, as we heard in the evidence. We heard from the witnesses on Tuesday that we are legislating exclusively for tier 4 and tier 5 of the five tiers. The tiers start with driver-assisted systems such as braking, steering and parking, through to automated vehicles that can switch between being driven by a

human and by software at tier 3, which overlaps into tier 4, and to tier 5, which is purely automated vehicles. The legislation really challenges us as legislators, because by simplifying the insurance system we are being asked to enable our roads to become laboratories to sharpen that technology. We heard clearly in the evidence that there were different attitudes to what is taking place. When asked about tier 5 technology, Mr Wong, from the Society of Motor Manufacturers and Traders, said:

“As to when those level 5 vehicles without steering wheels are capable of performing end-to-end journeys—from my house in the village to my office in the city—that is anybody’s guess. That will probably be some time in the 2030s. It is quite complex.”—[*Official Report, Automated and Electric Vehicles Public Bill Committee*, 31 October 2017; c. 43, Q98.]

However, we then heard from Mr Boland of Five AI, who told us that automated vehicles would be on our roads in 2019, albeit in an experimental fashion.

This is a big challenge for us. We need to consider the software in great detail, and the Secretary of State needs to be given the power to set and oversee certain standards. Mr Wong referred to the report written by the Ethics Commission on Automated Driving for the German Federal Ministry of Transport and Digital Infrastructure. I am a bit of an anorak, so I have started reading that report, although I have not got through all of it in the last 48 hours. It makes fascinating reading. The commission’s approach is that the technology is there to improve safety, whereas our attitude seems to be that it is a technological advance to help industry, and that improving safety and social inclusion will be a by-product a long way down the line.

The operation of the software raises some ethical issues. I asked the witnesses about how the software would perform and take decisions when an accident is imminent. For instance, imagine a four-year-old toddler walking in front of a vehicle that cannot stop to prevent a collision. To the left is oncoming traffic, with the risk of a head-on collision; to the right are perfectly innocent bystanders on the pavement or at the bus stop—those are the vehicle’s options. Mr Wong noted that this was the “classic trolley problem” referred to in the German ethics commission’s report. The commission’s conclusion was that it is simple to make a decision when the choice is between property damage and human injury, but when the choice is between different types of injury to different road users or innocent pedestrians who are not part of the scenario, we move into a completely new area of morals and ethics. We have to be prepared for that; these situations will take place on our streets, and we need to legislate for them. We should give ourselves the opportunity to oversee this software before it is allowed on the streets. Amendment 8 would give the Secretary of State power over the software’s approval, and new clause 11 would set out the approval criteria.

Sir Greg Knight (East Yorkshire) (Con): Does not clause 1(1) already cover what amendment 8 seeks to achieve? Paragraph (b) requires that the Secretary of State be satisfied that vehicles are

“designed or adapted to be capable, in at least some circumstances or situations, of safely driving themselves.”

In making that decision, surely the Secretary of State would take into account the nature of the software.

Clive Efford: We would hope so. In the general terms in which the Bill is drafted, that is quite possible. Amendment 8 is a probing amendment, and I will not

[Clive Efford]

press it to a vote, but this is an area that as legislators we need to scrutinise. The software is key. That is what will be making the decisions and that is what will be driving the vehicle.

We seem to have started this discussion in terms of this being a mechanical problem about how to develop a piece of technology that can read all the different scenarios on our roads and react accordingly, but looking at the research—vehicles' different speeds, any delay in the transition between a driver and an automated vehicle—an awful lot of the issue around the software is not referred to in the Bill. I am attempting to draw attention to that and to put in the Bill that it is the crucial area of the technology and we should pay attention to it.

11.45 am

In particular, new clause 11 refers to the moral argument, which goes back to the point about the choice—the choice between property and injury is an easy moral question to answer, but then we might have to make a choice between two scenarios on the road. Mr Wong referred to a “minimal risk manoeuvre”, which sounds fine as an answer in Committee, but a minimal risk manoeuvre might be the result of a choice between injuring one party or another in a risk situation on the road, and that is a serious moral dilemma. How do we decide on the type of software, choices, algorithms, or whatever we want to call the calculations that will undeniably have to be made in the vehicles? It is not possible in all scenarios, as was described to us, for a vehicle simply to come to a safe stop. Some situations will be unavoidable.

At the experiment the Minister visited down in Greenwich, where automated vehicles are being tested, there was an incident in which someone pushed a plastic chair out in front of the vehicle. The vehicle did not stop and it hit the chair. That was not a scientific test, but it demonstrated that there are circumstances in which things will happen. The vehicles will have to make choices in such circumstances and we should be legislating for that. We should at least give ourselves the power to be able to react and respond in future as the technology develops.

I am not arguing against that technology—it is something that has arrived, and its time is here. As I was discussing with the Minister the other day, that capacity exists in air transport. We could fly passenger planes and they could take off and land perfectly safely without a pilot on board. In an emergency situation, they could be flown remotely by someone in air traffic control. If that capacity were tested in the market, however, all the evidence suggests that people would not buy a ticket, in spite of the fact that almost the entire flight of any flight that anyone undertakes today is done by a machine—by the technology—and some of that technology even shuts the pilot out now, because having the pilot interfere with it is not safe. We do not have that capacity in our air industry, however, because of public opinion.

The House of Commons Library tells me that the air industry would save £31 billion, so there is a big incentive for it to have that capacity, but it has not. We are legislating to have it on our roads, but we are not legislating to control the key bit of the technology, which is the software. That is why I tabled my amendments.

Sir Oliver Letwin (West Dorset) (Con): Before I launch into the subject, Sir Edward, may I seek your guidance on a question of procedure? I want to make some points that I wish to bring to the Minister's attention. They relate to the amendments, but more precisely to the clause. Shall I make those points in the stand part debate or now?

The Chair: No—if they relate to the amendments, make the points now. If the right hon. Gentleman speaks out of order I will call him to order.

Sir Oliver Letwin: Thank you, Sir Edward.

As the Minister knows, two specific issues in the Bill concern me and led me to seek to be part of the Committee. One relates to the question of the strict liability of insurers when the vehicle is operating automatically, which of course relates to the software and its safety—the subject of this group of amendments. I have suggested to the Minister two possible approaches to resolving that problem, which was exposed in our evidence sessions. One of those relates to clause 1(1) and would probably require a somewhat different amendment from those that have been tabled, albeit broadly of the same kind. Let me first explain the problem and then try to suggest the solution.

We established clearly from the insurance industry representatives we questioned that, as the Bill is currently drafted, strict liability will attach to the car rather than to an individual, which is an entirely new phenomenon in insurance law. Let us suppose that there is not a fundamental legal problem with strict liability attaching to the insurer of a car. I make that assumption, although I do not necessarily think that it is a safe one; that may be explored further in the other place by lawyers with much deeper acquaintance with insurance law than I claim to have.

Supposing that that is a feasible arrangement, we then face the question: at what point should that strict liability clock in? That would not be a material question if the machine was never driven by a human being but was driven only by the machine itself. As the hon. Member for Eltham pointed out, that was raised during the evidence session by the rather enterprising group that will create service operations on London's streets out of what are, in effect, level 5 vehicles way ahead of the schedule that other witnesses suggested would apply. Such vehicles clearly will never have a human being driving them; they will be automated objects that human beings will get into. As it is currently drafted, the Bill will therefore create a strict liability for the insurers. On the happy assumption that that will work legally, insurers will insure those vehicles, they will discover whether that is a very expensive proposition and that will get built into the service price. I am not worried about that from a legislative point of view.

However, I think that the Minister would agree, as all our witnesses seemed to, that it is extremely likely that, in parallel with that rapid roll-out of highly automated level 5 items, for perhaps many millions of motorists there will be a gradual progression—not necessarily strictly demarcated as level 3, level 4 and so on—from vehicles that are largely driven by a driver but somewhat assisted by the machine, to vehicles that are driven by the machine under more and more circumstances but are sometimes driven by the driver.

I certainly do not think that we should legislate on the assumption that we know what the future will look like, but it is highly likely that there will be a stage at which there are vehicles that, for example, are well designed to operate on motorways on an automated basis. The nation may benefit hugely from them operating in that way, because it is safer and allows much shorter distances between vehicles and therefore much more intensive use of motorways, which diminishes capital investment in the motorway system, improves safety and prevents the environmental damage that building more motorways would occasion, so that may well in fact become compulsory at some point. However, those very same vehicles may be ill-designed to deal with country roads, city roads or other kinds of road, so they may well have a function that enables them to be switched back and forth between automated driving and being driven by the driver.

We heard rather different things from witnesses about that switchover. To tell the truth, I think that that is because nobody really knows how it is going to operate. The history of technology is littered with prophecies from experts about how future technologies will operate that have proved to be false, so the Committee would be wise to assume that we do not know, and will not know when legislating, how exactly the switchover between driver and automated vehicle will occur.

Mr Wong suggested in an evidence session that the vehicle itself will offer up to the driver the opportunity to switch over to automation in circumstances in which the vehicle is sufficiently intelligent to know that it is safe for it to take over the driving, and that it will never otherwise offer up that opportunity. It is perfectly sensible that if the vehicle offers itself to the driver to take over operation, and if the driver allows it to take over operation, the vehicle becomes the driver, and the strict liability of the insurer attaches to the vehicle and not any longer to the person. That would be fine.

However, if, as some other witnesses seemed to think was the case, it is the driver who will, at least in some circumstances, make the decision of whether to switch over to automated use, this becomes a highly material question: has the driver made that decision in a reasonable and sensible fashion? The reason is that if the driver has not made the decision in a sensible and reasonable fashion, and if the insurer of the vehicle is nevertheless bound to have strict liability for the vehicle taking over the action, insurers could be faced with enormous bills in circumstances in which what they were actually doing was facing a bad decision by a person whom they had never insured; they had insured the vehicle and not the person. That is the problem we need to address, which brings me to the question of clause 1(1).

The Minister for Transport Legislation and Maritime (Mr John Hayes): I am delighted that my right hon. Friend has looked into these matters with typical assiduity. I am also delighted to serve under your chairmanship, Sir Edward. I briefly say that, as I have risen for the first time. I know that your sagacity in the Chair will match the warmth of your friendship and the generosity of your home, which you have offered me just this week at a dinner party. Anyway, let us leave that to one side.

The Chair: Flattery of the Chair will get the Minister nowhere!

Mr Hayes: I like dancing on the head of pins—I think it is an appealing thing to do—but we must be careful to avoid it in this Committee, because time does not permit it, many hon. Members want to contribute and there is a slight risk from doing so in this case. I will make this argument as quickly as I can. The key issue about an event that took place while the vehicle was in autonomous mode is not the point at which it went into autonomous mode, but the events at the point at which the incident occurred. If we can be very clear that the vehicle was being driven autonomously at the time of an incident or accident, that becomes the salient issue, rather than what might have happened five minutes or half an hour before, when the driver switched it to autonomous mode, because of course the circumstances of its being autonomous will then become absolutely clear, and at that point the liability is not in question.

I take the point that whether the vehicle should have been in autonomous mode may be material and I shall explore that more when I respond to the debate, but I think that it is what happens at the point of the accident that is of greatest concern. I just put that to my right hon. Friend the Member for West Dorset for further consideration.

Sir Oliver Letwin: I have considered that and I think that is the assumption. My right hon. Friend has well exposed the logic that underlies the current drafting, and it is in error, in my view, because although of course the material moment is the moment of the hypothetical accident, the cause of the accident is the material question from the point of view of the operation of our insurance system, and if the cause of the accident was a bad decision by the person, there is an illogic that will eventually undo all the good we are trying to do if nevertheless the insurer of the vehicle has strict liability. The fact that it may have been five, 20 or 55 minutes before the accident that the person handed over control to the vehicle is irrelevant if the basis on which the person handed over control was wrong and the person made the wrong decision. It seems to me that the question we need to address is this: is it possible that the person should have made such a wrong decision, or have we eliminated that possibility? That is what I want to get on to, because that is where clause 1(1)(b) needs to have a (c).

Sir Greg Knight: Is it not highly likely that this sophisticated vehicle will prevent the driver from seeking to put the vehicle in automated mode if it is unsafe to do so? It will reject the request.

Sir Oliver Letwin: I am grateful to my right hon. Friend for asking that question because it leads me to exactly the point I want to raise in relation to 1(1)(a), (b), and, as I think it may need to be, (c).

12 noon

It is indeed possible that the proposition that my right hon. Friend the Member for East Yorkshire has put, which is exactly the proposition put by Mr Wong in the evidence session, will happen and that vehicles that are capable of genuine automated driving will have sufficient intelligence built in so that they will offer to take over only if it is totally safe. If that is the proposition on which the Minister wishes to base the legislation,

bearing in mind that we do not actually know at the moment whether the technology will go in that direction, it seems what is needed is an amendment or a new subsection—clause 1(1)(c), or thereabouts—that makes it clear, and this relates to the Opposition amendment, that the Secretary of State will have the power to approve a fully automated system only if the Secretary of State has verified that that system will always safely determine its own capability to take over the car.

Mr Hayes *rose*—

Sir Oliver Letwin: I will give way, of course, in a moment.

Such a course of action is fine and would solve the problem that I have advanced, because the Minister or Secretary of State, or an expert acting on his or her behalf, would have verified in advance that the machine was capable of taking over and would take over only under safe circumstances. Before I give way to the Minister, I want to point out that that is using the law to limit the technology, and the history of the approach to that in our country's legislation has been very bad. I will not go into all the history, but I am happy to write the Minister a memorandum about it if he wants. I once wrote an article about this. There is a very long history of Parliament trying to prejudge the technology, legislating on the assumption that it will be only that technology, mandating therefore only that technology, and discovering that there is not any of it and that people elsewhere are manufacturing things that we do not get because they do not fit our legal system. It is not the route I recommend, and I will come back to that when we get to clause 2. It is a possible route, however, and one that the Minister should at least consider.

Mr Hayes: I will speak more about my right hon. Friend's last point when I respond to the debate as a whole, because of course it relates closely to the shadow Minister's point about how far we define what we do now. The Bill is an attempt to thread a course between creating sufficient certainty to establish a framework to allow further development and, on the other hand, doing exactly what my right hon. Friend has mentioned in trying to predict a future that may not come to pass. He is right to raise that and I will deal with it in greater detail.

On the specifics of his point about liability, I draw his attention to clause 3(2), which we will debate later. You will not let me debate it now for that reason, Sir Edward, but clause 3(2) specifically talks about the subject that my right hon. Friend describes, because it draws attention to the possibility of an accident being

“wholly due to the person's negligence in allowing the vehicle to begin driving itself when it was not appropriate to do so.”

That is very much what my right hon. Friend speaks about, and it is why we put it in the Bill. He makes a separate point—a good one—about technology that kicks in of its own accord because the technology, the software, determines that it is better at that point for the vehicle to be driven autonomously. We will explore that in greater detail as we consider the legislation. I simply draw his attention at this stage to clause 3(2).

Sir Oliver Letwin: I recognise that I am treading on your indulgence, Sir Edward, but, as the Minister has mentioned clause 3(2), I will briefly point out,

although no doubt we will discuss this later, why I do not think that it solves the problem. It is possible that it is susceptible to redrafting so that it will, but it is ill drafted if the intention is to solve the problem I have raised. In the first place, it says, “wholly”, in that it is “wholly due to the person's negligence”.

That is an almost impossible thing to establish. As currently drafted, it does almost no heavy lifting at all. I think I know why a parliamentary draftsman has nevertheless inserted the word “wholly”, because, like the Minister, I have had quite a long experience of dealing with parliamentary draftsmen on numerous Bills. I know that they think through carefully the question of what happens if we do not put in a word such as “wholly” under these circumstances.

The Chair: Order. The right hon. Gentleman is gradually wandering from the strict road that relates to the amendment. He can always come back on clause stand part, and I have allowed him a lot of indulgence so far. I know he will return to the amendments.

Sir Oliver Letwin: I am grateful, Chair. I will leave it at that so far as clause 3(2) is concerned, but I will no doubt come back to it.

Finally, if it were the intention of the Minister to add to clause 1(1), rather than to do something to clause 2 or clause 3, which we will come to later, it would be important to establish whether the view taken by Mr Wong—that these machines will always be designed in such a way that they decide on a safe basis whether to take over—is a consensual view across the industry in every country or a happenstance view of some particular technologist.

Clive Efford: Again, the right hon. Gentleman is touching on the area of ethics—it is covered in the excellent document written by the German Transport Ministry—which is about freedom of choice and the question of whether the individual driving the car should succumb to the superior knowledge of the software that has been put in the vehicle and have control of the vehicle taken away from them in certain circumstances. We have not discussed that issue, but it could arise as a consequence of the Bill. That is why I suggest we look carefully at the software. There is a major question about the freedom of choice of an individual driving their car if we allow the technology to take decisions away from the driver.

Sir Oliver Letwin: Yes, I agree with the hon. Gentleman. Sharing his anorak tendencies, I too have been interested in the German case. In fact, I spent some while talking to German officials and motor manufacturers about the issue. Actually, I think there is a serious problem—this is the final point I want to raise—with clause 1(1)(b), which relates specifically to the questions of ethics that he raised. I want to draw the Minister's attention to the word in clause 1(1)(b), “safely”. [*Interruption.*]

The Chair: Is it No. 10 on the phone?

Sir Oliver Letwin: Undoubtedly so—it is No. 10 calling the Minister to higher things, yet they may not be of such great significance to our future as the Bill.

In clause 1(1)(b), the Secretary of State is asked to opine on whether the vehicle that is being approved and put on the list is capable of “safely driving”. An awful lot will hang on that word “safely” in what will probably be a rich jurisprudence over many decades. The hon. Member for Eltham is rightly drawing our attention to the fact that “safely” in this context could mean something technical—is the machine technically sophisticated enough to deal with circumstances—or it could mean something much deeper. It could mean the ethics and applied intelligence built into the machine so as to produce views or choices that accord with the social preferences of Parliament about, in trying to minimise the effect of an accident, who is to be sacrificed under circumstances where two different groups of persons could be sacrificed. Alternatively, it could mean any other set of very complicated ethical choices.

I of course bow to the Department’s legal advisers, parliamentary counsel and any external counsel, but my own hunch is that there is not enough jurisprudence available to guide us on whether “safely” will bear that amount of weight. I wonder whether the Minister should consider at least giving the Secretary of State the duty in due course to consider not just whether the machinery is capable of driving “safely”, but whether it is capable of driving—I do not know quite what words parliamentary counsel would want to choose—ethically or properly or in a socially desirable way. That is an odd kind of question to ask about a machine, I grant, but these are odd machines we are considering.

The hon. Member for Eltham is on to a good thing with amendment 8, even if he does not press it to a vote, because he raises an issue we will have to address. What we all do not want to get to—I think the Committee is united in this—is a sort of red flag situation where machines have been authorised because they have a large amount of technological wizardry in them that makes them highly sophisticated, but they make choices that any sane Parliament or Government, or indeed public, would regard as wholly morally objectionable, socially undesirable or both.

We need to think very hard about ensuring that the legislation at least lets our successors—whoever may be Secretary of State at the time—consider that range of issues when approving something. Otherwise, the Secretary of State will say, “Oh well, this is technically okay, but I don’t like the look of what it is going to do by way of the kinds of decisions it is going to make,” and some adviser will tell that Secretary of State, “Sorry, Secretary of State, it is ultra vires for you to refuse this vehicle on the list just because it is going to mow down young people in preference to old people”—or something—“because you are only allowed to determine safety, not ethics.” It is quite important that we get that precise wording right. I am grateful to you for your tolerance, Sir Edward.

Matt Western (Warwick and Leamington) (Lab): I want to pick up the points made by the right hon. Gentleman. I was trying to think of parallels to try to understand this and imagine what it might be like in five or 10 years from now, and I guess I was likening it to the introduction of, say, cruise control and how that works with the insurance industry. If a driver instigates cruise control in an urban area and sets it at a speed that is in excess of the limit on that roadway, where would the responsibility and liability fall? The industry and

technologies are improving at a pace. As was said in the Chamber on Second Reading, it is difficult to imagine where we will be, but I imagine that essentially the liability should be with the driver. If the driver has introduced the cruise control or automated driving system—in whatever form that may take—that is their choice just as it is their choice to manoeuvre from one lane to another today, which might ultimately result in an accident.

Perhaps I am not appreciating the fine nuance of the debate, but I would have assumed that, ultimately, the liability has to be with the driver. In the event of an accident, the telematics would be able to provide data to the insurance industry to prove things one way or another.

Iain Stewart (Milton Keynes South) (Con): I rise simply to ask for a point of clarification from the Minister when he responds to the debate. I anticipate the answer to my question will be yes, but I would like to have it on the record. I anticipate that, as well as motor cars, the list of vehicles that the Secretary of State will compile and update will include lorries, buses, emergency services vehicles and other vehicles for which the driver would require an HGV licence or a public service vehicle licence. I would like clarification on that. For instance, I anticipate that, with technology, HGVs could be driven normally for a large part of a journey but then form part of some road train on a motorway with other similarly equipped vehicles. As I said, I would like clarification that the list will include those vehicles as well as private motor cars.

Mr Hayes: To paraphrase Bernard Shaw, I do not know whether I was born too early or born too late, but I do know that I was born to dare to dream of a future inspired—indeed shaped—by the past but not constrained by it; a future where we can achieve wonder. Part of that journey will be assisted by technological change. The technological change we are considering, as the Opposition spokesman said, could liberate many people who have not had easy access to private transport for a variety of reasons. That has extraordinary and wonderful prospects. As we consider the Bill, we should discuss it, as the shadow Minister did, in that context.

12.15 pm

However, the Bill presents challenges, which are highlighted by clause 1 and the amendments, as well as by the contributions that we have heard from Committee members on both sides. In essence, the challenge, as I explained briefly when I intervened on my right hon. Friend the Member for West Dorset, is to provide a legislative framework sufficient to give certainty, or at least a degree of certainty, to an industry engaged in research and development and further investment. On the other hand, being too specific in a highly dynamic area would be doing what he warned us against—trying to predict technological change, in the way that he described Governments doing in the past with unfortunate consequences.

That is our mission, and I am determined to do so in as convivial a spirit as possible; I am grateful to the hon. Member for Kingston upon Hull East for his generous remarks. Frankly, whoever was in government would face these challenges, and would be bringing a Bill of this kind to the House. It is perfectly appropriate that we should discuss it in as consensual a way as possible.

The job of the Opposition is to scrutinise such measures; indeed, it is the job of my right hon. and hon. colleagues to do so too. Those who have served on few Standing Committees and had little experience of legislation—there are some, who are newer Members of the House—will not have encountered a Minister quite like me. I am one of those rare creatures who are happy to listen to debate, hear suggestions and take them on board, be guided by them and concede where we have got it wrong. I am all the more so on issues such as this, because we are charting a difficult course, as I described.

The last time that we debated these matters—this is directly relevant to the amendments, Sir Edward, just in case you were thinking it might not be—we could not proceed with that Bill, because the inconvenience of a general election stopped us doing so. We considered the issues that we are beginning to debate now. They involve the creation of a list of automated vehicles to provide the public and the industry with the kind of clarity that I have described, and the relationship between those vehicles and new insurance provisions. Essentially, inasmuch as the Bill deals with autonomous vehicles, it does so in order to create a secure insurance market to allow the further developments that I mentioned.

The Bill suggests that the Secretary of State will create such a list to give clarity about insurance by applying the definition in clause 1(1)(a) and (b). We state that automated vehicles are those

“designed or adapted to be capable, in at least some circumstances or situations, of safely driving themselves.”

The answer to my hon. Friend the Member for Milton Keynes South is that that includes other vehicles. He mentioned HGVs; he will know that some R and D is being done on those kinds of vehicle. Given what we already know about the work being done in this area, private cars might not be the first vehicles to become automated. I am not making a prediction, but it could be vehicles of the kind that he described. The best example that I can think of is the shuttles at airports that one uses to get to the terminal. We do not think of them as vehicles in the same way that we think of a car that we might drive from our home, but they are vehicles. They travel on a pre-ordained route, rather like the vehicle that I saw when I went to Greenwich and that I mentioned in earlier consideration. That was a fully autonomous vehicle driving on a single road from two set points. That might be the kind of first steps that are taken as the technology develops.

I emphasise that the technology is in its early stages—not quite in its genesis; more in its infancy. The standards by which these vehicles will be approved for safe sale and use are still being discussed internationally, so another challenge for the Government is to ensure that we—as a nation, as a polity and as a Parliament—do not jump ahead of those international standards. That is another ball that we are juggling, if I may use those terms. The international standards are developing because the research and development of the kind that I have described are happening across the world. Many countries are engaged in it; indeed, many of the businesses are pan-national, so they work in a number of different countries. This will be discussed and is being planned for by the United Nations Economic Commission for Europe, in which the UK plays a leading role.

The standards are still being developed and will form the basis of the type approval process, which is well established in the motor industry. We already talk routinely about type approval; it has been a long-standing part of how the industry works. The critical thing is that for a vehicle to meet to that type approval process, rather like a non-automated vehicle now, to be sold for safe use on roads, it must meet those standards. The core requirement of safety is implicit in the development of those standards, which will be international.

Sir Oliver Letwin: My right hon. Friend mentions the core requirement of safety. What does he understand “safety” or “safely” to mean in this context, and what advice has he received about whether it can bear the burden of distinguishing between an ethically proper set of choices by artificial intelligence and an ethically improper set of choices?

Mr Hayes: That is a very big question indeed. It is the one that, in a sense, was first raised by the hon. Member for Eltham in the evidence session and on Second Reading, when he painted the picture of a scenario where a human being faces an ethical dilemma while driving. I will paraphrase the example for the sake of brevity: a child runs into the road and the driver has the choice of hitting the child or swerving and possibly causing a more catastrophic accident. That is a momentary judgment that any driver makes. In the end, it is a practical and ethical judgment, is it not? We could have a very long debate. My hon. Friend on my right, the Whip, may be my former Parliamentary Private Secretary, but he will not be entirely indulgent of me if I engaged in that very long debate, because of course one could extend it—

Clive Efford *rose*—

Mr Hayes: Ah! We are indeed going to extend it.

Clive Efford: Let me invite the Minister along that path a little. The right hon. Member for West Dorset raised an important question—I did not word it as succinctly as he did, but he has more experience of drafting legislation than I have, so that is no surprise. If morals or ethics are not specifically referred to in the legislation, a sharp-witted lawyer may later argue that the issue is not ethics or morals, but safety, and that it is therefore *ultra vires* to use the legislation to regulate that area of the technology. I urge the Minister to look at this issue again and consider amending the Bill to address it.

Mr Hayes: Let me try to answer the hon. Gentleman and my right hon. Friend the Member for West Dorset in two ways. First, I draw attention to something that Mr Wong said in evidence on Tuesday:

“May I point something out? I mentioned autonomous emergency braking. It has been demonstrated that the technology is improving all the time. Previously, autonomous emergency braking worked perfectly at 30 mph, which is urban speed, but it is becoming increasingly sophisticated. AEB can work well even at 50 mph. It would not surprise me if the technology improved in years to come”.—[*Official Report, Automated and Electric Vehicles Public Bill Committee*, 31 October 2017; c. 44, Q103.]

The technology is improving so rapidly and dramatically that in the scenario painted by the hon. Member for Eltham, an automated vehicle is likely to change lanes and—as in Mr Wong’s example—brake to ensure safety.

The representatives of the insurance industry stated in their evidence that the industry believes there will be fewer accidents, because the judgment of an autonomous vehicle will outpace that of a human being. I use the word “judgment” for technology with caution, as my right hon. Friend the Member for West Dorset used the word “ethics” with caution, but the judgment of the software driving the automated vehicle will be more acute and, in the end, safer. These machines are likely to be less prone to error than human beings, so there will be fewer accidents; the vehicles will be safer and therefore easier and cheaper to insure. We heard that point repeatedly in the evidence session. We can be confident that that is the direction of travel—I apologise for using that rather hackneyed phrase in this context—but we cannot be sure how quickly we will get there or exactly what it will look like. I would be a very bold man if I made such a prediction.

Sir Oliver Letwin: I, too, listened to Mr Wong and have re-read the part of his evidence that the Minister quotes from, but it is wholly irrelevant to our point. I thought it was extremely instructive that Mr Wong, who is clearly a very great technical expert, completely failed to understand the issue. The Germans have begun to understand it, but the Bill does not genuinely or seriously address it.

The Bill is drafted as if artificial intelligence were the same kind of thing as speed control. It is not, and that is a very important error underlying the Bill’s drafting. Speed control is a technical matter, and we could go much further with technical development and still be in the technical arena in which safety is the only question, because the ethical judgments are made exclusively by the human drivers. With artificial intelligence, as the hon. Member for Eltham rightly says, we are moving into a terrain in which the machine will make the kind of decisions that Parliaments and human beings make. These are questions not of safety, but of judgment about the right outcome under difficult circumstances.

I ask the Minister to go back to his Department and talk to its lawyers about whether jurisprudence will deliver to him or his successors the ability to refuse approval to a piece of artificial intelligence that, either directly or through its learning processes, will or could have the effect of producing totally dysfunctional anti-utilitarian results by making judgments that are technically perfectly safe but that just happen to take the view that, for example, wiping out a group of three-year-old schoolchildren is better than wiping out a 98-year-old crossing the road. That is a very difficult judgment for a human being to make, but it is the kind of judgment that Parliaments have to make, and I think that at the moment it is very clear in the Bill that it would not permit a Secretary of State to prevent type approval for a machine that was designed in such a way that there could be those very bizarre and undesirable results, and I am sure that that is not what the Department or the Minister wants to achieve.

12.30 pm

Mr Hayes: Let us not overestimate how far this Bill—I am being very particular about my words—intends to go. This Bill is about ensuring that victims of collisions caused by autonomous vehicles get quick, easy access to insurance compensation in line with conventional

processes. What we heard in the evidence and what we debated when the Bill was in its earlier incarnation was that it was important for the insurance industry, and therefore for the further development of this technology, that we were clear about that—there would be no difference, from the perspective of the person who owned the vehicle, in how they went about making a claim.

There is a much bigger debate, which will clearly have to be dealt with in legislation, in regulations, in type approval—in a whole range of other things—about some of the other matters that the hon. Member for Eltham and my right hon. Friend the Member for West Dorset have raised. If they are both right that we will get to a point at which the machine makes what is in effect an ethical judgment—I am trying to use words very carefully; it is very obviously the machine making ethical judgments, but I do appreciate the strangeness of it—clearly that will have to be taken into account at a future point in the legislative process. I do not think this Bill is the place to do it; I just do not think it can do it, because we do not yet know enough.

We are back to my first point, about the line we are trying to tread between what we can do now with certainty and what we might do in the future in a world in which we can as yet only imagine what might occur. If my right hon. Friend will permit me to say so, perhaps the Hegelian synthesis, where we might meet between what appears to be my thesis and his antithesis, is that this Bill is a starting point—a first step along, as I have said, a long road.

Sir Oliver Letwin: I am very grateful to my right hon. Friend for giving way. I entirely accept that this Bill is just the starting point, but I think he is missing the point that I am trying to make about what starting with this language—with just the word “safely” and no reference to wider considerations—will do to his successors.

There is no point in having the Secretary of State empowered to make a list unless Secretaries of State are actually going to make lists. There is no point in empowering them to make lists of automated vehicles unless those lists are going to relate to automated vehicles. Those automated vehicles will have artificial intelligence built into them; they cannot be automated otherwise. Therefore, the Secretary of State, who is making the list in the first place, which this Bill provides for—not some other Bill, but this Bill—will be constrained by the terms that the Bill sets for what basis they can use to make the list. That is why the shadow Minister has raised questions about the criteria, and why we are having this debate in the first place. Surely, therefore, we need to empower—I am not suggesting that we in any way oblige—later Secretaries of State to consider, *inter alia*, whether the machines that they are putting on the list are actually murderously safe or good and safe machines. At the moment, they can decide only whether it is a safe machine. If it happens to be safe in the sense in which Stalin could “safely” eliminate large sections of his population, the poor old Secretary of State would, as I construe it—the Minister has not given us any indication that he has had advice to the contrary—be prevented from—

The Chair: Order. The right hon. Gentleman is being carried away by his own verbosity. Stalin—

Sir Oliver Letwin: No, no, no.

The Chair: I think he is. We have started to wander more and more away from these quite narrowly defined amendments. I know that the Minister will get us back on track.

Mr Hayes: I am, as ever, guided by you, Sir Edward—having already cited your sagacity, I could hardly be anything other. I am delighted that we managed to get Stalin and Hegel into the same exchange. You will not get that in many Committees, Sir Edward. I am thinking about where we might end up, but I am prepared to live with that. It is important for safety, which in the end is a baseline factor, as I think my right hon. Friend will agree. However, there is a point about ethics. The advice I have received is that no vehicles that are not considered safe and ethical will be allowed on the market and therefore are not for consideration on the list.

Sir Oliver Letwin: Safe and—

Mr Hayes: Safe and ethical. I have received advice; I like taking advice and not taking it. Before I make that my definitive position, I want to reflect a bit. If we were to say no to the advice that was not safe and ethical, I want to be absolutely clear what ethical means. We know what safe means. We can draw on existing practice in respect of type approval. We know what measures of safety are about, but when we get to measures of ethics, we are in an altogether more challenging area. That is why I will reflect a bit on the characteristics. This is an incredibly interesting debate, by the way, and very useful.

Karl Turner: Will the right hon. Gentleman give way?

Mr Hayes: I will give way briefly, but I must make progress or I will get into real trouble.

Karl Turner: I am obliged to the Minister for giving way. Will he concede that the right hon. Member for West Dorset and my hon. Friend the Member for Eltham are absolutely right that there is huge potential for legal argument about what is actually safe driving? There will be a debate around that that could end in litigation. No?

Mr Hayes: Yes, I agree. I think that is precisely right. As I said a moment ago, that is the significance of the debate. We are now at one in that there needs to be a list and that needs to be qualified. We have made some changes, which I will deal with in a second, since we first debated these matters. In his first contribution to our consideration, which now seems a long time ago, the hon. Gentleman spoke of consultation. I do not want to constrain the identification process or be too precise about the criteria, for the very reason that we have all been discussing, but it is right that a consultation is an implicit part of the continuing consideration of this. I am happy to say that that has to be part of it. As the technology develops, given what I have said about dynamism, there would have to be ongoing communication about the change in character of the technology and what that meant.

The safe functioning criteria are more straightforward. This is about a marriage between software and the machine. The machinery certainly needs to be safe. We drive machines now with internal combustion engines that are not fundamentally different from their early ancestors. So we know that the machine needs to be

safe. The existing provisions in the Bill are clear that the list can comprise at present only vehicles that can be legally used on the roads. Having reflected briefly, I will reflect more—I am in reflective mode, as the Committee can tell. Perhaps it is about what we do in regulations. There might be an opportunity to qualify or clarify through regulation how the list develops.

Matt Western: Will the Minister give way?

Mr Hayes: I will give way to the hon. Gentleman in one second. My right hon. Friend the Member for West Dorset made the point that if we are too narrow in what we put in this legislation, even though it is a first step on the road, it may make the second, third or fourth step more difficult. That is the essence of his point, which he came to in the end. Either he focused his argument more precisely at the end or I was not bright enough to grasp it at an earlier stage of the argument, but that seems to be the essence of what he was saying. That is the bit that I want to think more about. I think that we are all happy that this is not the end of this process, but we must make the beginning of the process fit for purpose. That is essentially where we are.

Let me try to get through some more of my pre-prepared notes rather than extemporising, as is necessary when we have proper dialogue and scrutiny.

The Chair: Yes, the Minister was in danger of going around in circles, so he should get back to the script.

Mr Hayes: I will not go around in circles; I will come to a brief conclusion.

As I said, I am not sure that it would be appropriate to be too precise about the criteria. The only scope that the Secretary of State will have to list a vehicle is by determining whether it meets the safety definition. If it does, it will be included on the list; if it does not, it will not. There is no discretion to make a decision outside those parameters; the power is merely administrative and is not a discretionary legislative power. That is so we can be clear about why vehicles need to be on the list.

The defined vehicles will not be covered by our current insurance framework and will therefore need new, specific insurance products. That is the point I was making about the limits to what we are trying to do now and the essence of why they matter. This is about allowing the further development of appropriate insurance products that are not out there now, because if they are not out there in the future that will inevitably limit how far we go with the further development of vehicles.

I promised to give way to the hon. Member for Warwick and Leamington and I have not done so. That was very discourteous of me, so I do so now.

Matt Western: I thank the Minister. It was not a discourtesy; I was waiting and listening. I want to pick up the regulatory framework and where that takes us. The interpretation of safety is all about the criteria and what is set by, say, the Transport Research Laboratory. Let us look, for example, at the standard for an acceptable braking system. It is what the Secretary of State, through the Department for Transport, ultimately determines to be the criterion for, say, acceptable responsiveness—whether that is a swerving action by a vehicle or a braking

system—that gets measured and therefore determines whether a vehicle is acceptable for inclusion on the list. We are obviously at the first stage, but the next stage will be determining those criteria for deeming a vehicle acceptable for UK roads. I hope that that is helpful; I imagine that a very technical regulatory framework will need to be determined.

Mr Hayes: Yes, I agree. That is precisely why we should develop criteria down the line in a regulatory way, as the hon. Gentleman suggests, and why we will need to do so mindful of the international standards that I described and the ongoing debate that is taking place internationally through well-recognised bodies. I agree. This is a highly dynamic and dramatic series of changes, if I might say so.

My final point is that the character of the amendments and of our debate is about the Secretary of State's interpretive powers. We have to be careful about extending the interpretive scope of this part of the Secretary of State's responsibilities. This is yet another line to walk and not to cross. The criteria for inclusion on the list need to be sufficiently clear as not to allow any doubt in the insurance market about precisely what kind of vehicle might be on the list and therefore what kind of vehicle might or might not be insured. I am therefore doubtful about extending the interpretive scope.

We need to be clear which vehicles and which software can safely be operated in automated mode. The Secretary of State will therefore be able to transpose approved vehicles on to the list to ensure that our domestic insurance framework is based on and clear about which vehicles need which insurance products. It would not be appropriate to legislate at this early stage, as amendment 8 and new clause 11 suggest, to set an approval procedure or safety criteria until we know what the international standards are. The hon. Member for Warwick and Leamington is right; we will almost certainly need to do that further down the line as those international standards become clearer. Whether that is in other legislation or more likely in regulation—that is how I would like to go—is no doubt something we will debate over the course of the coming days.

In essence, I return to my core argument: the Bill is a starting point to creating greater clarity. It is not by any means the end of what I hope—I return to my very early words—will be a wonderful story.

12.45 pm

Karl Turner: I accept that the Bill is the mechanism for getting the ball rolling, but the more I listen to the debate, the more I am persuaded that we need something on the face of the Bill to ensure that there is consultation and criteria.

Mr Hayes: I always try to avoid contumely—I think that is a well-known fact about me—but I have said I will reflect on what the hon. Gentleman and my right hon. Friend the Member for West Dorset said. I have said that consultation is an implicit part of this process. I implore the hon. Gentleman to avoid contumely and withdraw his amendment.

Karl Turner: I will not withdraw the amendment. With your leave, Sir Edward, I will press it to a Division.

Question put, That the amendment be made.

The Committee divided: Ayes 6, Noes 9.

Division No. 1]

AYES

| | |
|-----------------|-----------------|
| Brown, Alan | Foxcroft, Vicky |
| Duffield, Rosie | Turner, Karl |
| Efford, Clive | Western, Matt |

NOES

| | |
|-----------------------|--------------------|
| Argar, Edward | Mann, Scott |
| Hayes, rh Mr John | Stephenson, Andrew |
| Kerr, Stephen | Stewart, Iain |
| Knight, rh Sir Greg | Tracey, Craig |
| Letwin, rh Sir Oliver | |

Question accordingly negatived.

Clause 1 ordered to stand part of the Bill.

Clause 2

LIABILITY OF INSURERS ETC WHERE ACCIDENT CAUSED BY AUTOMATED VEHICLE

Clive Efford: I beg to move amendment 9, in clause 2, page 1, line 22, at end insert—

“or by an automated vehicle when transitioning between driving itself and being driven by a person,”

This amendment would ensure that the liability for accidents caused by an automated vehicle that is transitioning between driving itself and being driven by a person would be the same as the liability for accidents caused by an automated vehicle when driving itself.

The Chair: With this it will be convenient to discuss amendment 10, in clause 2, page 2, line 6, at end insert—

“or by an automated vehicle when transitioning between driving itself and being driven by a person,”

This amendment would ensure that the liability for accidents caused by an automated vehicle that is transitioning between driving itself and being driven by a person would be the same as the liability for accidents caused by an automated vehicle when driving itself.

Clive Efford: I hope we will not take as long on these two amendments as we took on the previous group, although it was a fascinating discussion. The amendments follow on from that, because they relate to the transition period and the third of the five tiers that go from driver-assisted systems to full automation. Tier 3 is where the vehicle can transition from being fully automated to being driven by the driver, and vice versa.

Various pieces of research into the issue have come to different conclusions. In the evidence sessions, we heard that Audi had carried out some research at different speeds and come to the conclusion that there should be a minimum of 10 seconds in that transition period. The Venturer research came to slightly different conclusions, but all the research points to the fact that this is a problematic area in automated vehicle technology. It can take a deal of time for a driver to become alert. Mr Wong described to us various alarms that alert the driver to a vehicle request for the driver to take back control of the car; if those various alarms do not alert the driver, the vehicle will then slowly come to a halt. I am sure that we can all imagine the sort of disruption that could be caused if that happened on a motorway. He even described how the car prepared for an accident

[Clive Efford]

by tightening the driver's seat belt just before the vehicle came to a halt, in case the driver had passed out or was so fast asleep that the alarms did not wake them up. There are various scenarios involving the transition that cause alarm.

Mr Gooding of the RAC Foundation felt that we should not even entertain tier 3 because it is unsafe and does not make any sense, and because the legislation is about moving straight to tiers 4 and 5. Clearly, if people giving us evidence are saying that, I suggest to the Minister that it should cause the Government some alarm, and that perhaps we should be legislating to say that we do not want to allow this on our roads. There are issues being raised about the clear dangers of tier 3 transition.

Sir Oliver Letwin: I, too, note what was said about tier 3, but I hope that the hon. Gentleman is not underplaying his own point. What he referred to in the transition phase also applies to tier 4. It is only at tier 5 that it disappears.

Clive Efford: My understanding of tier 4, as Mr Wong said in his evidence, is that it is only at tier 4 that the human is removed from the equation; I think that those were his exact words. I must admit that that seems to be a contradiction. Tier 5, as I understand it, is a fully automated vehicle with no steering wheel, totally under the control of technology. One wonders what tier 4 is. If tier 3 is the transition between human and vehicle and tier 5 is a fully automated vehicle with no steering wheel whatever, what is tier 4? Is it a lesser tier 5 or a greater tier 3? I will give way to the Minister, who is going to enlighten us.

Mr Hayes: I suggest that I drop a note to the Committee setting out what each tier means; otherwise, we will have this debate time and again. I can anticipate Members across the Committee querying it. I have asked my officials already.

Clive Efford: That would be helpful. I have looked at it, but as has been demonstrated in our exchanges, the difference between tier 5 and tier 4 is not entirely clear. From the descriptions of the people who gave evidence to us, in tier 4, the human is removed entirely from the equation.

We need to consider this issue. The evidence that I read said that the Venturer experiment at the Bristol testing centre discovered that drivers, when they first took over, tended to be over-cautious and drive at slower rates, which could increase congestion. There was also the potential for danger in vehicles suddenly slowing down, and Mr Gooding said in his answers to our questions that he felt that that issue was more important than congestion.

There are some important considerations raised by the issue of transition, particularly in tier 3. We asked witnesses, "When will the vehicle decide whether it is safe for the vehicle to drive or whether the vehicle should be handed back to the human driver?" They said that it depended on road conditions. That suggests that it will happen in the same locations on our roads: for

instance, as vehicles leave motorways and enter more built-up areas, where there are more potential hazards and dangers for vehicles, it is likely that the vehicles will transition back to being driven by the driver. If that will happen regularly in the same location, it could create accident black spots. We could create a considerable new hazard on our roads.

Sir Oliver Letwin: We eagerly await the Minister's note, but due to the wonders of modern technology, one can look it up on the web. Level 4 is clearly described as fully autonomous and

"designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip."

However,

"it's important to note that this is limited to the 'operational design domain' of the vehicle—meaning it does not cover every driving scenario."

I hope that the hon. Gentleman will agree that the transition question arises in relation to level 4 when vehicles move from one driving scenario to another.

Clive Efford: I accept that entirely and agree. It comes back to my point that it is likely to happen regularly in similar locations, and that patterns of behaviour will occur in particular spots where transition occurs because the technology requires it. We need to be aware of that. The testing is telling us that that is happening, but we are not taking it into consideration in the Bill, as we should.

I suggest to the Minister that we need to take that away and consider it. Safety must be the aspect most prevalent in our minds. There is also the moral or ethical issue of driver autonomy: will the driver be in charge of the vehicle, or will the technology be in charge of the driver? In the debate on previous amendments, he said that the technology is superior; he did not use that word, but he said that it is safer than a human in the event of an accident, even suggesting that a vehicle would make better or quicker choices than a human. That points us down a road, if Members will pardon the pun, of having roads operated in the way that our railways or underground service are controlled. Why not have fully automated vehicles of which drivers do not have control at all?

Mr Hayes: Let me be clear about that. We will not have time to complete our consideration of this group of amendments, so I feel that intervening might be helpful. What I said was that I drew that conclusion from the evidence that we received. The insurance industry and other witnesses said that they thought that the vehicles would be safer, and that insurance premiums might decrease over time; they said so because they believe that autonomy will make vehicles safer. It is implicit that they gauge the autonomous driving mode to be safer.

Clive Efford: My experience has been that many people who come to give evidence to us as MPs assure us that a technological advance will deliver X, Y and Z, take us far forward and lead us to a promised land where things are safer and much improved, yet we find that due to the law of hidden consequences, we face a whole different set of scenarios. The one that I am

pointing to here is that the transition between driver and technology is already throwing up potential hazards on our roads, even before we have let the vehicles on our roads. We know that the issue exists, because it has shown up in the testing. Therefore, we should legislate for it. I have asked the Minister to take on board those arguments, and I can see that the Whip is itching to get to his feet.

Ordered, That the debate be now adjourned.—*Andrew Stephenson.*

1 pm

Adjourned till this day at Two o'clock.

PARLIAMENTARY DEBATES

HOUSE OF COMMONS
OFFICIAL REPORT
GENERAL COMMITTEES

Public Bill Committee

AUTOMATED AND ELECTRIC VEHICLES BILL

Fourth Sitting

Thursday 2 November 2017

(Afternoon)

CONTENTS

CLAUSES 2 AND 3 agreed to.

Adjourned till Tuesday 14 November at twenty-five past Nine o'clock.

Written evidence reported to the House.

No proofs can be supplied. Corrections that Members suggest for the final version of the report should be clearly marked in a copy of the report—not telephoned—and must be received in the Editor’s Room, House of Commons,

not later than

Monday 6 November 2017

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The Committee consisted of the following Members:

Chairs: † MR ADRIAN BAILEY, SIR EDWARD LEIGH

| | |
|---|---|
| † Argar, Edward (<i>Charnwood</i>) (Con) | † Mann, Scott (<i>North Cornwall</i>) (Con) |
| † Brown, Alan (<i>Kilmarnock and Loudoun</i>) (SNP) | Rodda, Matt (<i>Reading East</i>) (Lab) |
| † Duffield, Rosie (<i>Canterbury</i>) (Lab) | † Stephenson, Andrew (<i>Pendle</i>) (Con) |
| † Efford, Clive (<i>Eltham</i>) (Lab) | † Stewart, Iain (<i>Milton Keynes South</i>) (Con) |
| † Foxcroft, Vicky (<i>Lewisham, Deptford</i>) (Lab) | † Tracey, Craig (<i>North Warwickshire</i>) (Con) |
| † Hayes, Mr John (<i>Minister for Transport Legislation and Maritime</i>) | † Turner, Karl (<i>Kingston upon Hull East</i>) (Lab) |
| Jones, Graham P. (<i>Hyndburn</i>) (Lab) | † Western, Matt (<i>Warwick and Leamington</i>) (Lab) |
| † Kerr, Stephen (<i>Stirling</i>) (Con) | Farrah Bhatti, Mike Everett, <i>Committee Clerks</i> |
| † Knight, Sir Greg (<i>East Yorkshire</i>) (Con) | |
| † Letwin, Sir Oliver (<i>West Dorset</i>) (Con) | † attended the Committee |

Public Bill Committee

Thursday 2 November 2017

(Afternoon)

[MR ADRIAN BAILEY *in the Chair*]

Automated and Electric Vehicles Bill

Clause 2

LIABILITY OF INSURERS ETC WHERE ACCIDENT CAUSED
BY AUTOMATED VEHICLE

Amendment proposed (this day): 9, in clause 2, page 1, line 22, at end insert—

“or by an automated vehicle when transitioning between driving itself and being driven by a person.”—(*Clive Efford.*)

This amendment would ensure that the liability for accidents caused by an automated vehicle that is transitioning between driving itself and being driven by a person would be the same as the liability for accidents caused by an automated vehicle when driving itself.

2 pm

Question again proposed, That the amendment be made.

The Chair: I remind the Committee that with this we are discussing amendment 10 in clause 2, page 2, line 6, at end insert—

“or by an automated vehicle when transitioning between driving itself and being driven by a person,”

This amendment would ensure that the liability for accidents caused by an automated vehicle that is transitioning between driving itself and being driven by a person would be the same as the liability for accidents caused by an automated vehicle when driving itself.

Sir Oliver Letwin (West Dorset) (Con): My right hon. Friend the Minister rightly admonished me earlier in our proceedings for not making clear right from the beginning how the remarks I was making related to the structure of the Bill as it is and how it is trying to make progress without trying to solve all the problems.

In responding to the amendment of the hon. Member for Eltham, I want to ensure that I make clear why I am raising the point that I am raising about the Bill as drafted. I take it that the point of clause 2, which is one of the major points of the Bill, is precisely to ensure that the insurance industry has a clear and legally certain basis for proceeding. That is a restricted but very important ambition. The point that the hon. Gentleman raises in his amendment is very material from the point of view of realising the Minister’s ambition.

The way that the Bill is constructed, without the hon. Gentleman’s amendment or something like it, does not provide certainty for the insurance industry. The insurance industry has failed to recognise that the Bill does not provide that certainty. When the industry realises that it does not, it will blame us and the Minister for that and say, “Why on earth did you not give us certainty?” My whole intent is to ensure that the Minister can do what he is trying to do. I hope he will accept what I am saying in that light.

We had an interesting exchange in the course of the moving of the amendment about tier 3 and tier 4. To tell the truth, I do not have any faith in the tiers. They are a figment of a group of manufacturers’ imaginations. They are as good as we are going to get at the moment as a broad description of how things will go, but it is likely that all sorts of different things will be produced that are variously describable as tier 3-plus and tier 4-minus and God knows what else. I think the Minister has already agreed with what I think is certainly a true proposition: there will be at least a period in which people are experimenting with kinds of automation that involve significant opportunities for transition between the machine and the person. For that purpose, it does not matter whether we are talking tiers 3, 3-plus, 4-minus, 4 or, indeed, 4-plus.

There will possibly come a moment when drivers just fall out of the equation and there are not any drivers any more, just machines that take us to where we programme them to go. At that halcyon moment, probably decades from now, clause 2 would work fine, but the problem is that it will not work fine during what is likely to be the very long passage where there is a rather messy scene of vehicles that in varying circumstances are taken over by a driver or handed by the driver to the automation system. We were told in the evidence sessions with great certainty that it would take 10 seconds or less to hand over. We were also told that if a failure in the handover from the machine to the person occurred, all was well because the machine would find a way of stopping itself. I have learned, as I expect many members of the Committee have, always to take with a strong pinch of salt any assertion by assertive technologists that they know exactly how long it will take for something technological to happen in all circumstances. They do not know any such thing; they are speculating. They may prove to be entirely right—they certainly know a lot more about it than me—but it is perfectly possible that they will prove to be completely wrong.

The hon. Member for Eltham raised one circumstance in which the technologists could be very wrong. It may well be that the machines are so designed that they go to great lengths to wake up drivers who have gone to sleep when they have stopped driving and handed over to the machine. There may be rules enforced that say they must not go to sleep, but human beings are human beings, and they might go to sleep and it might take a lot longer than 10 seconds to wake them up. I happen to be married to someone who takes a lot longer than 10 seconds to wake up; I have no reason to suppose that every human being sitting next to the machine is going to be in full functioning order in 10 seconds. There could be quite long periods during which that transition is occurring.

The reason I say all that to my right hon. Friend the Minister is that we are not here talking about angels on pins; we are not talking about milliseconds that are just a figment of legal imagination. It is quite likely that, in real life, there will actually be some accidents that occur during periods of transition between machine and mankind. There is no reason we should be afraid of that; there are plenty of accidents on our roads now, and we are not entering into a new terrain in which there will be thousands more accidents—probably there will be thousands fewer. Nevertheless, some accidents might occur during transition. The Bill currently contains a binary choice. Either, as in clause 2(1),

“an accident is caused by an automated vehicle when driving itself”

or it is not. There is no allowance for the possibility of transition.

If a piece of legislation does not admit of a possibility, and that possibility comes about in real life and there is a court action about it, the court looks at the statute and it says to itself, “Blow me down! Once again, Parliament has been extremely stupid. There is nothing in the statute about this situation.” What does an English court do, thank goodness, under such circumstances? It invents the law. That is what it will do. It is not the case that there is a sort of legal black hole. Where there is statute and statutory construction does not lead to the answer to the case, the judge will invent the answer.

The Minister for Transport Legislation and Maritime (Mr John Hayes): I take it that my right hon. Friend is speaking about fault. In those circumstances, what would be at question is where fault lies and what caused the accident. If that is the case, I direct him, without wishing to engage in a long debate about it, to clause 3(1), which deals with partial responsibility and therefore fault.

Sir Oliver Letwin: No, I am not raising the question of fault. I am raising the question of legal certainty about the circumstance. Clause 2 says that if the “accident is caused by an automated vehicle when driving itself” it is clear that

“the insurer is liable for that damage.”

It is equally clear, therefore, as a binary choice, that if the vehicle is not being driven by the vehicle itself, but by the driver, the driver is liable. Those two positions are perfectly clear. The insurer of the driver, who may or may not be a separate body from the insurer of the vehicle, takes on responsibility when the driver is driving. We are dealing here with the situation in which some combination of driver and vehicle has been the cause of the accident, during a transitional period from one to the other. The question arises, which of the two insurance policies is the relevant one? I do not believe that there is anything in clause 3 that solves that problem. If the Minister can point out something about the wording of clause 3, I hope you will allow him to do so, Mr Bailey, because it is definitely relevant to the point that the hon. Member for Eltham and I are raising.

My own view is that there is nothing in clause 3 that solves the problem, and therefore the courts will invent a solution. There is nothing wrong with that in general—the courts are very wise and may come up with a perfectly good solution—but the Minister’s purpose is not to say, “Let the courts invent a solution”. If that was his purpose, he would not need the Bill in the first place, because we have a common-law system. If there were no Bill, and if automated vehicles were to proceed and things were to go to court, the courts would find a solution. We would not need the Bill in the first place, if we were going to rely on the courts. The reason for having the Bill is to create legal certainty so that we are not simply trying to find out later, *ex post*, what the courts will make the law be. We are trying to make the law in advance, so that the insurance industry and the automated vehicle industry know how it will work. For that purpose to be realised, we have to be clear that the law covers all

the possible circumstances—when there is a driver driving the vehicle, when the vehicle is driving the vehicle, and the circumstances between the two when somebody is handing over to the vehicle or the vehicle is handing over to the driver.

My point is that at the moment there is a gap; the Bill does not say what happens during that period. Incidentally, I do not think it matters terribly what the decision is; there just needs to be a decision, so that a case does not revolve around who the relevant insurer is under the circumstances of transition.

Clive Efford (Eltham) (Lab): I know we are not debating clause 3, but since the Minister referred to it, let me point out that clause 3(2) makes it the driver’s responsibility if a vehicle is unsafely allowed to be driven automatically. A driver could be at fault if they cause an accident at the moment of transition by failing to respond when the vehicle tells them to take over, so clause 3 could actually make things worse for the driver.

Sir Oliver Letwin: Actually, I think the hon. Gentleman understates the problem with clause 3(2), which the Committee will consider in due course. During our consideration of clause 1 this morning, I made the point that unfortunately clause 3(2) contains the word “wholly”. It is therefore completely unclear what happens if an accident is not wholly due to the driver or to the vehicle, but is partly due to each, as it would be during the transition. That is a muddle, and the whole point of the Bill, which I applaud, is to avoid muddle. Muddle encourages courts to base decisions on common sense or common law, because the statutes do not tell them how to handle the circumstances. That is not what we are trying to achieve; we are trying to clarify and make certain.

We therefore need clause 2 to set out clearly the three possible situations. If the driver is driving, the driver’s insurer is liable. If the car is driving, the car’s insurer clearly has strict liability, novel though that concept is. But we need a decision—I do not really care what, so long as it is clear, definite and permanent—about what happens during periods of transition, however long they may be and under whatever circumstances they may arise. We cannot tell in advance how long the transition periods will be, and we should not take any advice from the industry that they will be only for 10 seconds and will always work perfectly—they will not.

Mr Hayes: May I welcome you to the Chair, Mr Bailey? Our discussion this morning was lively, but productive and wholesome. I am keen to make progress, as I am sure other Committee members are. The amendments tabled by the hon. Member for Eltham relate to issues that we have already addressed, but with further consideration of the transition between autonomous and human driving. Clause 3(2) states:

“The insurer or owner of an automated vehicle is not liable...to the person in charge of the vehicle where the accident that it caused was wholly due to the person’s negligence in allowing the vehicle to begin driving itself when it was not appropriate to do so.”

I am conscious that much of the debate on these amendments relates to clause 3, so I must be careful not to stray into premature consideration of a clause that the Committee has not yet reached. Nevertheless, in

[Mr John Hayes]

resisting the amendments, it is pertinent for me to refer the hon. Gentleman and my right hon. Friend the Member for West Dorset to the Road Traffic Act 1988. If the driver has some role in the accident—if the vehicle is not self-driving, either during or before the transition—the current framework, which is set out in the Act, will apply.

It is also worth saying that if a driver negligently decides to hand over control of the vehicle, clause 3 will apply, which is why I said we would end up debating clause 3 if we were not careful. If it is partly the driver's fault, subsection (1) will apply; if it is wholly their fault, subsection (2) will apply. For example, if the driver of a vehicle designed only for self-driving on a motorway is injured after putting it into self-driving mode on a rural road, the insurer's liability will be reduced under the contributory negligence principle. If a court finds the driver to be wholly at fault, the insurer will pay only the third parties involved in the accident. Partial responsibility is therefore addressed in the Bill and the transition, to which my right hon. Friend the Member for West Dorset paid particular attention, is dealt with in as much as we have an existing framework that of course insurers have built their current products around, which is drawn from the Road Traffic Act 1988 and other national and international regulations.

2.15 pm

Alan Brown (Kilmarnock and Loudoun) (SNP): I apologise for not understanding, but will the Minister explain further how the Road Traffic Act 1988 covers the specific example of an automated vehicle transitioning from automatic to driver mode, or vice versa?

Mr Hayes: I will be happy to do that when further inspiration reaches me. In the interim, while I wait for that inspiration, I will say that we recognise the need to ensure that the transition controls are safe. It is of value to emphasise that research, including some being carried out in the UK, will help to determine a safe transition process to inform international safety standards of the kind I mentioned earlier. In essence, therefore, the field is a developing one in which those international standards are being built on. Research is taking place here and elsewhere.

The research that we spoke briefly about in the witness sessions is such that it includes the development of software to take account of endless eventualities that might occur while a vehicle is being driven or driving itself. The work being done is to simulate a range of road conditions and circumstances in which any car might find itself at any point in time on any kind of road. That is of course as numerous as might be imagined, but the aim is to have software that is clever enough to deal with all kinds of driving circumstances. The work is not complete but ongoing, and is being done on London roads as we speak—trials on London roads in real time.

I am therefore confident that the further work will lead to an outcome where the software that in the end allows us to see the further development of automated vehicles will be able to replicate circumstances that drivers find themselves in. That, by the way, relates to a

debate we had earlier about the judgments that might be made by a human being replicated by the software given all kinds of different challenges.

Sir Oliver Letwin: Will the Minister focus his mind on a specific example? We are in a case in which the car has been driving itself on a motorway. It is programmed to turn off the motorway, but it is not judged by the Secretary of State to be a car of a kind that would be safe to drive off a motorway. It has therefore been programmed to hand over to the driver when it leaves the motorway—this is one of the situations on which the amendment of the hon. Member for Eltham is focused—and the driver is profoundly asleep, having been asleep all the way from London to Bristol on the motorway. The machine tries to hand over to the driver.

I am sure the Minister is right, that the software will be highly developed and it will try to hand over quickly, as far as it can, and that if it does not hand over quickly it will take all sorts of other sensible evasive action to prevent an accident occurring in such circumstances. If we could be absolutely certain that the software was perfect, we could all relax. The Minister would not need the Bill because there is no need to insure things that are absolutely perfect; they never have any accidents so there are no risks and no need for the law.

In introducing the Bill, however, the Minister rightly envisages that the software will not be perfect because things invented by human beings never are, unlike things invented by the Almighty that the Minister believes in. There will be circumstances in which the software goes wrong, such as if it tries to take evasive action having tried to hand over to a driver who was asleep and who it has failed to wake up. We have a prolonged transition period during which this magnificent software is trying and failing to get the driver to wake up and somehow does not do everything perfectly, and then there is an accident. Under clause 2(1)(a), is the vehicle driving itself in those circumstances or not? I do not know and a court will not know. It is trying not to drive itself—it is programmed not to be—but it has failed not to be driving itself. Somehow or other, that circumstance needs to be covered here. If the Minister can explain how the Road Traffic Act, which I looked at when it came up in the oral evidence sessions—

The Chair: Order. I remind you that this is an intervention, Sir Oliver.

Sir Oliver Letwin: I do apologise. If the Minister can explain how the Road Traffic Act solves that problem, I am all ears.

Mr Hayes: I had forgotten for a moment that it was an intervention. Those who seek perfection on earth are invariably either extreme zealots or delusional, or both. Perfection exists only in heaven, as my right hon. Friend knows. The insurance industry does not claim that there would be no accidents in any circumstances as a result of automated vehicles, but it told us in the oral evidence sessions that it thought there would be fewer. It said that that would have an effect on the insurance marketplace because of the effect on safety—that is the exchange we enjoyed earlier—that comes about because the fallibility of men and women as drivers means that 95% of accidents, or a figure close to that, are caused by human error of one kind or another. We are clear about that.

We can also be clear that the Bill is welcomed by the industry because we were told so by Mr Howarth in the oral evidence sessions. He said:

“I think it is very clear that the legislation and broadly the development of automated driving are something that insurers are genuinely enthusiastic about.”—[*Official Report, Automated and Electric Vehicles Public Bill Committee*, 31 October 2017; c. 7, Q11.]

The insurance industry thinks that the Bill is an important first step, of the kind I described earlier, in establishing a framework, but it is a framework and further changes will be necessary as technology develops. Those changes will have to be dealt with in a regulation or subsequent measures.

Karl Turner (Kingston upon Hull East) (Lab): Will the right hon. Gentleman give way?

Mr Hayes: I will, but I want to finish this bit otherwise I will get mixed up in my responses.

In respect of the intervention by the hon. Member for Kilmarnock and Loudoun, to be clear, the Bill covers only cars in autonomous mode, because there is an existing insurance framework born of the Road Traffic Act that triggers insurance when the driver is at least partly at fault and establishes liability. I dealt with this issue earlier. Insurers look at what the causation is, the causation is linked to establishing fault and insurance kicks in accordingly. That is why the Road Traffic Act is relevant because that is where we are already. If we did not have a framework, we would not have a series of insurance products—they would be based on nothing. They are based on the existing law.

Karl Turner: Is not the right hon. Member for West Dorset making a point about interpretation? The Bill as currently drafted could be a lawyers’ charter. Lawyers will be scrapping in court, arguing about various definitions, because the Bill simply is not clear enough on those points.

Mr Hayes: That is a good point. As the hon. Gentleman is a lawyer, I would not want to second-guess him.

Karl Turner: I have never been that type of lawyer.

Mr Hayes: A former lawyer, I should say. Of course Governments always look during scrutiny at the wording of Bills and at what can be tightened, changed or improved. That is part of the business that we are engaged in today. That is why we are having these debates; that is why we believe in the parliamentary process; that is why I started by saying that my intention was not to blindly drive the Bill through unaltered, but to listen, consider and reflect. That is the approach that I adopt.

The risk in this particular case, and with this kind of Bill, lies in trying to do too much. My right hon. Friend the Member for West Dorset will say, “Yes, but it has to be sufficient,” and of course he is right. The point that he made at the beginning of his remarks was that if we are seeking clarity—and the case that we are making for the Bill is clarity—we cannot end up with something that is not clear. Otherwise, ipso facto, we are not fulfilling our ambitions. This debate is about that clarity.

Let me put this on record and see if it helps. It is likely that the first automated vehicles to reach the market will be usable in automated mode only in specific situations or use cases; we talked about that previously. They will probably be used, in the first instance, on motorways, for obvious reasons. In those terms, to put it in a way that most of us should find easy to grasp—I certainly find it easy to grasp, and if I find it easy, that is fair enough—it is a bit like a combination of what we have now. We have cruise control, which we might use on a motorway, but we probably would not use on a small side road in a rural area. We might use other driver-assist mechanisms currently available that are not automated, but have been developed over time to make driving more straightforward. We use assisted parking only when we are parking or reversing. There is a relationship between developing technology and actual use. That, I think, is how it will be at the beginning of the process—the journey, the road, the mountain; I do not mind which simile I use—that we are embarking on.

Alan Brown: Will the Minister give way?

Mr Hayes: I will give way in a moment; I just want to complete this thought. Manufacturers have spoken about creating geofenced vehicles that would operate in defined parts of the city; others have spoken about systems that would operate on motorways and other high-speed roads. It is likely that the relevant global regulations that will be used to type-approve automated vehicles will reflect such limited-use cases. It is also possible that the regulations will contain requirements that the vehicle be able to detect where it is so that the system cannot be used in other situations.

Therefore, it is not clear that we need to make matching regulatory changes in our domestic framework. If necessary, we can use existing powers—this relates to what I said earlier—in the Road Traffic Act 1988 to revise existing or create new road vehicle construction and use regulations to reinforce the global regulations. That is exactly the point that I would make to my right hon. Friend the Member for West Dorset. If that legal power exists, and as long as the Bill does not counter it—it is a useful addition, but it does not negate any of that—it seems to me entirely possible to deal with those technological changes.

Sir Oliver Letwin *indicated dissent.*

Mr Hayes: My right hon. Friend looks thoroughly unconvinced, so I will happily give way.

Sir Oliver Letwin: I do not think that anybody could possibly be convinced by that, because it does not address the issue. The issue is when the insurer of the vehicle will be liable. It does not matter what regulations are made; they will have no impact on that question if the primary legislation says what it says now and no more. It will remain unclear what will happen in circumstances where it is not clear whether the automated vehicle is driving itself according to the terms of clause 2(1)(a), because it is in transition but failing to transition. That is a problem that the Minister cannot address through regulation; he must address it in the primary legislation if he wants the court to be clear about who is liable.

2.30 pm

Mr Hayes: If it is helpful to explain to the Committee in greater detail and in more technical detail, if I can put it that way, the relationship between the Road Traffic Act and the Bill, I am happy to do so, and to do so in particular relation to the point that my right hon. Friend has just made about responsibility and liability, because he is right that if such a contradiction occurred, the purpose of the Bill would not be fulfilled. So, I am happy to reflect and write on that, and given what the hon. Member for Kilmarnock and Loudoun has said, perhaps that will be beneficial in dealing with his query, too.

Alan Brown: Further explanation might help, but the Minister also said that he could use the Road Traffic Act to create regulations that could deal with this issue, because he said that the Bill is to do with fully autonomous vehicles. However, it still seems logical that, if this is a new Bill to deal with autonomous vehicles, we should deal with the scenario that we know exists—it is a scenario that we have already heard evidence about. There is already what is called the tier 3 or level 3 mode of operation, whereby a vehicle already makes that transition from driving to automated, so it seems logical that we deal with this issue while we are considering the Bill.

Mr Hayes: No, I do not think that I agree with that. We are all, to a lesser or greater extent, experienced legislators, or most of us are, and therefore we know that when a Bill is introduced and then becomes an Act, it certainly needs to be synergistic and compatible with the other, pre-existing measures to which it relates. I am not sure that it always needs to replace them; if that was the case, every Bill would have to be immensely ambitious in its scope.

So I do not think it is impossible to reach a position where, if we can accommodate the requirements of my right hon. Friend the Member for West Dorset, we can end up with an Act that is compatible with existing regulation and that fits—knits, if you like—with it, in as much as the insurance industry can rely on the existing legal framework for the products that it already sells and that the public enjoy—or endure, depending on which way people look at it—and there can be a new set of products that relate to the new technology and that build on the framework that this Bill, which hopefully will ultimately become an Act, delivers. So I am not sure that I agree with the hon. Gentleman.

Alan Brown: The amendment provides clarity, though.

Mr Hayes: The hon. Gentleman intervenes from a sedentary position. Yes, but what I described does not suggest a lack of clarity. It simply says that the existing legislation is obviously clear, because it has given rise to an insurance marketplace that works; the new legislation needs to be clear, as my right hon. Friend the Member for West Dorset; and then the relationship between the two needs to be clear. We have achieved one objective, which has been achieved since 1988 at least; of course, there was legislation before that, but we do not need to deal with that legislation now.

So, I am not sure that those things cannot be squared; in fact, I am certain they can be squared and it is my job to do so. Because it is my job to do so, I am not sure that

I can accept the amendment—although it is entirely understandable, well-argued and designed to help; I know that—not least because it is too detailed for the level of development of the technology and could constrain more appropriate subsequent regulation of the kind that I have described.

Also, ultimately the amendment would not help with the process of determining and apportioning liability in the event of an incident, which will remain the same as it is now, with the courts making judgments based on the facts. I am not sure that the amendment really helps with that, and for that reason I invite—not just invite but recommend—the hon. Member for Eltham to withdraw it.

The Chair: Before I call the next speaker, I gently remind Members that in debates of this nature they may speak more than once on the same amendment. If you are making an intervention, keep it short; if you wish to make long comments, it may be better to do so as a separate speech. Equally, will Members stand to make interventions rather than making them from a sedentary position? That helps both me and, I am sure, the Minister.

Clive Efford: Welcome back to the Chair, Mr Bailey. Do you intend to have a stand part debate? Should I forego my response and just contribute to that debate, or make my response now?

The Chair: Unless you want to cover something that has not been debated to date, you might as well do so now so that we do not need to have a stand part debate. If you want to go in a totally new direction, do not respond now and we will have a stand part debate.

Clive Efford: I will make my points now and then we can move on.

We need to go back to what we are attempting to do with the Bill. Why have it at all? Why not just let the insurance industry decide which vehicles they want to insure and make it up as they go along? We are not doing that; we are actually trying to create a framework to protect the public when these new types of vehicles go on to our roads. We have accepted in principle that we have to legislate to accommodate those vehicles, which are different from the vehicles that we currently have on our roads. The Bill must not allow insurance companies to determine what types of vehicles go on our roads. That is for us; that is why we are here. If the Bill offers the insurance industry too wide a scope, we may end up with vehicles on the roads about which people ask us, “Why did you allow this to happen?”

We heard conflicting comments from witnesses. Mr Wong told us that in an Audi, after a minimum of 10 seconds alarm bells would go off and, if the driver did not respond, the vehicle would eventually bring itself to a halt. That was a description of tier 3. Mr Gooding told us that we should not accept tier 3—we should not have it at all. Mr Boland told us that the service vehicles that he would test on city roads would be fully autonomous but, in the experimental stage, would have a steering wheel and a driver, who would take over immediately with no transitional period whatever, which research tells us is not possible. Even the pointy-headed technocrats who came to talk to us told us conflicting things about transition and how the technology works.

We have to be clear about the vehicles we enable to go on to our roads and the dangers that they may create. The transition issue is important, because the evidence is that it creates dangerous situations.

Mr Hayes: I think—to sound like a script from “Dad’s Army”—that the hon. Gentleman is going into the realms of fantasy a bit. His first point was that we need the Bill because the existing Road Traffic Act is not fit. I did not say that the existing Road Traffic Act was fit for the future, because it does not mention autonomous vehicles. The whole point is that it is fit for what it does but we need the Bill because autonomous vehicles are a growing reality and are likely to become so, as a result of research, at some speed in the coming years.

Secondly, of course it is true that the insurance industry has been involved in the work that led to the Bill; its representatives told us so in the evidence sessions. They not only welcomed the Bill; they have been involved through extensive consultations on what is necessary to build the framework to put the products in place. I think we can be clear about the fact that we need the Bill and that the insurance industry has helped create it, and likes it.

Clive Efford: I accept that the insurance industry is a necessary part of our transport system—we have to have properly insured vehicles—but what the Minister has said alarms me a bit. We have the poachers, not the gamekeepers, in charge of the legislation. Of course the insurance industry would not like to be tied up in knots and would want to be as free as possible to insure the vehicles that they choose to put on our roads, but I would argue that we should have more say.

The issue of transition is important. The right hon. Member for West Dorset put it well—I am in danger of saying that someone put a case for my amendment more eloquently than I am doing myself, but his point is important. At the point of transition, when the driver does not respond to all the warnings that Mr Wong talked about in his evidence, does it then come to the point when the people insuring the technology will say that the technology worked perfectly, but there was an accident, therefore it must be the driver’s fault? That scenario is not improbable and could come about. We would be wrong if we did not recognise that in the legislation.

The Minister also spoke about human error. It is quite right that everyone said that more than 90% of accidents are caused by human error, but it is an obvious point. As all vehicles are currently driven by humans, it is highly likely that when accidents occur, they are caused by humans. Some 5% are down to mechanical error. Although I accept that the safety aspect may reduce the number of accidents, when asked, the witnesses could not defend the suggestion that the proportion of accidents caused by mechanical failure—the failure of technology—will increase, and that 5% will go up. They were silent. We are dealing with an area of safety on our roads that is going to grow as a proportion of the accidents that occur.

The Chair may call me to order, but we have not dealt with the issue of platooning and connected vehicles. Which vehicle is going to take responsibility if an accident is caused by a vehicle in a platoon of vehicles going down a motorway and the vehicle that is behind them is insured by another company? We were told in

the evidence that it is the lead vehicle that guides the other vehicles. There is a whole area to do with connected vehicles and vehicles transitioning between human control and computer control that will need regulating. The Bill is silent on that, which is a flaw. I do not intend to press my amendments to a vote, but I am sure that on Report—

Mr Hayes: Given what the hon. Gentleman has just said, it would perhaps be helpful to repeat what I said in response to him and to my right hon. Friend the Member for West Dorset. I am happy to clarify the issue of transition.

Moreover, at its very heart the Bill will not put vehicles on to the road that are not safe and appropriate, because that is part of what the regulatory environment guarantees. Furthermore, of course, the Bill obliges the Secretary of State to draw up a list of vehicles. The hon. Gentleman, in withdrawing his amendment, can be assured that a good deal of what worries him—and I understand those worries—will be dealt with in the way I have set out.

2.45 pm

Clive Efford: I am grateful to the Minister. I am not convinced, but I will wait for further information from him. I will not push my amendment to a vote today, but these are subjects that we can return to on Report and possibly at even greater length in the other place, as is the tradition of this place. I beg to ask leave to withdraw the amendment.

The Chair: Before we do that, the hon. Gentleman said that the poachers were driving this legislation. In view of the geographical location of the Minister’s constituency, I hope you are not implying that he is the Lincolnshire Poacher?

Amendment, by leave, withdrawn.

Clause 2 ordered to stand part of the Bill.

Clause 3

CONTRIBUTORY NEGLIGENCE ETC

Karl Turner: I beg to move amendment 2, in clause 3, page 3, line 4, at end insert—

“(3) The Secretary of State may by regulations define when it is and is not appropriate for a person in charge of the vehicle to allow the vehicle to drive itself.”

This amendment requires the Government to provide regulatory guidance for when it is and is not appropriate for a person to allow an automated vehicle to drive itself.

It is always a pleasure to serve under your chairmanship, Mr Bailey. I do not intend to keep the Committee terribly long on this issue. As the Bill is drafted, the “insurer or owner of an automated vehicle is not liable” where the event was caused by a person allowing the vehicle to drive itself

“when it was not appropriate to do so.”

The Bill does not define when it is and is not “appropriate to do so”. Our amendment requires the Government to provide regulatory guidance on when it is and is not appropriate for a person to allow an automated vehicle to drive itself.

This goes to points made previously by members of the Committee, not least the right hon. Member for West Dorset. It would clearly not be appropriate in some circumstances for vehicles to drive themselves. For example, early automated vehicles might be deemed

[Karl Turner]

safe to use only on motorways and not on some urban roads; or, for example, a software issue might arise such that using the automated function at that point would be absolutely inappropriate. It appears to me that the true intent of subsection 2 was to focus on bimodal vehicles, because it does not seem to apply to fully automated vehicles. Perhaps the Minister can clarify the position in his response.

One of the primary purposes of part 1 of the Bill is to provide a framework to give insurers, manufacturers and potential users greater clarity, providing confidence and encouraging progress on automated vehicles. However, it is still not clear from the Bill what the Government have in mind about when use of those vehicles would be inappropriate. I do not propose to press the amendment to a vote at this stage; I think the Minister has got the point I am making. It has been made and reiterated several times by members of the Committee. We are simply asking for regulations that better define those circumstances to be brought forward, because we cannot afford any confusion here. People must be absolutely clear where their obligations lie if we are to see the growth of the industry, which is something we all want. We do not want to leave these issues hanging over us.

Sir Oliver Letwin: I will address the points the shadow Minister has raised in a moment. Before I do, I want to come back to a fundamental point about the drafting of clause 3(2)—if you will allow me to do so now, Mr Bailey, rather than in a stand part debate—because it is relevant to the rest of the question. My concern relates to the word “wholly” in subsection (2). We discussed this point earlier today. My right hon. Friend the Minister said to me and the Committee that clause 3(2) was meant to solve the problem that I am worried about, which is that there are circumstances under which strict liability for the insurer of the machine is inappropriate, because the driver may do something either immediately before or some while before handing over to the machine that means he or she should not have handed over to the machine. Those are the very circumstances that the shadow Minister is also concerned about.

The Minister directed my attention to clause 3(2) as the solution. I pointed out then—I will now expand on the point—that if subsection (2) is intended as a solution, it is in desperate need of redrafting. The word “wholly”, which I assume has been inserted mindfully by parliamentary counsel, has a very definite meaning: it means “wholly”. Courts know perfectly well what to do with that when they come across a statute that very unusually—this is not something that we normally find—says that a contributory agency is not contributory, but absolute, and the person in question is wholly responsible. The court will interpret that very strictly, and rightly so, otherwise what on earth are we doing drafting Bills and Acts of Parliament?

There could be a circumstance under which the driver was wholly the cause of the accident. Incidentally, I cannot quite think what that might be. It is a pretty remote circumstance, and I would be interested to know whether the Minister can think of an example, but I accept the possibility of such a thing. Most of the time, however, it will be jolly tricky to work out who is actually responsible.

Let me go back to my example of leaving the motorway, but this time the driver was awake and flicked a switch that specifically made the machine take over. Let us imagine that the technology allowed that—it might or might not, we heard conflicting evidence on that, but suppose that it did—and the driver thought that the circumstances were such that the machine could take over and the machine thought, and that is probably an appropriate word to use, given that it is artificial intelligence, that it was appropriate for the machine to take over. However, they were both wrong. The machine was not good at handling the circumstance and it crashed. The machine got it wrong because it should not have taken over, and the driver got it wrong because they should not have asked the machine to take over. Who has caused the accident? I do not know. I am absolutely sure that there are people who will make millions and millions of pounds, and they are the QCs who will argue such cases in court, along with the rafts of solicitors and the enormous apparatus that goes with that. They will all be arguing about who is responsible.

If we lose the word “wholly”, we eliminate that argument, which I assume is the point of putting it in, because, as clause 3(2) is drafted, it says, “If there is the slightest doubt about whether the machine was in any scintilla of a way responsible for the crash, the driver is not wholly responsible and therefore the machine is wholly responsible, so there is strict liability for the insurer of the machine.” It may be that that is what the Minister wants to do, but it is a very odd thing to do, because the costs of insuring these machines would go up compared with what they would otherwise be. Under circumstances in which the driver was a heavy contributor to the cause of the accident by handing over inappropriately, the insurer of the machine would nevertheless be strictly liable because the machine made one millionth of the contribution to the cause of the accident. That is the effect of clause 3(2) as drafted, and I do not believe that that can be the Minister’s intention. That needs looking at.

Turning to the point made by the shadow Minister on regulations and clarification, I agree that it should be perfectly possible to handle the question of when it is appropriate or not to hand over through secondary legislation. I suspect that it will not be the kind of secondary legislation that we have been used to in the main hitherto. It will be very complicated legislation, because it may have to specify processes rather than results. I do not believe that the technology is likely to develop in a way that will make it obvious to the driver in advance, by reading some kind of guide, when the driver is meant to hand over and when not. I suspect that will be interactive and dynamic, and I suspect that the Minister’s successors—the Secretaries of State who will do such things in regulation—will have to find some way of compelling the manufacturers to create an apparatus that tells the driver in a dynamic and interactive way, as they are driving along, whether, as a matter of fact, it is safe to hand over to the machine or not.

One way in which that could happen is the way we were presented with in the evidence sessions. The machine invites the driver to take over and then there is a simple double rule: only machines that invite drivers, as opposed to giving them instructions, are allowed on the road—and, while we are at it, only those certified by the Secretary of State as being safe when they offer the chance to take

over are allowed—and, moreover, the driver is never allowed to hand over to the machine except when it does offer that. That is a possible configuration. That would be quite a complicated piece of secondary legislation, because it would have to be accompanied by a series of quite complicated technical codes that ensure that it is put into practice and that the cars manufactured fulfil all those requirements.

There are of course many other models, but it is terribly important to recognise that if the Minister wants to achieve clarity here—as I think he does, and rightly so—as well as getting the drafting of clause 3(2) right, so that it is clear under what circumstances there really is liability for the insurer of the machine when there is a mixture of causation, he needs to recognise that there will need to be either a quite large superstructure of regulation that gives us clarity about the circumstances under which handover is appropriate or, at least, processes that make it unnecessary to have such clarity in a set of rules. I hope that he will recognise in his closing remarks that even if the Bill does not give new powers to do that—because he believes he has somehow got them already—he will consider all those questions anon, as well as looking at the drafting of subsection (2).

Mr Hayes: My aim is to do that a lot more quickly than you might imagine, Mr Bailey. I accept entirely that there will be a need for a regulatory framework to ensure both the safe deployment and safe use of automated vehicles. The autonomous insurance measures in the Bill are part of that, but the subsequent regulations that ensue will be part, too. They will be—necessarily—dynamic and, I suspect, quite complex, because this is a complex and evolving field. The reason that it is better done in regulations is obvious: we cannot keep bringing primary legislation to the House in such a highly dynamic set of circumstances. It is therefore absolutely right that it is done in a regulatory framework down the line.

Let me try to deal with the “wholly” issue, because it is important that we do so. If the driver is partly negligent, clause 3(1) applies, and contributory negligence would therefore also apply. Clause 3(2) is there to pick up the limited circumstances in which the driver is wholly at fault—that is, contributory negligence does not apply because it is clear that fault lies with the driver. If we did not include “wholly”, there would be a gap in the scope of the clause, as subsection (1) covers only contributory negligence. That is why the word “wholly” is in the Bill.

Sir Oliver Letwin: I am in a slightly odd position because it is the Minister’s Bill, so I would expect him to understand it better than I can, but I have to say that if that is his intent, the plain words of the text do not do the job. In clause 3(1)(b), it is perfectly clear on the face of it that the accident has to be, to some extent, “caused by the injured party”.

That is not the circumstance we are talking about. We are talking about a circumstance in which the accident is wholly caused by some combination, but unknown, of driver—ex or to be—and machine, not by the injured party, so I do not see how clause 3(1) solves the problem of clause 3(2) having a hole in it.

3 pm

Mr Hayes: My right hon. Friend will understand that the injured party might include the driver; an injured party does not mean an injured third party.

Sir Oliver Letwin: It might, but it might not.

Mr Hayes: Yes, but clause 3(1)(a) says that “an insurer or vehicle owner is liable under section 2 to a person (‘the injured party’) in respect of an accident”, so it covers both the driver or another party. That is repeated in paragraph (b). I do not understand what my right hon. Friend’s problem is.

Sir Oliver Letwin: The Minister is being very patient. Perhaps I am misunderstanding, but I beg the other members of the Committee to read the text:

“Where...an insurer or vehicle owner is liable...to...an injured party...in respect of an accident”.

The injured party is someone who has been injured—that is the reason for the reference to an “injured party”—but if I am the driver and in this case I am not injured, the insurer is not liable to me. I have just handed over control of the vehicle and it has injured somebody else, so I am not an injured party, and the injured party has not contributed to the accident, so clause 3(1)(b)—

“the accident, or the damage resulting from it, was to any extent caused by the injured party”—

does not apply. Clause 3(1) therefore does not apply in such circumstances, so it cannot solve a problem in clause 3(2) because it does not apply to the circumstances that we are talking about under clause 3(2)—or at least not to the circumstances that are worrying the Committee and that we have been talking about more or less all day, which is the question of what happens when I am handing over.

The Chair: Order. That was meant to be an intervention.

Mr Hayes: I am comfortable with the idea that the driver might be the injured party, and my right hon. Friend comfortable with that too. We are clear on the issue of whether the car was being driven by the driver or was in autonomous mode. Is my right hon. Friend concerned therefore about another party, unrelated to the vehicle, who might be affected by the accident? Is that what he is getting at? I do not understand.

Sir Oliver Letwin: I hope that with your indulgence, Mr Bailey—

The Chair: Make it short.

Sir Oliver Letwin: I will try to make it as short as I can, but I am trying to advance the cause of understanding between us by answering the Minister’s question. We are envisaging circumstances in which a driver hands over to the vehicle and the vehicle takes over, but it turns out that it was arguably not safe or sensible for the driver to have done that. The driver was not injured and is not the injured party—the insurer is liable not to the driver, but to someone else who got damaged. That is the injured party. Clause 3(1) does not apply. That is the problem and that is the reason why clause 3(1) cannot solve the problem of clause 3(2).

Mr Hayes: I will reflect on that. It is clear to me when clause 3(1) and clause 3(2) do apply, but it is a reasonable question to ask where the clause does not apply—as my right hon. Friend has described—and what would apply in those circumstances. I am perfectly prepared to reflect and to come back with a clear answer. I am now certain to what he was referring, and that will help in the process of trying to satisfy him.

[Mr John Hayes]

I was not able to be as short as I had hoped—I began this brief contribution by saying just how brief it would be. In respect of the shadow Minister, I think I have been clear that it is likely that the first autonomous vehicles will be used, as I said, in particular circumstances—earlier I talked about geofencing. It is likely that the global regulations that will be used to type approve autonomous vehicles will reflect those limited cases. It is therefore not yet clear that we will need to make matching regulatory changes in our domestic framework, as I have also said.

We do have the powers under the Road Traffic Act, as I said in response to an earlier intervention, to revise or create new road vehicle construction and use regulations. In that sense, the amendment would duplicate existing powers so really it is superfluous. Its intention is good, because it intends to do what I have just described, but I am not sure that for this purpose it is the right vehicle—I hesitate to use that term because, as so often in the

debate so far, we are speaking about roads, journeys and vehicles. None the less, I am confident that we have enough powers and are taking enough powers, through the application of the regulations that I have said will ensue, to satisfy what the hon. Member for Kingston upon Hull East intends. On that basis, I hope that he will withdraw the amendment.

Karl Turner: I am happy to confirm that I beg to ask leave to withdraw the amendment.

Amendment, by leave, withdrawn.

Clause 3 ordered to stand part of the Bill.

Ordered, That further consideration be now adjourned.
—(Andrew Stephenson.)

3.6 pm

Adjourned till Tuesday 14 November at twenty-five past Nine o'clock.

Written evidence reported to the House

AEVB 07 British Vehicle Rental and Leasing Association
(BVRLA)

AEVB 08 IAM Roadsmart
AEVB 09 Association of Convenience Stores (ACS)
AEVB 10 Joint submission from academics at the
University of Exeter and Koç University

PARLIAMENTARY DEBATES

HOUSE OF COMMONS
OFFICIAL REPORT
GENERAL COMMITTEES

Public Bill Committee

AUTOMATED AND ELECTRIC VEHICLES BILL

Fifth Sitting

Tuesday 14 November 2017

(Morning)

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CLAUSES 4 to 8 agreed to.
Adjourned till this day at Two o'clock.

No proofs can be supplied. Corrections that Members suggest for the final version of the report should be clearly marked in a copy of the report—not telephoned—and must be received in the Editor’s Room, House of Commons,

not later than

Saturday 18 November 2017

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The Committee consisted of the following Members:

Chairs: † MR ADRIAN BAILEY, SIR EDWARD LEIGH

- | | |
|---|---|
| † Argar, Edward (<i>Charnwood</i>) (Con) | † Mann, Scott (<i>North Cornwall</i>) (Con) |
| † Brown, Alan (<i>Kilmarnock and Loudoun</i>) (SNP) | † Rodda, Matt (<i>Reading East</i>) (Lab) |
| † Duffield, Rosie (<i>Canterbury</i>) (Lab) | † Stephenson, Andrew (<i>Pendle</i>) (Con) |
| † Efford, Clive (<i>Eltham</i>) (Lab) | † Stewart, Iain (<i>Milton Keynes South</i>) (Con) |
| † Foxcroft, Vicky (<i>Lewisham, Deptford</i>) (Lab) | † Tracey, Craig (<i>North Warwickshire</i>) (Con) |
| † Hayes, Mr John (<i>Minister for Transport Legislation and Maritime</i>) | † Turner, Karl (<i>Kingston upon Hull East</i>) (Lab) |
| † Jones, Graham P. (<i>Hyndburn</i>) (Lab) | † Western, Matt (<i>Warwick and Leamington</i>) (Lab) |
| † Kerr, Stephen (<i>Stirling</i>) (Con) | |
| † Knight, Sir Greg (<i>East Yorkshire</i>) (Con) | Farrah Bhatti, Mike Everett, <i>Committee Clerks</i> |
| † Letwin, Sir Oliver (<i>West Dorset</i>) (Con) | † attended the Committee |

Public Bill Committee

Tuesday 14 November 2017

(Morning)

[Mr ADRIAN BAILEY *in the Chair*]

Automated and Electric Vehicles Bill

9.25 am

The Chair: I remind everyone to ensure that all electronic devices are turned off or switched to silent mode.

Clause 4

ACCIDENT RESULTING FROM UNAUTHORISED SOFTWARE ALTERATIONS OR FAILURE TO UPDATE SOFTWARE

Alan Brown (Kilmarnock and Loudoun) (SNP): I beg to move amendment 11, in clause 4, page 3, line 13, at end insert—

‘, provided that the vehicle manufacturer has made all reasonable efforts to—

- (a) notify the owner of a vehicle about the need for an update of the vehicle’s operating system
- (b) provide the relevant update of the vehicle’s operating system to the owner or insured person, and
- (c) arrange for the installation and update of the vehicle’s operating system.’

This amendment would ensure the manufacturer has made every possible effort to inform the owner of the vehicle that a software update is needed before liability is passed to the owner.

The Chair: With this it will be convenient to discuss the following:

Amendment 12, in clause 4, page 3, line 36, at end insert

‘(7) The Secretary of State must by regulations establish a system by which an automated vehicle may only be approved for driving itself on public roads if all application software is up to date.’

This amendment would require the Government to introduce regulations to establish a system that requires automated vehicle software to be up to date in order for them to utilise automated functions on public roads.

New clause 9—*Updates to software and operation of automated vehicles*—

‘The Secretary of State must bring forward regulations to require that automated vehicles cannot operate in automated mode on public roads unless the application software relating to the vehicle’s automated function is up to date.’

This new clause would require the Government to introduce regulations that require automated vehicles to be up to date in order for them to utilise automated functions on public roads.

Alan Brown: It is a pleasure to serve under your chairmanship again, Mr Bailey. I note that you wisely ducked out just before I spoke yesterday in Westminster Hall, right enough—no such luck this morning.

Clause 4 is all about liabilities associated with operational software for automated vehicles. Amendments 11 and 12 aim to strengthen the clause and amendment 11 aims to clarify the responsibilities of the vehicle manufacturer. In turn, that may even assist the vehicle manufacturer

with regards to clause 4(1)(b), which refers to whether a person ought to reasonably know about safety-critical software updates being required. We are using the right terminology, and it is hoped that the law meets its intended purpose both of ensuring that people are insured and of clarifying where liabilities are limited for insurance companies.

If the Bill sets out how important it is that safety-critical software is updated, it follows that duties are placed on the manufacturers to take all reasonable steps to ensure that that happens. Therefore, as with smartphones, the manufacturer must notify the owner of the need for upgrades but, unlike smartphones, it needs to be much more than a simple notification. Steps need to be undertaken to ensure that the vehicle owner is aware of the need for upgrades and to make arrangements for them to happen. There could be a series of warnings through the software, or written letters and correspondence. Given the sophistication of the software, and its interactive nature, in that it tries to talk to software on other servers, perhaps even some form of remote immobilisation could be considered. If those steps are followed, any evidence of the deliberate overriding of adaptations undertaken by the owner will fall within the insurance liability limitations outlined in clause 4.

Amendment 12 follows on from that, requiring the Government to introduce regulations to establish a system that requires automated vehicle software to be up to date in order to utilise automated functions on public roads. It might be argued that the amendment is not required, that it simply dots the i’s and crosses the t’s, but given that that function of the software is the brain of the vehicle, it is absolutely incumbent on the Government to ensure that there is a system for explicitly determining that the software is safe, and able to be used.

I suggest that new clause 9 serves the same function as amendment 12. I am therefore supportive of it in principle, but there is a logic in amendments 11 and 12 being put in with clause 4, to tighten it up.

Craig Tracey (North Warwickshire) (Con): I want to make a brief contribution. I mentioned in a previous sitting that I chair the all-party parliamentary group on insurance and financial services. We have looked into this area in some detail and I think it is fair to say that across the industry there is a lot of support for the Bill, which is good news. The industry is appreciative of the fact that the Bill is moving forward at pace, and of the Minister’s approach to that. However, we think there is a definite opportunity to tighten the wording in clause 4(1)(b), as there seems to be scope for conflict between different parties in two areas.

First, regarding the phrase

“insured person knows, or ought reasonably to know, are safety-critical”,

one of the consequences is that there might be a legitimate reason for software not being installed: a vehicle might be on a journey, there might be no signal or someone might have to use a vehicle in an emergency. The wording is open to interpretation and one of the consequences of that could be delays in paying out claims.

My second point is whether a safety-critical update was contributory either in whole or in part to an accident. Without tightening up the wording, there could be delays in the settling of claims, potential higher claims

costs, and more data—data was raised quite a bit in the evidence sessions—being required to settle claims and to establish cause. Again, a knock-on effect is that the full potential of cost savings on insurance might not be fully recognised because of the cost involved in deciding on liability.

With those two points in mind it seems sensible to shift the onus from the insured person for the safety-critical update directly on to the manufacturer in all cases. We know the technology is there. It is available either to not enable the vehicle to start if a safety-critical update is not put in place or—this is probably more reasonable—to not enable a vehicle to access the automated mode unless all safety-critical software issues are up to date. Those are just a couple of points that I wanted to raise with the Minister which perhaps he will consider when he responds to the amendments.

Iain Stewart (Milton Keynes South) (Con): Following on from the points that my hon. Friend just raised, will the Minister clarify a couple of points regarding the phrase in clause 4(1)(b), which states:

“the insured person knows, or ought reasonably to know”?

I am concerned that the phrase “ought reasonably to know” is a little woolly. I am not a lawyer or an expert in parliamentary drafting. It may be that the phrase is a well-used one that the courts can easily interpret, but in the context of the new software I am a little uncertain as to what “ought reasonably to know” actually means. I can envisage a number of scenarios in which the driver may have had an alert from the manufacturer that says, “We need to install version 1.whatever of the software.” He gets the update at a quarter to nine in the morning. He is rushing out of the house, late for a meeting, and says, “I’ll do that later on,” and then the car he is driving is unsafe at that point. I am simply not clear where the onus lies and when that person should install the software. Perhaps the Minister will clarify that point when he responds to this group of amendments, or he may wish to reflect on it and consider the matter further on Report. It is an area I have concerns about and we ought to get the drafting absolutely right.

Karl Turner (Kingston upon Hull East) (Lab): It is a pleasure to recommence the discussion of the Bill under your chairmanship, Mr Bailey.

New clause 9, tabled in my name, states:

“The Secretary of State must bring forward regulations to require that automated vehicles cannot operate in automated mode on public roads unless the application software relating to the vehicle’s automated function is up to date.”

The new clause would require the Government to introduce regulations that require automated vehicles to be up to date in order for them to utilise automated functions on public roads. Under the current drafting, people would be able to drive their automated vehicles on the roads without having the latest up-to-date software, which could lead to safety risks. The new clause would ensure that the Government introduce regulations that require automated vehicles to be up to date in order for the automated function to be used. If a vehicle had a serious mechanical fault that could endanger the driver and others, we would not allow it on our roads. An automated vehicle would similarly present an increased safety risk if its operating system was not updated.

Most people with a smartphone or computer are likely to have software that prevents it from being used until it is updated. I am not struck by any reason why a similar mechanism could not be included in automated vehicles. By preventing an un-updated vehicle from being used, we would achieve safer roads and cheaper insurance.

Graham P. Jones (Hyndburn) (Lab): My hon. Friend is making a powerful point. This applies most critically to GPS, where there may be changes to roads or whatever. The automated vehicle would need to know where it is going and whether there had been some ad hoc intervention in the road layout that meant that the GPS was inaccurate. Clearly, there would need to be an update. Does he share my view that updates should be regular and frequent, because they are part of the safety process?

Karl Turner: My hon. Friend makes a valid point when he talks about GPS systems. Without the new clause, people would be able to take un-updated vehicles on our roads, without being absolutely sure that they are safe. A primary benefit of AVs is that they reduce the likelihood of human error. However, one of the few areas in which the scope for human error remains—the responsibility for ensuring that software is updated—would not be addressed, even though it would not be difficult to do so. I cannot find any reason why it is not possible to legislate for this. The new clause addresses that obvious issue and I trust that the Government will consider it carefully.

The Minister for Transport Legislation and Maritime (Mr John Hayes): We continue with dedication our diligent perusal of these matters and our scrutiny of this Bill. I am grateful to the Committee for its continuing determination to get this right. When we first met, we said that this was an important and challenging piece of legislation because we debate it in rapidly altering circumstances. The technology is moving on apace and we are trying to tread a path between creating sufficient certainty to allow insurers to develop the products they will need as the technology comes on stream and predicting a future which, by its nature, is unpredictable. That is the path we tread. It is important to emphasise in that spirit, in relation to this clause and these amendments, that the Bill is a first step. It does not solve all the problems or answer all the questions. It is a modest Bill, though an important one, in those terms.

It is doubtless true that as this technology unfolds more work will need to be done. We are on the cusp of an important—indeed, one might say revolutionary—change in what we drive and how we drive it, but it is not for this Committee, Government or Minister to predict quite what that might look like in decades to come. The modest character of the Bill needs to inform all our scrutiny. We are not aiming to solve all the problems here. We are aiming to take a measured first step towards solving those problems and meeting those challenges.

However, it is right that we debate the issue of how motorists understand and update their systems so that they can use their automated vehicles safely, as the shadow Minister, the mover of the amendment, the hon. Member for Kilmarnock and Loudoun, and other contributors have said. A core part of that is to ensure that the regulatory framework is in place which compels manufacturers to bring to market systems that make this process as simple and effective as possible.

[Mr John Hayes]

This is certainly not the place for that legislative process to occur. It is not the purpose of the Bill. The requirement for systems to update forms part of an international set of standards, which I mentioned earlier. Vehicle safety and technology are subject to international standards. Those standards are well established in respect of the vehicles we all typically drive, but they are emerging standards in respect of autonomous vehicles. Much work has been done by this Government and others to ensure that those standards are fit for purpose. They will form the basis of a new type of approval process. We are familiar with the existing means by which these things are assured. That will develop over time, as the type of approval process emerges as a result of the work that is being done. Until that type of approval process is fit for purpose, these vehicles will simply not be sold or driven on our roads. In addition to our domestic non-insurance regulatory programme, it is vital that we are mindful of those further developments.

Robust standards will be in place before the vehicles arrive to market. There is, therefore, a risk in acting unilaterally. I understand why people are suggesting that we might; it is a perfectly reasonable response to the debate and the Bill, and it is useful that we are airing these subjects here. However, we would not want to try to anticipate the development of those standards without a clear understanding of the ultimate design standards to which these vehicles will be held, as we would risk creating barriers to the use of this technology and inhibiting further research and development—indeed, possibly inhibiting the development of the insurers' products that the Bill is all about. We are continuing to take part in the international negotiation shaping the standards, and developing domestic road traffic laws and guidance. We do not accept new clause 9 and the amendments to clause 4 that would compel us to act without a settled knowledge of how these systems will ultimately be configured.

Let me deal, however, with some specifics. A series of points have been made on these matters during our scrutiny. I have written to the Committee, as Members will know, dealing with some of the questions that were previously raised. I do not think that this is an appropriate point to go through those letters because they do not directly relate to the subject at hand, but there will be a chance—I think at clause 7—to revisit some of the issues that were dealt with when we looked at clause 1. I simply put that on the record, in case people were wondering why I was not immediately addressing some of the things that were raised by my right hon. Friend the Member for West Dorset and others in earlier parts of the scrutiny.

In respect of the issues raised by my hon. Friend the Member for Milton Keynes South, I am looking for the guidance that I might have received from another place—[*Interruption.*] Ah, here we are; it has winged its way to me. In the end, the courts will interpret the facts. If a person knew that they needed to update the software and failed to do so—that is, knowingly took a view that they did not need to update their software, rather as if someone knowingly drove a vehicle that was mechanically unsound—a judgment will of course be made about their responsibilities and whether they should have used

the vehicle. If someone is negligent in respect of their vehicle's fitness to be driven, clearly the courts will have to take a view about their responsibilities.

Iain Stewart *rose*—

Mr Hayes: I can see that my hon. Friend is satisfied, but not entirely.

Iain Stewart: I agree that we cannot anticipate exactly what form the technology will take, or the form of the updates. My right hon. Friend mentioned that further regulations would be issued before these vehicles went on the road. Would those regulations include a clearer definition of the obligations on the driver regarding when they must install any updates to the software?

Mr Hayes: I will come back to that, because in a way it relates to the point made by my hon. Friend the Member for North Warwickshire. We anticipate that the majority of software updates will be delivered automatically over the air, as it were, so we would expect software to be updated over time in that way that my hon. Friend the Member for Milton Keynes South suggests. I am mindful of the work that my hon. Friend the Member for North Warwickshire has done on this—we have discussed it outside the Committee.

9.45 am

Graham P. Jones: Will the Minister give way?

Mr Hayes: I will in a second.

In the end, the clause aims to protect insurers from a negligent person who intentionally fails to update their vehicle. For the sake of clarity, I offer the parallel of someone who fails to ensure that a vehicle they drive now is safe—who fails to take the proper precautions or make the proper arrangements to ensure that their vehicle can be safely driven when they go out in it. So it will be with autonomous vehicles and the software that relates to them. That is the purpose of the clause, but I am not entirely convinced by the advice that I have had on it yet. The civil servants in the room—I know I am not supposed to acknowledge them—will have a shiver going down their spine. I want to reflect more on it. I think we are right and I am sure what I have said is right, but I may have more to say on it. I am happy to reflect on it and come back to my hon. Friend the Member for North Warwickshire if there is more to be said.

Craig Tracey: I appreciate that the Minister will look into it. He mentioned that the clause will protect the insurers, but the insurers of the insured person will still be footing the bill. By passing the onus for safety critical updates to the manufacturer, that could be taken away from the insurance industry.

Mr Hayes: With laser-like precision, my hon. Friend has focused on exactly the reason why I want to reflect on it. I thought that that was what he might say and that was what he meant when he first spoke. Although the response I offered him goes a fair way towards what he was seeking, I need to clarify that additional consideration for him. In the end, that will bring us back to the point close to the heart of all insurance considerations: how we discern liability and negligence. I want to be more precise about the second point that he raised, but I do

not yet feel confident to do that. I will now give way to my old friend—the veteran of many Committees with me.

Graham P. Jones: I am grateful for the Minister's warm words. To return to the issue of GPS mapping updates, people expect the road network to be updated on vehicles, but the scenario is completely different for manual operation compared with automated operation. I hope the Minister is aware that most of the operated maps sit in the private sector. That is not an issue if the car is manually operated because the driver always has discretion as he sees the road in front of him, but that is not the case in automated mode. We have to think about our highways workers or our police force who may be intervening in the road network.

When we talk about updates, serious consideration needs to be given to GPS maps in automated mode. Who is responsible for them? Who owns them? Who will update them? How will we ensure that we have road safety? Updates are vital, but GPS mapping is particularly vital. The Minister needs to take a good look at that and how it will be integrated into the insurance industry and into the Bill and the regulations to protect our people working on the roads.

Mr Hayes: As I say, the hon. Gentleman is a veteran of many Committees. We have rarely crossed swords, but we have certainly waved swords at each other from time to time. He makes a sound point which is precisely why we would need to address a range of those issues in further regulation. At this juncture, I do not think we can think about adding that to the Bill. I know he did not say we should, but he did say that we should think about those matters and look at how they relate to this Bill subsequently. He is absolutely right.

At the risk of opening up a new avenue for discussion—I hesitate to do that because I know we want to make reasonably rapid progress today—the hon. Gentleman might also have raised the issue of the interface between the driver and the road, and the technology on the road. As we move towards smarter roads, there will be an increasingly close relationship between the information received in the car from outside, as well as the information that is at hand within the vehicle. That is another area where there will be a connection to automated vehicles. We are already seeing the regular use of gantries across roads that provide information. The interaction between that information, the car, and the information that is available locally will, over time, become an increasing feature of driving.

This is another area in which regulation will—in exactly the way the hon. Gentleman described—need to address how that works for automated vehicles. The assurance I give him and others is that we recognise these challenges, we anticipate further work, we know that work is ongoing and it will be set out, both in the formation of international standards for a type-approval process that I mentioned, and in the regulation we will introduce that matches that development.

Clive Efford (Eltham) (Lab): I would like to take the Minister back to his comment that this Bill was designed to protect insurers against drivers who fail, or refuse, to upgrade the software on their vehicles. I think that what he really meant to say was that the Bill is here to protect the consumer, and that unless the consumer is acting wilfully and refuses to upgrade the car, they cannot be

held responsible, and the insurers cannot use this Bill to wiggle out of their responsibilities and paying whatever they are responsible for. The Minister is aware is that his comments, which go on record in this Committee, could be used to interpret an intent behind the legislation, so how we describe things is important.

Mr Hayes: The hon. Gentleman implies that those things are mutual exclusive. Of course, if someone intentionally—deliberately—goes about the business of not updating their vehicle, that creates a responsibility and a liability. That has ramifications of the kind that I described for insurers, but it also has the wider ramifications that he described. I do not think we are in different places on that.

Let me turn briefly to the comments made by the shadow Minister. Again, I can see why he makes that point, but as he knows, we will shortly discuss clause 5, which gives the right of recovery against the person actually responsible for the incident, whoever that responsible person is. We can probably deal with the matter he raises when we debate clause 5, rather than adding to this clause in the way he suggests. His intent is entirely understandable but I do not think this is the best place to make the amendment that he proposes. With that, and my commitment to take further the point that my hon. Friend the Member for North Warwickshire raised, and the more general commitment I have made, reflecting my original remarks about the ambitions of the Bill, the limits on those ambitions, and the development of further regulation, I do hope that the hon. Member for Kilmarnock and Loudoun and others will see fit not to press their amendments.

Alan Brown: I have listened to the Minister and to the comments that have been made. Amendment 11 is still about putting additional responsibilities on the manufacturer, which seems to accord with some of the comments made by the hon. Member for North Warwickshire. The Minister agreed to take on board those comments, but I felt he was a little dismissive of amendment 11. I would like to press amendment 11 to a vote, but I will not press amendment 12.

Question put, That the amendment be made.

The Committee divided: Ayes 8, Noes 9.

Division No. 2]

AYES

| | |
|-----------------|------------------|
| Brown, Alan | Jones, Graham P. |
| Duffield, Rosie | Rodda, Matt |
| Efford, Clive | Turner, Karl |
| Foxcroft, Vicky | Western, Matt |

NOES

| | |
|-----------------------|--------------------|
| Argar, Edward | Mann, Scott |
| Hayes, rh Mr John | Stephenson, Andrew |
| Kerr, Stephen | Stewart, Iain |
| Knight, rh Sir Greg | Tracey, Craig |
| Letwin, rh Sir Oliver | |

Question accordingly negatived.

Karl Turner: Mr Bailey, when can we vote on new clause 9?

The Chair: That is voted on separately at the end.

Clause 4 ordered to stand part of the Bill.

Clause 5RIGHT OF INSURER ETC TO CLAIM AGAINST PERSON
RESPONSIBLE FOR ACCIDENT

Question put, That the clause stand part of the Bill.

Mr Hayes: Clause 5 gives insurers the right of recovery against the person actually responsible for the incident to the same extent that the person is liable to the victim. The person actually responsible for the incident could be, for example, the manufacturer. This clause also defines when and how the amount of the person's liability is settled and when their right of action accrues. It sets out the arrangements and limits on the amounts they recover. This clause will therefore ensure that the insurers are able to recover from those responsible, to the extent that the victim will be able to do so. This will facilitate the effective functioning of clause 2, which imposes initial liability on the insurer or owner of the automated vehicle in respect of an accident.

Subsection (3) requires the insurer, if they recover more than they initially paid out to the victim, to pay the difference to the victim, and subsection (4) ensures the person responsible for the incident is not required to pay the insurer if they have already paid the injured party.

Sir Greg Knight (East Yorkshire) (Con): Will the Minister give way?

Mr Hayes: I had finished, but I give way.

Sir Greg Knight: I am most obliged to my right hon. Friend. I am intrigued by subsection (2)(c), which refers to the amount of a claim as settled when it is established "by an enforceable agreement." In this context, can he give the Committee an example of an unenforceable agreement?

Mr Hayes: That is a wonderful intervention, which I cannot answer now, but I will answer later. How's that?

10 am

Clive Efford: When the Minister sums up at the end of the debate, will he say how he envisages this provision working in practice? An accident occurs, and an injured party is making a claim; the aim of this Bill is to ensure that people are paid out speedily, but the clause describes a process that could be long and drawn out. How does that protect the consumer? Who pays in the first instance? As we have already heard in several debates around this Bill, we are adding more people who could have liability. Because of software upgrades, we are now including the manufacturers—the people who actually design the software. There is no requirement in the Bill for those writing the software to have their own insurance, should their software fail, so where do they come into this process? How do we ensure speedy pay-outs to the consumer when we have an increasingly complex network of people who may have liability in the aftermath of an accident? This clause seems to set out a labyrinth of different permutations that could arise in terms of liability, and that could take some time to resolve. Could the Minister say what is in the Department's mind and how this will speed matters up?

Mr Hayes: I would not want to accuse the hon. Gentleman of misunderstanding, so I will perhaps say that I did not make it sufficiently clear in my opening remarks. For it is better to blame oneself than other people. The purpose of the clause is to supplement clause 2, in that it will ensure that victims do not potentially have to pursue major manufacturers through the courts. This is to avoid both the unreasonableness of having to do that and the delays suggested by the hon. Gentleman. It is designed to protect the consumer. At the end of the day, the consumer is our principal concern, as he said in an earlier intervention.

We want the system to operate in a way that is as quick, straightforward and comprehensible as possible for the consumer. That is actually what the clause does, by supplementing clause 2. The business of the relationship between the insurer and the manufacturer will be going on behind the scenes. The consumer will not need to know about that, and will get a speedy and satisfactory resolution of the event in the way that they do now. If there was a difference at all, that is where it lies.

Karl Turner: I have listened carefully to what the Minister says and he makes a very salient point. We do not have any objection to the clause.

Mr Hayes: Before we move on, my right hon. Friend the Member for East Yorkshire raised the issue of enforceable agreements, and I did promise—with your indulgence, Mr Bailey—to respond, in my normal spirit. I am told that the agreement must be legally binding and therefore enforceable in court. Whether that satisfies my right hon. Friend, I do not know, but that is all I have to say, so he is not going to get any more out of me.

Question put and agreed to.

Clause 5 accordingly ordered to stand part of the Bill.

Clause 6

APPLICATION OF ENACTMENTS

Question put, That the clause stand part of the Bill.

Mr Hayes: Briefly, clause 6 ensures that the new system of liability being created by the Bill preserves and is joined up with various forms of liability in other parts of legislation, and is straightforward in that respect. In creating a new form of liability in the Bill, that is vital. Where those liabilities exist in other legislation, they should remain unaffected. For example, the Fatal Accidents Act 1976 provides for a victim's dependents to be able to recover damages in spite of the victim's death, if the death was caused by "wrongful act, neglect or default".

That type of liability has been preserved and linked to the Bill's system of liability so that the provisions of the 1976 Act are brought to bear. Not doing that would create gaps and risk leaving victims and their dependents with incomplete cover.

Question put and agreed to.

Clause 6 accordingly ordered to stand part of the Bill.

Clause 7

INTERPRETATION

Karl Turner: I beg to move amendment 14, in clause 7, page 5, line 15, at end insert—

- “(c) an automated vehicle may be listed, under section 1, as being capable of driving itself ‘safely’ if the vehicle is designed and manufactured to be—
- (i) capable of driving itself in a manner unlikely to cause damage to the automated vehicle or another vehicle, or injury to a person, on the road or surrounding area, and
 - (ii) protected from hacking risks that the manufacturer knew, or ought reasonably to have known, are likely to cause damage to the automated vehicle or another vehicle, or injury to a person, on the road or surrounding area (see section (Cyber security and hacking of automated vehicles)).”

This amendment would define what is meant by an automated vehicle being capable of driving itself “safely”.

The Chair: With this it will be convenient to discuss the following:

New clause 18—*Cyber Security and hacking of automated vehicles*—

“The Secretary of State must, within 12 months of this Act receiving Royal Assent, consult with such persons as the Secretary of State considers appropriate on what steps will be required for the effective cyber security of automated vehicles listed under section 1 to protect those vehicles against accidents caused by hacking.”

This new clause would require the Secretary of State to report within 12 months what steps would be required to protect automated vehicles from accidents caused by hacking.

Karl Turner: Clause 7 sets out when a car is deemed to be driving itself, or in automated mode, but there is no mention of what happens if the vehicle is designed or manufactured in a faulty way or is hacked due to a failure by the manufacturer to install adequate protective software.

How would our amendment improve the Bill? While we all welcome the opportunities that the new technology will bring, we also have to recognise that it will bring risk. A lot of those risks will be around the software used, and they therefore may be harder to pick up than in a conventional vehicle. We all know the risks of hacking in computer systems. We have had experience in this House relatively recently of a cyber-attack—a hacking event—on Members’ emails. That experience is commonplace in workplaces across the country. When hacking and cyber-crime can result in serious consequences, we need to be extremely cautious.

We have the opportunity to put safeguards into the Bill now to give protections in this area, rather than doing that later down the line. The Minister has repeated constantly that this is a modest Bill that is merely a skeleton and that regulation will have to come as technology improves. Indeed, given the uptake of these vehicles and the number of them being purchased, action will clearly be required where the technology changes, but there is a real risk in not legislating now, when we have the opportunity to ensure the safety of these things.

Our amendment would definitely tighten up this area of the Bill by setting out when an automated vehicle is capable of driving itself safely. That would give the driver protection with regards to liability, if it was proved that there was a manufacturer’s fault or if the vehicle had been hacked. I do not intend to press the

amendment to a vote; its purpose is to start a discussion about this area, in particular the hacking element. The issue of cyber-security and vehicles being hacked has been discussed previously, in the predecessor to this Committee. I have read the *Hansard* report of those discussions and there was some very detailed debate, but it is important to look at it again now. I stand to be corrected, but the Minister previously said he would come back with potential changes in this area. However, I think he simply wrote to members of the previous Bill Committee.

New clause 18 would do exactly what we intend it to do. We now have the opportunity, and I hope that the Government will listen carefully.

Sir Oliver Letwin (West Dorset) (Con): I want to talk about clause 7(1)(b), which deals with the interpretation of what it is for a vehicle to be insured. That takes us back to the discussion we had in the Committee’s previous sittings. I am grateful to the Minister for providing access to his officials in the interim. I am satisfied that the issues I was raising are handled in the Bill, but want to set out how I now understand that to be the case, so that the Minister can give us an assurance that I have got this right and we know for the future that that is how the Bill is meant to work. It is a little sad that we have to do quite a lot of interpretative work to understand how the Bill is working, but I understand that that is caused by the fact that it is trying to piggyback on the Road Traffic Act 1988.

It turns out that clause 7(1)(b) is critical to the whole structure, because it defines a vehicle as being insured if there is a policy in force in relation to the use of it. Whereas one might think, under clause 2(1)(b), that when the Bill says the vehicle is “insured” at the time of the accident, it means the vehicle is insured at the time of the accident—indeed, I fell into the trap of thinking that that is what clause 2(1)(b) meant, because that is what it says—in fact clause 2(1)(b) has to be read in the context of clause 7(1)(b). Therefore, it is not actually the vehicle that is insured; it is the person who is, or may be—but maybe isn’t—the driver whose policy is the relevant policy and is actually insured to drive that vehicle. That is what I now understand clause 2(1)(b), in the light of clause 7(1)(b), to mean.

What clause 2(1)(b) is actually trying to say is that, as long as there is a person in the vehicle who, one way or another, is insured to drive the vehicle, then the insurer of that person is liable for the accident, even if the vehicle is driving itself. It follows from that that even if the driver, who is not driving at the time when the vehicle is driving itself, is not the owner but is insured to drive the vehicle on a policy that gives him insurance to drive other cars, it is also the case that the insurer of that person, not of the owner or the vehicle but of the person who is the driver—or would have been, if he was driving—is the insurer who is liable for the crash caused by the vehicle when it is driving itself. If I have at last understood all that correctly, it follows that the problems that I and several Committee members foresaw, about things such as transition, disappear, given that it is always the same insurer who is liable both when the car is in automated mode and when the car is being driven, because it is the insurer of the driver—or crypto-driver—regardless of whether he is driving or the car is driving itself.

Mr Hayes: That is the central and salient point. I think this is where the misunderstanding took place between us in the earlier sitting. That there is a single insurer, as my right hon. Friend now acknowledges, is one of the points covered in my letter, along with a couple of others, on which he will no doubt speak. He is right that that changes the assumption about the transition, as he describes it.

Sir Oliver Letwin: I am delighted to hear the Minister confirm that and that I have eventually managed to understand this. If it is a single insurer, those problems disappear, which is very good news.

10.15 am

Clive Efford: I understand that better myself now, but do I understand what the right hon. Gentleman is saying? The person in the vehicle is the one insured and, in the first instance, it is their insurance that would pay out. If the vehicle is found to be at fault, whether it is automated or under that person's control, they would pay out in the first instance, and subsequently the discussion we had on the previous clause would apply, where there is a sorting out of who is actually responsible—the manufacturer, the software designer, the driver of the vehicle or of the other vehicle. That will be sorted out following the initial payment from the driver of the vehicle that is found at fault.

Sir Oliver Letwin: I was following the hon. Gentleman until the very last words he spoke, because I think he means payment from the insurer of the driver, rather than from the driver.

Clive Efford: Yes.

Sir Oliver Letwin: In that case, my answer is yes. As I understand it now, I think, the insurer who has insured the person who is sitting in the driving seat will pay the third party who has been damaged in the accident, regardless of whether the person sitting in the driving seat is driving the car or the car is driving itself. That is also regardless of whether the person sitting in the driving seat is the owner of the car, insured as the owner to drive that car, or is not the owner but is insured under some other policy to drive that car. In any of those cases—whether automated or not; whether the policy covers other cars or that car—the insurer of the person sitting in the driving seat at all times is liable to third parties, and then the insurer claims from whoever it wants to claim from, and is able to claim from in court, after the fact.

Mr Hayes: I am grateful to my right hon. Friend for his helpful dialogue because it also relates the issues raised by the hon. Member for Kingston upon Hull East. The short answer to the question posed to my right hon. Friend is yes. The complicated factor that my right hon. Friend is now dealing with is that there are policies—I do not have one myself and I do not suppose many here do—where fully comprehensive insurance cover allows other people to drive. That is not the named drivers policy that most of us will probably have, but a more permissive kind of policy, and that is exactly what my right hon. Friend is alluding to.

Sir Oliver Letwin: I am grateful again to the Minister. Yes, exactly: I had been worried about two cases, one in which the person sitting in the driving seat was the

owner, and the other in which the person sitting in the driving seat was not the owner but was covered by a policy covering the driving of other cars. In both instances, I think it is clear.

The reason I am labouring these points and asking the Minister to confirm them is that I do not think that any ordinary human being reading the Bill would have the slightest clue that this is what it is trying to do. I think its architecture has been forced on it by the desire to piggyback on the Road Traffic Act; and I suspect that lawyers will understand, because they will be familiar with the Road Traffic Act and how its principles operate. Therefore, I am satisfied that probably this is the right way to structure the Bill. In any case, it is certainly structured in a way that, when everything is read together in the right way, does not create the gap that I was worried about, as the car moves between automated and non-automated mode. That was the critical issue.

Graham P. Jones: It is a pleasure to serve under your chairmanship, Mr Bailey. I seek clarity from the Minister—I know he has been reasonably descriptive up to a point—on the types of vehicles that will and will not be insured. It will probably be connected and automated vehicles, automation level 4 and 5; however, I am concerned about the size and shape of the vehicles and how the legislation will fit them in the future.

There has been an issue about insuring automated vehicles, not just on public but on private land. However, even on public land, are there situations where we might see a size of vehicle—my hon. Friend the Member for Kingston upon Hull East drives a very small electric vehicle, and there might be even smaller ones—on parts of the road network that had become accessible to new types of electric vehicle, and where we might suddenly need to reflect on the type of insurance? They may get down to the size of a bicycle, for example—I do not know—so are there circumstances or situations where the shape and size of the vehicle would have some effect? I suppose that relates to the definition of level 3 and 4 automation. I know that the Minister will produce a list in future guidance, but I would welcome a clarification from him on shape and size, how the Government see that changing and whether they will be responsive to that.

Going back to insurance on private land, this causes an enormous problem, quite apart from my earlier point about mapping. The legislation says that vehicles must be insured on public and private land—although there are some discrepancies around private land. How will this work with automated vehicles? If we multiply that by the fact that the shape and form of automated vehicles may change—they may be able to go down narrow footpaths, for example—where are the Government on the insurance system? How it will work with automated vehicles accessing private land? I am asking for clarity on this point. I do not know the answer; I am probing the Minister to see if he does. There seems to be a complex minefield of issues when it comes to insuring an automated vehicle—of whatever shape, form or function—that can wander off on to private land. There does not seem to be much clarity in the Bill on that. It seems to be hanging on the old legislation for traditional motor vehicles as we know them and how they are insured on the current road network.

Turning to automated vehicles, in particular on private land, and their shape and form, this will clearly be a challenge, so will the Minister clarify how the Government will respond? Again, I come back to the mapping issue. There will surely need to be tighter definitions of where automated vehicles go and what they are allowed to do. There seems to be no reference to that in the guidance or anywhere else. Will the Minister provide some clarity? People want to know. It is not just about the public highways, motorways, A roads and B roads. It is far bigger than that and the insurance system has to cope with insurance off-road, on private land.

Mr Hayes: By way of adding a certain excitement to the proceedings, I shall deal with the last point first, rather than reply to the points made in chronological order.

The hon. Member for Hyndburn spoke about where vehicles might be used, and the size and shape of vehicles. He was right to identify that it may be—note the emphasis on “may”—that autonomous vehicles at the beginning of their life on our roads are typically used in certain places and in certain ways. One can easily imagine a vehicle in autonomous mode travelling on a long straight road—a motorway, for example. It could be that that is the way the technology will develop. He is right to draw attention to that because it has been written and spoken about many times in the discussions about autonomous vehicles. He was also right to raise the matter of shape and size. Earlier in our considerations, we discussed vehicles other than private cars. Of course we should not assume that autonomous vehicles will simply be private motor cars. There will be other kinds of autonomous road vehicle and it may be that they will develop first, or at least in parallel with the development of private cars.

The hon. Gentleman is right that that could well be where we are heading, but the essence of his argument is that we might have to have different insurance policies to deal with those different eventualities. That will not result from the measure before us; the size and place considerations—the type of vehicle and where it is used—will be the same as in the current insurance framework, most of which is covered by the Road Traffic Act, so I do not anticipate a huge departure from existing practice.

In essence, insurance works on the basis of insuring people, to some degree taking account of what they are driving—for example, policies take account of the size and shape of vehicles. I do not imagine that that will change and nothing in the Bill suggests otherwise. I anticipate—the insurance industry told us this in evidence submitted to the Committee—that the industry wants enough certainty from the Bill to develop products that are fit for purpose. My judgment, from what we have been told, is that the industry will want such products to mirror as much as possible what is available now. Certainly that is true of where vehicles are used and of their shape and size.

Graham P. Jones: I was simply probing the Minister because the use of automated vehicles on private land is an interesting area on which the Government must be probed. I also made some other small points. I urge him to clarify whether he foresees any situations, beyond what is in regulation or statute now, where automated vehicles on private land may provide a challenge that the Government will need to look at.

Mr Hayes: I will deal with the private land point in a moment.

To re-emphasise: when we insure a vehicle at the moment, the questions we are asked by the insurer are not about where we intend to drive it—we are not interrogated about whether we will drive the vehicle on the motorway, on side roads or only in our village. That is not typically what happens with an insurance policy, although there are exceptions. Someone with a historic vehicle, for example—a classic or vintage vehicle—might well take out an insurance policy stipulating that the vehicle will only be used for a certain number of miles in a given period, paying a lower premium as a result. If people say that they will use their vehicle only on high days and holidays and that it will be driven for less than 100 miles a year, of course they will obtain a different kind of policy, often offered by a specialist provider. That, however, is an exception. As a rule, we are not interrogated about where we are going to drive, whether it be on a main arterial route or a side route, so I do not think that the insurance products that I hope are developed as a result of the Bill will, in those terms, be very different from what we have now.

That is certainly what the Association of British Insurers and others have told us. The evidence to the Committee emphasises not only the insurance industry's support for the Government proposals, but its wholehearted support for the development of autonomous vehicles. The industry sees it as critical that we get the legislation on to the statute book so that it can develop the products necessary to provide the safety and security we all seek.

Graham P. Jones: I am grateful to the Minister for giving way one last time. To pursue this matter, let us say that an accident occurs on private land while the vehicle is in autonomous mode. Does he think that the existing regulatory framework is sufficient for insurers, or that some changes will be needed for assigning liability should there be an accident on private land? An automated vehicle goes on to a large piece of private land, a track or whatever, and there is an accident, so there needs to be an investigation as to who was in the right and who was in the wrong. On private land where an automated vehicle was making its own decisions, does he not think the Government should conduct some analysis of the potential issues? It may be that no changes are required, but should not the Government consider it? People do drive on private land, and if they are going to take automated vehicles on to private land, it is a legitimate question.

10.30 am

Mr Hayes: The hon. Gentleman's specific question is about private and public land. The Bill and the products that emerge after it is enacted will follow the Road Traffic Act, which is clear about public roads and other public places. I see no distinction between what we have before us and what is in law now. Because I am not intoxicated by the exuberance of my own verbosity, I will end there.

Clive Efford: I did not hear the Minister—I must have missed it—respond to the amendments tabled by my hon. Friend the Member for Kingston upon Hull East and the issue of hacking. We are discussing amendment 14, are we not, Mr Bailey?

The Chair: I understand that Karl Turner wants to speak to new clause 18 separately.

Karl Turner: Very briefly.

The Chair: The hon. Gentleman can decide whether he wishes to make his comments then or whether they would be more appropriate later.

Clive Efford: Are we discussing amendment 14?

The Chair: Yes.

Clive Efford: My hon. Friend the Member for Kingston upon Hull East has raised an important point. There might be a whole new area of insurance with clauses in the small print of an insurance policy that require people to be covered in the event of an automated vehicle being hacked. If the manufacturer and the designer of the software that drives the automated vehicle, and the insured party who is in control of the vehicle or in the vehicle—I am not sure whether we can say in control of the vehicle now—have all taken reasonable steps to prevent hacking and the software is hacked in some way, and that affects the vehicle’s operation and causes an accident, liability inevitably falls back on the person in the vehicle at the time of the accident, as set out by the right hon. Member for West Dorset.

I can foresee a circumstance where insurers say, “Every reasonable step has been taken to prevent hacking of this vehicle, so the manufacturer of the vehicle cannot be held liable, and nor can the people who wrote the software. It is unlucky, but it is your responsibility as the driver of the vehicle, because your vehicle has been hacked and has caused an accident.” It seems a considerable liability could be taken on by drivers. We have heard a lot about the safety aspect of automated vehicles, which is bound to reduce the number of accidents and therefore the number of claims, but what we can see here is a whole new area of insurance opening up where there are different sorts of claim being made as a consequence.

I think it is reasonable of my hon. Friend the Member for Kingston upon Hull East to table an amendment requiring every step to be taken to protect the vehicles from hacking. It is right that it should be in the Bill because we need to protect consumers from that potential liability. What is the Department’s thinking? What consideration has it given to vehicles being hacked and liability in such circumstances? What are “reasonable steps” to prevent it happening? We all know that even though we have the highest level of security to protect the software or computers from being hacked, they still are. We have seen numerous examples in recent times, not least the successful hacking of some very high security systems, so we can imagine that this will present a challenge for some of those people who undergo that sort of criminal activity. It could put lives at risk and open people up to considerable liability, so I wonder what the Government’s thinking is about that.

Mr Hayes: Let me see if I can satisfy the hon. Gentleman by way of a brief intervention. I will then respond, as he invited me, to the shadow Minister when he comes to the new clause. The critical thing is to understand that an autonomous vehicle will, in practice,

be a combination of sophisticated software and technology—the mechanical components of the car and the software that drives it. If the vehicle is deemed to be liable for an accident, that might be as a result of its software being faulty or because of a mechanical failure. From the perspective of those affected by the accident, that is immaterial because even if the software had been hacked the autonomous vehicle would still be responsible; the consumer’s position does not change. The consumer is protected, as it were, from the reasons why the autonomous vehicle was responsible and whether it might be as a result of a fault in the software.

Clive Efford: If I have followed the Minister correctly, and it is distinctly possible that I have not, the situation I am describing is slightly different. He says that there will be a vehicle that is at fault, that the person who is insured to be in the vehicle will pay out initially, and that there will then be consideration of who is liable.

Mr Hayes: Yes.

Clive Efford: That is fine, but if the vehicle has been hacked, the person paying out initially is opened up to a liability even though they are not at fault because they took all reasonable steps to prevent such hacking. However, no one else accepts responsibility because they too took reasonable steps to prevent the vehicle from being hacked. It is not unreasonable to require in the Bill that every measure be taken to prevent the liability from falling back on the insured person, whose vehicle has caused the accident even though they were not at fault. How do we ensure that the liability is not dumped on the consumer?

There is also the issue of the vehicles communicating with each other. If they are hacked and are communicating duff information, who will be responsible? Considerable liability could fall on consumers. Their vehicle is the cause of the accident but they are not responsible for it because of hacking. However, they are ultimately deemed responsible because no one else will accept responsibility.

Mr Hayes: I will make the point more emphatically; I was perhaps being a bit too understated. Understatement is a problem I constantly struggle with, as my right hon. and hon. Friends know.

The simple fact of the matter is that if the autonomous vehicle is “responsible” for the accident, and its software is at fault, whether that fault be caused by malevolence or some failure, the consumer’s interest will be unaltered. In the Bill, the consumer is protected in the way I have described, regardless of why the vehicle was at fault. That will then be a matter to determine during the course of the events, but it will not affect the person or persons affected by the accident.

Sir Oliver Letwin *rose*—

Clive Efford: I give way to the right hon. Member for West Dorset.

Sir Oliver Letwin: I think this is a conversation somewhat at cross-purposes. Use of the term “consumer” by the Minister is confusing the issue. Let us distinguish between the injured party and the insured party. The injured party is protected in the way my right hon. Friend the

Minister and I have described, and the hon. Member for Eltham, my right hon. Friend and I are all in agreement that that is okay.

The hon. Gentleman is asking about the insured party. He is really asking whether anybody will be willing to buy an autonomous vehicle level 4 or 5 under circumstances in which, having taken out the insurance policy, the insurer then discovers that they are liable to some injured party. Then, having paid out to the injured party—tick—they come back to the insured party and say “Because the manufacturer had taken reasonable steps and because the hacking went on despite that, and because nobody including the manufacturer is responsible, and because your insurance policy excludes—you may not have noticed this—in the small print a hacked case, you, O insured party, are now responsible.” I hope I am correctly interpreting the hon. Gentleman.

Clive Efford *indicated assent.*

Sir Oliver Letwin: Yes, good. He is raising a serious point. I do not know whether it is about the Bill, but it is certainly a serious point about what the Bill is trying to achieve, which is to get to a situation where people buy autonomous vehicles because they are able and willing to insure themselves to own them and drive them. They would not be if they thought this was a realistic possibility. Somehow, that problem needs to be solved, whether in the Bill or otherwise.

Clive Efford: Again, I am grateful to the right hon. Gentleman. I have a feeling of *déjà vu* because he is putting my points better than I can. I have little to add to that. There is an issue there that my hon. Friend the Member for Kingston upon Hull East has raised in his amendment that the Government should go away and consider.

Matt Western (Warwick and Leamington) (Lab): It strikes me that there is potentially a grey area between the software company and their design and the hacker and where the responsibility begins and ends, and how any court or technical expertise will be able to determine where ultimate responsibility lies. A software company could readily say “We designed it. We were perfectly happy with it and there were all these protections and safeguards in place,” and they will blame the hacker, but who can determine if it was down to a hacker or the failing of the software designs? I just throw that out because sometimes these things are very difficult to determine and I am not sure where the responsibilities lie.

Clive Efford: I will finish on this point and I will not take much more of the Committee’s time. The Bill is designed to ensure that the injured party is paid out swiftly in the event of an accident, with blame subsequently apportioned either through agreement or by a court. In this case, however, there is another consumer—the insured party—who could be open to enormous liabilities through no fault of their own where nobody else can be found to be at fault because they have taken all reasonable steps. There is a grey area, as my hon. Friend has just said, where the Government need to go away and give that some further consideration.

Mr Hayes: It seems to me that we are risking going on a flight of fancy by trying to anticipate exactly what the insurance products that develop as a result of this legislation will look like. My right hon. Friend the Member for West Dorset described a policy that might qualify the protection offered in the way that he set out. We cannot, at this juncture and certainly not in debating this Bill, start a debate about what those policies might look like down the line.

The essence of the Bill is that the insured party will only potentially be liable if they are responsible and the insurer does not cover that risk. If someone deliberately failed to maintain their vehicle, deliberately failed to update their software, even interfered with their software for some reason I cannot imagine, clearly there would be an issue of responsibility. The important thing is that the debate that takes place on why the vehicle failed—assuming it is an autonomous vehicle—is one that the individuals concerned should not have to know about unless there is a palpable reason for their doing so, because of the negligence or even malevolence that I describe.

We could have a long debate about the kind of insurance policies that might emerge. I am not an expert on insurance and I do not know if there are any in the room.

10.45 am

Craig Tracey *rose—*

Mr Hayes: My hon. Friend is going to offer the expertise that I have admitted I lack.

Craig Tracey: The set of circumstances described by the hon. Member for Eltham actually exists in current insurance. If someone had a car that was parked up and somebody else stole it, drove off in it and hit a row of parked cars, then for insurance purposes the onus is currently on the owner of the vehicle. The whole point of insurance is to protect the insured person against unforeseen circumstances, and hacking would come under that process, because we do not presently know how it could affect the systems.

Mr Hayes: One of the delightful things about the House of Commons, and indeed about Committees such as this, is that there is always expertise that one did not know about previously and that emerges as a result of the discourse. I am grateful to my hon. Friend for his expert advice on that particular subject. The point raised by the hon. Member for Eltham is that he wants to be certain that an innocent party is not adversely affected by the development of products that do not afford the same kind of protection that people now routinely rely upon.

I share the hon. Gentleman’s view. My view is straightforward: it would be intolerable for a situation to develop in which people, through no fault of their own, and with no negligence or irresponsibility in what they have planned or done, were to find themselves uninsured because of the development of some perverse policy. In the end, that is a matter for the insurance industry, but I have made my views clear and put them on the record, and they reflect the views of the hon. Gentleman and my right hon. Friend the Member for

[*Mr John Hayes*]

West Dorset, who, among his many distinguished and eminent achievements, has today added another: becoming a spokesman—or perhaps I ought to say the interpreter—for the hon. Member for Eltham. And so it is that such unions are formed in Committees such as this.

Karl Turner: I want to speak briefly to new clause 18. Before doing so, I want to put on record my thanks to the Minister's officials for the work they have done with my office. They have been extremely helpful.

New clause 18 covers the issue of cyber-security and the hacking of automated vehicles. It would require the Secretary of State to consult with such persons as he considers appropriate within 12 months of the Bill receiving Royal Assent. I am not planning to push the new clause to a vote; its purpose is mainly to probe a little deeper to ensure that the Government properly and widely consult in this area. I would be grateful if the Minister indicated how that has already been done. I know that a great deal of work has gone on behind the scenes; will he assist the Committee by setting out who the Department has consulted with thus far?

Sir Oliver Letwin: I actually do not think that this matter can be dealt with in the Bill, but I agree with the shadow Minister that we should seek an assurance from the Government that they will spend the time that needs to be spent, once the Bill is out of this House, trying to deal with what is a very, very big problem.

It is easy to imagine that this is just science fiction, but it is not. It is more than imaginable that, as part of the convergence of networks and as the transport system becomes automated, the single biggest security vulnerability of the UK—and, while we are at it, of any other advanced economy—will be the ability of state or non-state actors to intervene in a whole series of its convergent networks. Obviously, there may also be threats from exogenous things such as space weather, which may affect convergent networks, including electricity, transport, communications and so on, but state actors and some non-state actors are employing serious and highly developed methods to intervene in our cyber-security, as the Government are well aware.

The capacity to do damage to the UK by bringing the transport system to a grinding halt, amidst thousands or perhaps hundreds of thousands of simultaneous crashes, is a delicious prospect. I absolutely guarantee the Minister, although I am sure that he does not need my guarantee to believe it, that someone sitting somewhere—if not several people sitting in several places—is planning that kind of offensive cyber-activity at this very moment. Many of those people have access to many of the people who will be involved in developing the software that will be used in the very machines that we want to be used on our roads.

That is an irony of the globalised world. This is not like the 18th century, when people sat behind huge national barricades and we did not use their technologies but they tried to use them against us. We are now in a position where the people who may use our technologies against us supply some of those technologies to us. That creates a degree of risk out of all proportion to anything we have witnessed before. I am a believer in automated

vehicles—I do not think that we can resist this trend—but we need to ensure that an immensely higher level of cyber-security is built in from the start than we might think necessary under other circumstances.

I want to make one further point. This is one of those cases where externalities will not be internalised. It is not in the interests of particular manufacturers to worry very much about this issue. If I am a specific manufacturer of a specific automated vehicle, my interest is in producing something that is good to drive, cheap and normally safe, because that is the way I will sell the maximum quantity of it. If somebody tells me that I could make it safer from hacking, which is unlikely to occur, in the sense that there is a one-in-1,000 or one-in-10,000 or whatever chance of it being hacked, by making it significantly more expensive, my natural and commercial response will be not to add that protection, because it would make me less competitive. I am not particularly worried that Britain may be brought to a halt, because I am not Britain; I am a manufacturer, and I am answerable to my shareholders, not to the electors of the UK.

There is a clear area of intrinsic market failure here, where, however pure a free marketeer one is, Adam Smith principles apply and it is for the state to ensure that the externalities are internalised by legislating or regulating, or by reaching agreement with manufacturers. As I say, I do not believe that the Bill can be the vehicle for creating a whole new structure of invigilation of the cyber-security standards of automated vehicles, but the Minister, in conjunction with Ministers in parallel positions in other jurisdictions, needs to get to work on that rapidly. If that is not done, the Bill will be useless, because it will provide a framework for something that no rational Government will ever allow to occur.

We cannot allow the UK's transport system to be put in peril by being easily accessible to hackers in a way that could cause hundreds of thousands of accidents simultaneously. It is a necessary concomitant to the Bill that there should be a serious attempt to create that degree of universal cyber-security for level 4 and level 5 vehicles. I hope that the Minister will be able to tell us that he is at this very moment getting the plane tickets to go and talk to all the other relevant Ministers and set up the international systems required to do something similar to the protocols that govern the GSM standard, which make it not unhackable, but much less hackable than previous mobile systems.

Mr Hayes: Perhaps I should say a word now about my personal and professional relationship with my right hon. Friend, in as much as it relates to what he has just said. When we worked together in Downing Street, we discussed these kinds of issues many times. I was the Minister responsible for cyber-security at the Home Office, and I take what he and the shadow Minister said very seriously indeed. My right hon. Friend is absolutely right that cyber-security is a pressing, present and immensely great threat. It is vital that the work on this technology, like all the work we do across the House and across Departments, takes account of the scale and nature of that threat and that it does all we can to counter it. My right hon. Friend was involved in that at the Cabinet Office.

On a more personal note, I am not surprised that my right hon. Friend raised the issue. I am rather more surprised that he—with an absolute, but none the less

surprising, frankness—emphasised the limits of the market and the constraints on commerce, because he has always been more inclined to a liberal perspective than I am. But then again, who is not? I know he is a great admirer of the power of the markets to shape our futures, so I am delighted—perhaps it is my influence or that of his dear late mother, who, I think it is fair to say, was more on my wavelength on these subjects—that he has been encouraged to take the view, which he has articulated so forcefully and persuasively today, that the industry will not do this alone. It is right that we should work in partnership with the industry. The Government must take their place and have their influence in that respect, and that brings me to new clause 18.

If anything, I regard new clause 18 as an understatement of how significant the issue is. If it were accepted—although I am grateful that the shadow Minister has said he will not press it to a vote—it would impose a requirement to consult on security risk. I do not regard that as a requirement; I regard it as an obligation. It is absolutely essential that we do that. The work that we are already doing, which he asked me to briefly summarise, is advanced but ongoing. We are working with UK security agencies, the Centre for the Protection of National Infrastructure and the new National Cyber Security Centre—which was set up while I was the Minister responsible, by the way. This issue is a real challenge for Government and for Parliament. It stretches well beyond any particular Government or political party, as has been made clear by what has been said. We will need to engage directly with industry and raise awareness.

We are already discussing the issue with industry. As part of that, we have consulted, developed and published a document, “The key principles of vehicle cyber security for connected and automated vehicles”. It is a guidance document for the automotive industry on good cyber-security and the connected and automated vehicle ecosystem. I do not know whether the Committee has access to that, but I will happily make it available in hard copy form. It is available electronically, if Members wish to take a look. We have also set up the automotive information exchange to promote the sharing of intelligence and best practice for effective cyber-security across the industry.

This issue has been identified as a top priority by the new National Cyber Security Centre. The work will continue and our understanding of how we can counter the risks will grow; but more than that, I would say—as a result of the contributions from my right hon. Friend the Member for West Dorset and the hon. Member for Kingston upon Hull East—that we should consider seeking additional powers over time. I do not think that this Committee is the right place to debate that, or indeed that the Bill is the right vehicle to bring those powers forward, but a commitment to considering additional powers, should they become necessary, is an important one to make. Furthermore, I think my right hon. Friend is right: we need to ensure good cross-governmental work on this. I will take that away, because a further dialogue across Government is necessary. It is happening, but we can always do more, and when it happens at ministerial level, as he will know from the meetings we have had over time, a great deal can be achieved rather more quickly.

11 am

Clive Efford: The Minister says that the Bill is not the appropriate place for us to legislate on that, but that is exactly what new clause 18 says. It says that consultation should happen separately from the legislation and really only sets the timescale. On that basis, will he accept new clause 18?

Mr Hayes: I charged my right hon. Friend the Member for West Dorset earlier with being the hon. Gentleman’s spokesman and interpreter, but now the hon. Gentleman has put the boot on the other foot. He added further sophistication to my right hon. Friend’s argument in his last contribution. He is right that the Bill begins to address this issue; the point I was making is that, given the ongoing work I described through the agencies I mentioned, it would not be right to set that out in further detail in the Bill. I am arguing against an addition to the Bill, rather than what is in the Bill already.

There is another aspect to this that I want to add. It is very important that we work internationally. Of course, many of the manufacturers are, by their nature, multinational organisations that therefore work across national boundaries. We talked earlier about the development of standards, and how that is happening at UN level and as a result of international dialogue. There is an international dialogue as well on cyber-security, and it is important that we marry our conversations on vehicle standards with our conversations on cyber-security, to ensure a synergous approach to the two.

With those commitments, that absolute assurance of the Government’s understanding of the significance of this matter and my heartfelt support for the strength of the argument made by the shadow Minister and my right hon. Friend, I am delighted that the hon. Member for Kingston upon Hull East will not push his amendment to a vote. We will report back further as time goes on. I will commission the work across Government and, as I have said, I will make available to the Committee some of the documents we have already published.

Sir Oliver Letwin: Before my right hon. Friend sits down, and at some risk of adding to the antipathetic relationship with the hon. Member for Eltham, I wonder whether he will also consider clause 1(1)(b). At the moment, it gives the Secretary of State the power to list vehicles capable of “safely driving themselves”. It might be appropriate to consider changing that to “safely and securely driving themselves”, or making some such other amendment, to ensure that he has the power already in the Bill when making the list to include on the list those vehicles that conform with whatever set of standards for cyber-security he eventually develops as a result of the work he is talking about.

Mr Hayes: Every member of the Committee should cherish the moment they are about to enjoy, because I accept that proposal and I will consult with my officials on making a minor and technical amendment to that effect, barring any absolute reason why it cannot be done. If we are advised by parliamentary draftsmen that it cannot be done for any reason, we will not, but barring that exception, I will do exactly what my right hon. Friend has described.

Karl Turner: I have listened very carefully to what the Minister had to say and to the discussion between right hon. and hon. Members from both sides of the Committee. I am satisfied that the Minister will do everything he can to achieve what the amendment hoped to achieve. I beg to ask leave to withdraw the amendment.

Amendment, by leave, withdrawn.

The Chair: My instinct is that the issues in clause 7 have been fully debated, so I will now put the Question.

Clause 7 ordered to stand part of the Bill.

Clause 8

DEFINITIONS

Question proposed, That the clause stand part of the Bill.

Mr Hayes: As we move to a new part of the Bill, it seems important to say a few words of introduction about it. The first part of our consideration was dedicated to gaining a clearer understanding and addressing the provisions in the Bill that relate to autonomous vehicles. The second part of the Bill, which we come to now, deals with electric vehicles and in particular electric charging infrastructure. With your discretion and indulgence, Mr Bailey, perhaps I may say why that matters.

It matters because the Government are committed to promoting low emission vehicles. I have always argued that that is not because of a high flown view about what might happen to the climate in centuries to come; rather, it is much more about the effect of particulate materials, which are the result of petrol and diesel vehicles and which have a day-by-day, here-and-now effect on the wellbeing of our people. I have no prejudice about this, as is well known. I made the point on Second Reading to my right hon. Friend the Member for East Yorkshire—who as ever made a passionate but measured case for those older vehicles that we enjoy on our roads—that we certainly would not want to prohibit

their use. However, the Government are clear that by 2050 we expect new vehicles to be low emission vehicles. That will very largely be achieved by promoting and encouraging the use of electric vehicles. Our approach has always been technology-neutral, but electric vehicles are bound to be an important part of achieving our ambitions.

The reasons cited for why people do not buy electric vehicles in greater numbers now—I ought to caveat that by saying that their number is growing impressively—range between, first, the cost, which will to some extent be a feature of their number: as more are sold, the more the price will fall. Secondly, there are doubts about the battery technology and battery life. That is improving as battery technology moves on apace, with good work being done to improve the quality of the product. Thirdly, there is the availability of charge points. Most people, of course, charge at home, but people want to be able to charge away from their residence. As a result, in the Bill the Government are doing more work to put in place provisions that will allow the development of more charge points around and about the United Kingdom.

That is what the clause begins to do, by providing definitions of electric vehicle charging and in particular a precise definition of what a charge point is, as well as what a hydrogen refuelling point is. It goes further and defines a public charging point. It is important that those definitions are set out clearly, so that the effect of the power matches the intent and the intent of the power is made clear to the public. Clearly, any other, more detailed definitions can be set out later in secondary legislation, but in essence this part of the Bill is about defining electric charge points and, in later clauses, which I look forward to debating, going about the business of how we can increase their number.

Question put and agreed to.

Clause 8 accordingly ordered to stand part of the Bill.

Ordered, That further consideration be now adjourned.—(Andrew Stephenson.)

11.10 am

Adjourned till this day at Two o'clock.

PARLIAMENTARY DEBATES

HOUSE OF COMMONS
OFFICIAL REPORT
GENERAL COMMITTEES

Public Bill Committee

AUTOMATED AND ELECTRIC VEHICLES BILL

Sixth Sitting

Tuesday 14 November 2017

(Afternoon)

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CLAUSES 9 TO 15 agreed to.

Adjourned till Thursday 16 November at half-past Eleven o'clock.

Written evidence reported to the House.

No proofs can be supplied. Corrections that Members suggest for the final version of the report should be clearly marked in a copy of the report—not telephoned—and must be received in the Editor’s Room, House of Commons,

not later than

Saturday 18 November 2017

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The Committee consisted of the following Members:

Chairs: MR ADRIAN BAILEY, † SIR EDWARD LEIGH

- | | |
|---|---|
| † Argar, Edward (<i>Charnwood</i>) (Con) | † Mann, Scott (<i>North Cornwall</i>) (Con) |
| † Brown, Alan (<i>Kilmarnock and Loudoun</i>) (SNP) | † Rodda, Matt (<i>Reading East</i>) (Lab) |
| † Duffield, Rosie (<i>Canterbury</i>) (Lab) | † Stephenson, Andrew (<i>Pendle</i>) (Con) |
| † Efford, Clive (<i>Eltham</i>) (Lab) | † Stewart, Iain (<i>Milton Keynes South</i>) (Con) |
| † Foxcroft, Vicky (<i>Lewisham, Deptford</i>) (Lab) | † Tracey, Craig (<i>North Warwickshire</i>) (Con) |
| † Hayes, Mr John (<i>Minister for Transport Legislation and Maritime</i>) | † Turner, Karl (<i>Kingston upon Hull East</i>) (Lab) |
| † Jones, Graham P. (<i>Hyndburn</i>) (Lab) | † Western, Matt (<i>Warwick and Leamington</i>) (Lab) |
| † Kerr, Stephen (<i>Stirling</i>) (Con) | |
| † Knight, Sir Greg (<i>East Yorkshire</i>) (Con) | Farrah Bhatti, Mike Everett, <i>Committee Clerks</i> |
| † Letwin, Sir Oliver (<i>West Dorset</i>) (Con) | † attended the Committee |

Public Bill Committee

Tuesday 14 November 2017

(Afternoon)

[SIR EDWARD LEIGH *in the Chair*]

Automated and Electric Vehicles Bill

Clause 9

PUBLIC CHARGING POINTS: ACCESS AND CONNECTION

2 pm

Karl Turner (Kingston upon Hull East) (Lab): I beg to move amendment 3, in clause 9, page 6, line 22, at end insert—

“(4) The Secretary of State must consult charge point operators and vehicle manufacturers on the prescribed requirements for connecting components (before regulations under subsection (1)(b) are made).”

This amendment requires consultation with charge point operators and vehicle manufacturers on the requirements for connecting components for the charging of electric vehicles.

It is always a pleasure to serve under your chairmanship, Sir Edward. The amendment requires consultation with charge point operators and vehicle manufacturers on the requirements for connecting components for the charging of electric vehicles. As the Bill is currently drafted, the Secretary of State has the power to make regulations in relation to the components of charging points. What the Bill does not do is define what criteria will be used or who will be consulted when making that decision.

The Bill presents a significant opportunity for the UK to lead globally in encouraging uptake of electric vehicles. Making the most of that opportunity will require action in a number of areas. One is the availability and interoperability of charging points. As Members will know, there is some concern about differing design standards for charging points. Those Members, such as myself, who have electric cars, or know constituents who do, will know how frustrating it is to come to a charging point when there is no common universal standard. It is extremely annoying to pull up, try to plug in and then, all of a sudden, realise there is no opportunity to charge. It is important to avoid the situation in which vehicles have a wide range of different connecting components because they will have to be reflected on forecourts. A wide range of different connecting components will be absolutely impractical and create confusion, as we have already discussed. The amendment would require the Government to consult charge operators and vehicle manufacturers on these vital infrastructure decisions.

Sir Edward, I do not intend to press the amendment to a vote. Its purpose is to probe a little deeper to ensure that the Government consult properly and widely on the final form and implementation of those connecting components, specifically consulting recharge point operators and vehicle manufacturers.

Sir Oliver Letwin (West Dorset) (Con): My main purpose in speaking to this clause and the amendment is to raise the same broad issue that I tried to raise on Second Reading. I have had a chance since then to talk to some of those involved in various elements of the industry and I am reaffirmed in my view that the scope of the regulations proposed in clause 9(1) and 9(2) is too limited.

It is clear that, if we take clauses 9 and 10 as a whole, they miss out a very important, critical element of the scene, without which we will not succeed in engendering the spread of electric vehicles that we seek. That is the assembly—many thousands in the one case and many hundreds of thousands in the other—of apartment blocks on one side and homes on the other side that do not have off-street car parking. In my own constituency, a very large proportion of the population does have off-street car parking because it is a rural area. Many suburban areas fall into the same category, but in our major cities there are many people who live in homes that do not have off-street car parking. Except at the very top end of the market, almost all people living in apartment blocks do not have full off-street car parking that is particularly associated with them. There may be a place where people park but it is not one that can be guaranteed to belong to a Mr or Mrs X. At the moment there is nothing in the Bill that mandates any off-street car parking under either of these circumstances.

My right hon. Friend the Minister may say, as he is wont to do in the Committee, “This Bill is only the beginning.” Yes, but it needs to be a beginning that is sufficient to bring about the largest part of what we seek to achieve. I urge him to talk to his colleagues in the Department for Business, Energy and Industrial Strategy to work out how, in connection with the clean growth strategy, he can provide, probably in the other place rather than on Report, although either would do, an amendment to clauses 9 or, conceivably, 10, or even a new clause, to provide powers for a Secretary of State—probably the one for Business rather than the one for Transport—to ordain that district network operators have to install off-street parking on some rational basis.

Clearly, a lot of consultation is needed with the manufacturers of the relevant equipment, as the shadow Minister said, but principally with the utilities themselves—the district network operators—to work out the best way through that. My feeling when I was involved in this as a Minister was that there is a great deal of difference between taking this in marginal steps as streets are being broken anyway for the purpose of repair or expansion of the network, and doing it all at once. Asking the DNOs to put in off-street car parking on all city streets and for apartment blocks that have not got it and where parking is permitted would be expensive and overplay what is needed in the first year or two. It is doable, but it is excessively costly for the consumer of electricity on whom the cost would fall—assuming it was allowed into the regulatory asset base, which it obviously needs to be. If, however, it is a programme of work that proceeds as streets are broken—I have done a little investigation, although the Minister’s counterparts in BEIS will be able to do much more, which suggests that over about a 10-year period almost all city streets would be able to have off-street charging installed at the same time as works went on—there will obviously be a marginal cost, but it is small.

I made an error in my remarks on Second Reading, because I thought at that time that the rational way to do this was to provide for fast charging off-street through what *Hansard*, with a delicious benevolence, transcribed as “free-phase charging”. That is a lovely idea, but I hope what I actually said, and I certainly meant to say, was 3-phase charging, which is fast charging. I thought that would be necessary off-street to provide for people to come home from work, charge off-street and then set out for supper or whatever. I have now been told by three different groups of manufacturers, so I begin to believe it, that that is not judged to be necessary and that low-voltage charging would do. That is because, in experience so far, almost everyone who engages in off-street parking or indeed any kind of charging at home does it overnight, in which case low-voltage does perfectly well.

That makes the proposition I am making considerably cheaper. If it is just a question of putting in lamp posts and bits of street furniture that have plugs, it is not complicated. It would be much aided if what the shadow Minister is requesting happened and there was a universalised plug system—but in any event it is perfectly doable at reasonably low cost if done over a period when streets are being broken anyway. If that does not happen, we will not see anything like the spread of electric cars that we would otherwise see, because about half the population does not have access to off-street parking, so it is a very important thing to do.

I want to anticipate one thing that I know from experience the Minister will be told by people in BEIS if his officials ask its officials. That is why I ask him to talk directly to our mutual friend, his counterpart Minister there, about it. He will be told that it is okay because Ofgem has powers within its current regulatory regime to modify licences in order to bring this about and it has powers to allow things to be charged to the regulatory asset base. Those propositions happen to be true, but I do not think that they are a good basis for not taking the power, because the next thing, which the Minister may or may not be told but is also true, is that Ofgem is an independent entity and one cannot guarantee that it will actually use the powers, because if we look at its duties in the underlying primary legislation, we see that it does not have the duty to promote the use of electric vehicles. It may interpret its duties to the electricity supply industry, in terms of balancing and economics, as meaning a large amount of renewables and the prospect of a large battery for the nation residing in its cars. It may interpret its duties as meaning that it ought to do this, but it might interpret its duties differently. It may say that the electricity consumer should not have to bear this cost, and therefore I think that Ministers need the powers directly. They may well never need to exercise them, because they may be able to say to Ofgem, “Look, we have a regulation-making power here. Rather than us using it, why don’t you just enforce this?” But one way or the other, I think that the power should be taken, and it could be taken in a form that allows a very moderate, slow roll-out over, say, a 10-year period. That would broadly do, because I do not think any of us imagines that tens of millions of our citizens will have these kinds of cars 10 years from now. We want there to be able to be tens of millions of our citizens with these cars 20 or 30 years from now, so it would do if this was done gradually as streets were broken.

I hope that that is clear and the Minister is willing to consider it, in conjunction with BEIS, between now and the final passage of the Bill through the other place.

Iain Stewart (Milton Keynes South) (Con): I rise briefly to seek the thoughts of my right hon. Friend the Minister on clause 9(2), which deals with the potential regulations covering the payment methods for charging points. During an evidence session, one of the most powerful pieces of evidence that we got was from Robert Llewellyn, who pointed to the chaotic situation that existed in California and Ireland, where different providers had different payment cards and methods and there was no standardisation until they legislated for it. My reason for speaking is to hear a little more about what the Minister intends under clause 9(2). Is it his intention to seek a common payment mechanism, and if so, is the current wording of the clause sufficient? The evidence that we had from Robert Llewellyn was that the industry itself will not come up with a common payment mechanism and that will require Government intervention. The Minister may argue, and I will be perfectly happy to accept, that the clause as drafted does it, but perhaps he will wish to consider a slight alteration in the wording to set out that expectation.

Matt Western (Warwick and Leamington) (Lab): I want to amplify the points made by the right hon. Member for West Dorset in talking about the opportunity we have—I think he was saying this—to be more ambitious and to mandate more for the provision of public charging points on our streets, and the challenge that we face particularly in urban areas. Many of us will appreciate the financial pressures that local authorities are under, and we need to look at introducing LED street lights, whereby we invest in order to save in the budgets employed by councils in the provision of street lighting. Linked to this is a huge opportunity for those authorities to invest in and provide street charging points, and for electric vehicles. I want to broaden the thinking. We are talking in the main about electric cars—that is the mindset we are focused on. However, particularly in urban areas, other forms of electric mobility will offer us a huge opportunity. We need to be cognisant of that, especially electric bicycles—I think that will be a huge growth area.

2.15 pm

Sir Greg Knight (East Yorkshire) (Con): Does the hon. Gentleman agree that the private sector will undoubtedly play its part in providing charging places? I am thinking in particular of pubs, which are always looking for ways to increase their takings. In Yorkshire there is one pub, near my constituency, which has introduced three electric charging points that are there now, ready for use. Many supermarkets have their own car parks, and it seems to me natural for a supermarket to start providing charge points in their car parks.

Matt Western: I totally agree. There is an opportunity both for the market and for authorities to seize this. It is really about showing leadership and ambition in the sector.

Stephen Kerr (Stirling) (Con): I am thinking about the planning implications of all this for the provision of off and on-street charging points. Do we need to think more widely and, again, more ambitiously, in terms of stipulations that surround planning permissions?

Matt Western: Planning is not my specialism, but I agree that that does come into it, as we recognise what the opportunity is. I think that in China there is already significant progress in electric mobility. Certain cities are adopting this in its entirety. Of course, they are starting from a green field to develop these new eco-cities. It is within our remit to consider these things and to think about planning new elements under local plans that are going through many of our local authorities right now, and how that might be provided for. It is something that we need to do now. Perhaps I can only speak from a Warwickshire perspective, where I know there is a wholesale plan. The right hon. Member for West Dorset spoke about the renewal plan—the accelerated plan to start putting in LEDs and all sorts of other street furniture. It is a terrific opportunity. If we put the framework in place we could help to accelerate, if the Committee will excuse me using that term, that introduction, which would be a very healthy one.

The Minister for Transport Legislation and Maritime (Mr John Hayes): What a delight to sit under your chairmanship again, Sir Edward, to participate in this exciting exchange of views. As I mentioned informally earlier, we moved from autonomous vehicles to electric vehicles apparently seamlessly, but with equal determination and diligence.

This clause provides powers to improve the consumer experience for gaining reasonably straightforward, easy access to all public charging infrastructure, regardless of where motorists are driving in the UK. The aim is essentially to improve confidence in the purchase and use of electric vehicles, which in itself is part of our efforts to reduce emissions by encouraging people to buy those vehicles that emit fewer NOx things. We spoke earlier about particular material, the effect it has on human wellbeing and our determination as a Government to take action to counter its effects.

At the moment drivers face myriad different charge points, as we have heard in the course of the debate. I suppose that partly because the industry is developing, the technology is evolving. Like all technological change in its first phase, a variety of different options is still available to the consumer. Perhaps that is the inevitable consequence of the early stage of the development of technology. Usually technology settles around a few common standards and often around a single common standard. That may be the natural consequence of a rationalisation in the market.

I had an interesting conversation about two pervasive and—by the fact that they are widely believed—apparently persuasive myths with two members of the Committee over lunch, not from the Government side, by the way. The two myths we discussed were the misconception that the market would necessarily and automatically settle these matters itself. That is not my view. The second myth was that all technological change is, by its nature, intrinsically efficacious. That is not my view either. It is a lazy assumption that all change is for the better and an even lazier one that all technological change, by its very nature, because it is exciting, fresh and enthralling, must be in the interests of the people. That is not so. It is our job to ensure that these things are encouraged where they are indeed virtuous but constrained where they are not, and, as my right hon. Friend the Member for West Dorset and others have

mentioned, to shape change for the best effect. That is precisely what the Bill tries to do with electric charge points.

I have many notes ahead of me, some of which I will use and some of which I will not because I want to address directly the points that have been raised. There seem to be four points. The first point is about access to charge points and making that access, as I described it a moment ago, straightforward, readily available and widely understood. That is not the case now, as the shadow Minister said of his own experience as an electric car driver. The Bill creates powers for us to achieve what I think he wants. The powers will be sufficient to allow us to define a single means of access and to link to that a single payment method. The problem at the moment is not only about interoperability—although it is about that—it is also about how you pay. Some power points are paid for in advance, some are pay-as-you-go. There are different systems; some are paid by card. There are different payment methods, which adds to additional doubts—for the purposes of *Hansard*, that was alliterative; it was tautological as well as alliterative, to be precise, Sir Edward.

The Chair: I am afraid the Minister cannot rewrite *Hansard*.

Mr Hayes: Quite. I know the *Hansard* writers are wonderful people.

The aim of the Bill is to create greater clarity and consistency about access and payment. We are confident that the powers are sufficient to do that. It is necessary to consult the industry on this and I commit to doing so. We want to do this as much as we can as a result of that collaborative, co-operative dialogue, but we will take powers as necessary to provide the certainty that we all seek. That seems to me to be important and urgent and it is very much in tune with what the shadow Minister said.

The second point made by my right hon. Friend the Member for West Dorset was about the location of charge points in those places where it is less straightforward and where there is not easy access.

Matt Rodda (Reading East) (Lab): I thank the Minister for giving way and for mentioning our brief conversation at lunch time; it is very good of him. On his point about the location of charge points, as someone who represents a constituency with poor quality air—we suffer greatly from air pollution in Reading, as do many other urban areas, even relatively small or medium-sized ones—I not only commend his interest in encouraging charge points but urge him to speak to his officials and other partners, including the industry and local authorities, to see whether areas with air pollution problems can be prioritised as we roll out this new technology. Residents in those areas would be very grateful and appreciative if thought were put into whether that is possible.

Mr Hayes: The hon. Gentleman, with great courtesy, gave me notice as part of the civilised conversation we had at lunchtime that he would raise that very point. When he mentioned it to me informally, I said that it was an interesting thought. It is not incompatible with the zonal approach we have taken to air quality. As he

knows, we have developed an approach that focuses on areas that are particularly severely affected by poor air quality. I cannot give a definitive commitment to do exactly what he says, but I am certainly prepared to think about it. It would not be out of tune with the Government's approach; as well as raising the quality of air for everyone, we have done extra work in parts of our country—typically urban places—that are particularly badly affected. I think he can take that as a small win, in that he has made his point, which I have acknowledged and committed to going away to think about more.

My right hon. Friend the Member for West Dorset made a point about existing powers. He will be aware of the powers granted by the Alternative Fuels Infrastructure Regulations 2017, which I think he referred to. They have just been introduced in the UK and will go part of the way to solving the problem. Those regulations require that all charge points offer ad-hoc access without requiring people to have membership, as some existing systems do. They are about creating the greater consistency that he seeks.

In a former life I was the Energy Minister, and I remember dealing with Ofgem and others, as my right hon. Friend will have done in the roles that he has had. I hear what he says about the practical business of ensuring that the appropriate powers are employed in the way that we seek, and I will think more closely about that, too. It might be necessary to do that in primary legislation in the way that he described, but there may be other ways of achieving that end, and I want to give it further consideration.

It is certainly essential, if we are going to make this multiplicity of charge points as widely available as possible, to address the issue of off-street charge points. As my right hon. Friend and others will know, some local authorities have already made progress in that regard. I am delighted to be able to tell the Committee that just this weekend, London boroughs took the lead. Wandsworth approved a plan to convert all lampposts so that they have charge points, which is notable and important, and Kensington and Chelsea announced the conversion of 50 lampposts as a first step to converting all its lamp posts. So, there is some progress in London.

Sir Oliver Letwin: It is indeed encouraging that those things have been done, but does my right hon. Friend agree that the scale of the ambition is wholly different? Fifty charge points is fine, but I am talking about something like 10 million. I think that I am right in saying that there are about 20 million cars in this country, so about 10 million will be owned by people in places where there is off-street car parking. I do not think that local authorities, Ofgem or utilities companies have got the idea at all that we need to build the infrastructure far in advance of the cars if we are ever going to have the cars. That is why I beg him to consider primary legislation that puts it beyond doubt that Ministers could, if necessary, just make this happen wholesale. That way, they will probably avoid ever having to use those powers.

Mr Hayes: Well—

Graham P. Jones (Hyndburn) (Lab) *rose—*

2.30 pm

Mr Hayes: Before I give way, I will quote Ruskin. I know that the hon. Gentleman will want to be informed by that before he contributes. Ruskin said:

“Quality is never an accident. It is always the result of intelligent effort.”

The effort required is of a scale and of the kind that my right hon. Friend the Member for West Dorset mentions. I shall be able to offer extra, exciting news in a few moments.

Graham P. Jones: I am more likely to quote Rousseau than Ruskin. To take the point made by the right hon. Member for West Dorset and talk about it practically, in my constituency 50%-plus of properties are terraced and the lamp standards are set back, not kerbside. That causes a difficulty, because even if we were to fit charging points, we would still have trailing wires. We therefore have all sorts of issues about how we interconnect a property with the kerbside when the lamp standard is set back towards the property, not the road.

By 2040, of course, all vehicles will have to be electric vehicles. The houses will still be there—we are not going to demolish or reconstruct them—so there will have to be a process of adaptation between now and then. The right hon. Member for West Dorset was talking about 10 million charging points and 20 million cars, and I do not think he is too wrong. Who knows? With smaller vehicles, there may be more vehicles than that. How does the Minister envisage resolving that?

One thing the Minister could do, though it would not bridge the problem of open wiring and cabling from a property to the kerbside, is on parking bays. One of the problems in terraced areas will be the competition for parking outside. If a person has a charging point on their property, with the Government having alleviated the problem of cabling across the kerbside, they still have the problem of accessibility when they come home. The Government need to consider how the charge is transferred from the property to the roadside and how to prioritise, because someone who has just bought an electric vehicle will want to be able to park outside their house to connect the cable up at the shortest point. Those are issues the Government need to consider. When we look at the scale mentioned by the right hon. Member for West Dorset and where the volume of terraced properties is like mine at 50%-plus, we see there is a major challenge for the Government.

Mr Hayes: Yes, and one might say, paradoxically, that the challenge is both urban and rural. In many urban areas, people may not have convenient roadside parking, while in many rural areas people may live remote from main arterial routes and therefore major retailers. The Bill mentions major retailers, and I want to deal with that in greater detail. The point was made by the hon. Member for Kilmarnock and Loudoun in considering the previous incarnation of the Bill—the first Bill that dealt with these matters, which never came to fruition because of the general election—that rural areas in the north of England and Scotland and elsewhere could be disadvantaged if charging points are focused on main routes and urban places. I want to deal with that in my remarks and the subsequent actions I take.

The hon. Member for Hyndburn is right that there is a technical challenge in making sure that the infrastructure is in place to deliver the charging points. There is also

[*Mr John Hayes*]

the planning challenge. My right hon. Friend the Member for West Dorset describes the efforts of Wandsworth and Kensington and Chelsea as just the beginning. Those were not his words, but I want to ensure that no one felt he was being critical of those brave local authorities.

Yesterday, I met the Secretary of State for Communities and Local Government and discussed this with him. In two respects, planning is critical. It is very important that we ensure that, first, electric car charging points are part of any application for new housing—an implicit part of new developments—and secondly, in respect of local authorities, we achieve greater consistency in the provision of charging points for the very reason that my right hon. Friend gave. The numbers involved require all local authorities to consider them and act on those considerations, or we simply will not get enough charging points—or, just as seriously, we may get them clustered in certain places and absent in others. That will not build the confidence we require to encourage the purchase and use of electric vehicles.

Clive Efford (Eltham) (Lab): I agree with the principle that we need to expand the infrastructure as quickly as possible to create the space for the development of these vehicles. However, when we legislate for these things, as we must, there is the risk of hidden consequences. For instance, in an area where there is a high demand for kerbside parking spaces, particularly in central London, if these parking spaces are exclusive to electric vehicles that reduces the number of spaces for other road users. That may be one of the reasons why some of the boroughs in central London are resistant to creating large numbers of spaces, because they are going to lose the revenue from the car parking on the kerbside and the parking meters. These are the hidden consequences and we have to consider how we roll this out, because it could inconvenience a great many people. It certainly would in my constituency.

Mr Hayes: Yes. It is possible, as the hon. Gentleman says, that there could be contradictory needs, and incentives and disincentives such as those which he describes. We need to be careful about how we put in place those additional requests and requirements. That is about the conversation we will have with the Department for Communities and Local Government. I am writing to the Secretary of State as a direct result of my conversation with him about this yesterday evening. I knew the Committee would want to know about it and I made sure I had it before we met today. I anticipated that the Committee would want reassurance, which I am now ready to offer, that I intend to take this as far as we need to go. This would be done not only by taking these pretty extensive powers, which allow us to make regulations to ensure the easy accessibility of charge points to a common access method as a minimum, but also through the work of other Government Departments. I include BIS, where I used to be a Minister—now called BEIS—and DCLG.

Sir Oliver Letwin: This exchange across the Committee is important. We need collectively to adjust our view of what we are trying to achieve. Hitherto, we have been talking about putting in—if I can put it in these terms—a few charge points here and there in the hope of getting

some useful experimentation with electric vehicles, which has all been good. We now have to move into an entirely different world, in which we, by no means exclusively reserve places for electric vehicles, nor do we have a few of them. We have to build out the infrastructure, just as with mobile telephony we have to build out the masts and therefore the capacity to deliver long before people will buy the machines to use it. We have to build out charge points everywhere, right across the country. Every parking place must be a place where you can park an electric vehicle and charge it, because that is the only way we will move quickly as a country from next-to-zero to millions and millions of electric vehicles.

We have a choice as a country. We could be a laggard; we could pass nice Bills, preen ourselves that we are interested in these matters and watch the countries that are going fast go fast. We have done that with some technologies and it is always catastrophic to our competitive status, but we could do it. I do not think that is what the Minister wants, I do not think it is what the Government wants, I do not think it is what the clean growth strategy demands and I do not think it is what the Committee wants. If we do not, we have to envisage regulatory powers that will force the build-out right the way across the street so every on-street car parking place is an on-street car charging place.

The Chair: Order. Interventions are becoming longer and longer and more and more discursive. So, interventions should be short—anybody in these Committees can speak whenever they like—and to the point.

Mr Hayes: Let me be crystal clear: I have no intention of being behind the curve. I am not satisfied to be on the curve, we are going to be ahead of the curve. That is why we must think about housing developments and local authorities but, more than that, about workplaces. I want the Committee to know that the Government have already put into place grant funding to encourage workplaces to put charge points in place, so that people who do not have easy access to a charge point on the street and have not charged at home can charge at their place of work.

I want every local authority in the country to know that there is grant funding available for on-street charge points and I encourage them all to apply. We are not simply speaking of regulations or guidance that encourages or obliges them to consider these matters. We are prepared to help to fund this roll-out.

Workplaces, homes, local authorities, on-street, working across Government—this will not simply put us ahead of the curve, it will make us a leader in this field. I personally am not a laggard, and neither are the Government.

Graham P. Jones: I am grateful to the Minister for giving way. He raises a good point: it is desirable to have charging points in workplaces, and I hope the Government will follow through on the Minister's advice. People do not want charge up at home. There is obviously an issue there: the energy is coming from their own power point and, even if they have solar panels, they will be at work during the day when the sun shines and their vehicle is more likely to be at work. So the workplace is a great place for people to charge electric vehicles. That is desirable in the UK because if we are charging during the day—most people work during daylight hours—it will be from a renewable energy source.

Let me just return to the Minister's point about local authorities. My local authority is about to implement a planning policy making charging points automatic in every new build. They are progressive, but they are still left with this legacy. I put this to the Minister today, in my constituency of Haslingden and Hyndburn—where 50% of homes are terraced houses and the lampposts are set back—what incentive do people have to buy an electric vehicle when they cannot charge it at their property? Either they cannot get an access space, or they would have to run a cable. There is the technical problem of running a cable from the property to the car. What is the Minister's response today, to get the electric vehicle market growing, and to get it growing in constituencies like mine?

Mr Hayes: It is straightforward: greater interoperability, greater shared and common access, consistency about payment method, and much greater availability—in homes, on streets and in workplaces. We simply have to have a step change in volume, but a fundamental change too in the ease of use of charge points.

It is true that most people who currently have an electric vehicle, for most the time, charge at home, and typically they charge overnight. That point was made earlier in the debate. But unless people have the confidence that they can charge straightforwardly elsewhere—with a system they understand and a payment method that is easy to use—they will not have the confidence to purchase or drive an electric vehicle. We see this as absolutely critical to our bigger ambitions for low emission vehicles, which is why we introduced the Bill. The whole purpose of the Bill is to address one of the principal reasons people might cite for not switching to an electric vehicle.

Craig Tracey (North Warwickshire) (Con): What scoping have the Government done of alternative charging methods? I ask because there was a scheme run in Israel, which admittedly did not work, but it failed because of lack of critical mass of electric vehicles. The technology was in place for service station-type set-ups where the entire battery could be replaced within five minutes. A car would go in, and come out with a fully charged battery. That would seem to get round quite a few of the problems we talk about in terms of roll-out and range, but also cover the areas that do not currently have any electrical charging points.

Mr Hayes: I do not know about the Israeli experience but I am more than happy to ask my officials to explore it and to see what we can learn from it. Other countries are engaged in the same process: electric vehicles are becoming increasingly popular across the world, so most Governments are looking at the barriers to entry to the market and what they can do to remove them. Certainly we should learn from the best international examples and see if it is right to emulate them.

The scale argument is well made by my right hon. Friend the Member for West Dorset, the accessibility argument well made by the shadow Minister. Neither one is the more important. As I have said, accessibility, interoperability, ease of payment and scale all matter, but they must also sit alongside an appropriate consideration of design. The Committee would be disappointed were I not to say more about that, because part of the problem with charge points at the moment is that they are not easily recognisable. One could drive past the Department for Transport's electric charging point and

not know it was there, because it does not stand out like a beacon. Perhaps it should. Anywhere in the country, it would be better to know what an electric charging point looked like, particularly a roadside one in an unfamiliar place. People know their own locality, but this will be a national network of charging points and we have to consider people who are driving outside their locality.

2.45 pm

I have mentioned previously, and am happy to cement today into our consideration, the idea of a competition. We will launch a competition in December for an iconic design for publicly accessible electric vehicle charging points, which would be widely deployable across the United Kingdom. We have already attracted the interest of the Royal College of Art, the National Transport Design Centre and the Design Council, with whom we have had early meetings. I will describe the competition in greater detail when I launch it but it will happen in concert with and alongside the progress of the Bill, and certainly before the Bill fulfils its destiny and becomes a landmark Act, for which we will all take some credit, Sir Edward. I want the design competition to be launched and advanced, if not completed, by then.

Clive Efford: I welcome that competition. May I suggest that, if the points are to be easily distinguishable, they should be bright golden? If they were named after the Minister, they could be known as the bright golden Hayes. If one were put in a meadow, even better.

Mr Hayes: The Hayes hooks, as I think they were dubbed by a former Member of this House, now gone on to other—I will not say greater—things, are my only hope of emulating my predecessor Leslie Hore-Belisha with his beacons. I do see myself as a beacon, as you know, Sir Edward, and my charging points would be a lovely contribution to posterity.

The Chair: Order. In respect to the Chair, should they not be called Leigh leads?

Mr Hayes: I will take that, Sir Edward, with the courtesy that you deserve, as a bid and consider it alongside other helpful suggestions.

So, the design competition will be launched shortly. A combination of that readily recognised design, with the pervasive policy that will result from the work that we are going to do with other Government Departments and the powers we are taking here, will mean that, as with the old red telephone boxes, when they were more common, and pillar boxes that still are, people will know exactly what a charging point looks like and how they can access one.

Perhaps inspired by the hon. Member for Kilmarnock and Loudoun, I want to deal with the matter of rural areas, which is not in my notes. I am mindful of the experience of mobile telephone coverage or the roll-out of broadband. Members of the Committee who represent rural areas who, if they have not said something already, will at least be thinking, what about Dorset, Lincolnshire or Cornwall? We love driving on the main arterial routes, but will we be neglected? I think we need to do more work on that. We have mentioned major retailers in the Bill, but by their nature they may well be disproportionately located in the places where populations are concentrated and where most vehicles travel, and not in the rural areas represented by a number of members of this Committee.

[*Mr John Hayes*]

We should think creatively about how to ensure that rural areas are not neglected. We must not end up with an inadequate number of charging points in parts of the country and therefore a disadvantage for the people of, for example, Gainsborough. I know you would not want that, Sir Edward. That is an additional consideration that I offer the Committee. I do not think it is an automatic consequence of the Bill, but it should accompany it as a further piece of work. There may be ways in which we can encourage certain local authorities. There may be ways to monitor and then ensure a consistent roll-out of charge points across the country. This is not unlike the suggestion that was made by the hon. Member for Warwick and Leamington about how we might apply different aspects of the policy in different ways at different locations.

Alan Brown (Kilmarnock and Loudoun) (SNP): I welcome those comments, but obviously this will not be in the Bill. How can we make sure that the work goes ahead on assessing rural capability and the actual roll-out in rural areas?

Mr Hayes: This part of the Bill facilitates a regulatory environment that would allow us to address a range of challenges. The Bill anticipates regulations, though I do not yet know whether this needs to be done by regulation or whether it can be done by other means. I wanted to highlight that I share the hon. Gentleman's concern. I know that the Committee felt that there is, not a risk or a likelihood, but a possibility that we might end up concentrating charge points, even though they are interoperable and easily accessible and wonderfully recognisable and beautiful, and that rural areas would consequently be at a disadvantage. I will look at the matter closely and see whether we need regulation, or whether we can use other means.

I must say a word about amendment 3, as it is the subject of the debate. The hon. Member for Kingston upon Hull East suggests that we require the Secretary of State to consult charge point operators and vehicle manufacturers before regulating. I can absolutely assure him that we will be consulting charge point operators and vehicle manufacturers before we make regulations. He has my certain assurance that that consultation will take place. I do not feel that the amendment is necessary, because it is implicit in the way in which the Government will go about their work. Ruskin said:

"Remember that the most beautiful things in the world are the most useless; peacocks and lilies for instance."

That does not mean that useful things must be ugly. It is perhaps true that the most beautiful things are useless, but let us make useful things as beautiful as they can possibly be.

Graham P. Jones: Presumably, Sir Edward, with your permission, we are also speaking to clause stand part?

The Chair: I think we have had a very discursive and wide-ranging debate. If the hon. Gentleman wants to add anything, he should speak now.

Graham P. Jones: The clause states that the Secretary of State will make regulations on these matters. What is the timeframe for this and what is the process? Who will be involved in some of these decisions and in formulating

some of the ideas? When in the near future will some of these regulations be laid? As I said earlier, 50% of the issues for my constituents are simple technical matters: terraced property, road and the kerb that sits in the middle. When will the Secretary of State bring forward the regulations in clause 9 and who will be involved in that?

Mr Hayes: Well—

The Chair: Could the Minister wait for Mr Stewart?

Iain Stewart: Forgive me if I was so mesmerised by the prospect of the competition that the Minister has just announced that I missed his comments, but can he clarify the point I asked about the common payment mechanism, which I think would be an important feature of the interoperability of these charging points?

Mr Hayes: Let me deal with that first. I wholly agree that the regulatory powers we have taken are designed to produce a common payment method. That is very important. As I offered a moment ago, we will engage with the industry to work to that end, but we could use these powers to oblige that. It is intolerable that people might turn up thinking they could charge their vehicle, find that the charge point was compatible because of the steps we have taken, and then find that they had to have pre-booked, prepaid or have a special card to do pay. It is probably right that we go for a pay-as-you-go method, but I do not want to be definitive about that. Let us have those discussions to achieve the end my hon. Friend suggests.

On the other matter, will the hon. Member for Hyndburn remind me what he said? I have now waxed so lyrical that I cannot remember.

Graham P. Jones: It was about the process and the involvement of the regulations that the clause says the Secretary of State will introduce. When are we likely to see them? Fifty per cent of my constituents have a technical problem that could be resolved quite soon. Perhaps the Minister's office and the regulations might resolve that for them.

Mr Hayes: I know that when I display my scepticism about the free market, it excites my Opposition friends whose views on such things are closely aligned with mine. I have to say, however, that the market is not entirely undesirable. We hope that through co-operation and collaboration, consultation and discussion, we can bring about a happy series of outcomes. We want to work with manufacturers and industry to ensure that we get to the destination that we all seek, but the regulations ensure that if we do not get there, we take the powers. My view is simple: we will introduce regulations when it is necessary to do so. We will not regulate unless we have to. As my right hon. Friend the Member for West Dorset said, there seem to be persuasive arguments that if we do not establish the ability and, in some instances, the actuality to do so, the market will not necessarily deliver all these outcomes, but that is a matter to gauge when we see how things develop. The

important thing is that the Committee can be proud of putting in place the means by which Government can do just that.

Alan Brown: Building on the Minister's commitment to look at the considerations for the roll-out in rural areas, I make a plea for him to consider the associated factors that need to be taken into account, such as mobile coverage or communications connections. I ask him to take account of those wider issues to get the full big picture of what is required to enable roll-out.

Mr Hayes: I am a great believer in allowing one's ideas to formulate and develop through scrutiny. I am inclined to say that we should do a mapping exercise to see where charge points are now and where we envisage them developing in the short term, and to identify the further steps that need to be taken at an early stage. With the other technologies that the hon. Gentleman and I have mentioned, we are playing catch-up. Good work has been done by this Government, the previous Government and the Government before that in trying to get there, but anticipating some of those problems by doing a detailed mapping exercise might allow us to take early steps of the kind that the hon. Gentleman and I wish to see. I commit to do that as a result of this scrutiny.

Stephen Kerr: The Minister provides us with a number of interesting packages. I am thinking of the areas that criss-cross with devolved areas that belong with the devolved Administrations, and the competition that he has announced. Has he consulted the devolved Administrations so that we can have a United Kingdom approach to the competition and the design?

Mr Hayes: Where matters of beauty are concerned, I tend to rely on guidance from the good Lord, as I see beauty as inseparable from truth, rather as Keats did. None the less, in moving forward it is absolutely right that we should engage with all organisations that might want to play their part. It is perfectly reasonable that we should have those discussions, albeit driven by the expression of truth in the form of beauty.

3 pm

Sir Oliver Letwin: It is regrettable that my right hon. Friend, even after 20 years of discussions between us, has failed to take on board Kant's distinctions between beauty and truth, but we will leave that aside for the purpose of the clause.

I do not disagree with anything my right hon. Friend said about making charging points more accessible and more uniform, including making the payments system more uniform. In every respect it is admirable that he wants to encourage local authorities and many others to participate in providing them. That is all fine, but it will not do the job. I urge him to attend to the question of the distribution network operators; they, and they alone, are capable of rolling out on-street charging on the scale we require.

Let us think about what it feels like in public choice theory terms—that is, what it feels like to the official who is trying to do it. If a local authority seeks to put in charging points, the official has to ring up the DNO, if they can find the number—it is not easy to find numbers

for DNOs—and ask them whether they would like to put them in. The DNO's immediate response is, "No." Why? Because the DNO is not allowed that in its regulatory asset base. They then engage in a negotiation, which goes on for some months, about how much the local authority will remunerate the DNO for putting in the relevant wires. The official in the DNO who is having this conversation is on the commercial side, but unfortunately, people on the commercial side of DNOs are not good at talking to the engineering people in DNOs, so they usually have to go up to a manager above each in order for a manager then to come back down to the engineering side. At this point, the engineering side decides that it has a lot on its plate, because it is engaged in reinforcements, repairs and design, so it does not particularly want to do this. There are some more months of negotiation between them, the manager and the commercial side of the DNO. About a year or two later, if we are lucky, 50 charging points arise.

I am not speculating about that; it is what we have seen happen so far. If there were explicit, primary statute powers in the Bill to regulate the DNOs—I recognise that that is a radical idea, because it is not the structure we currently have for most purposes—the upshot would be that my right hon. Friend, acting through his colleagues in the Department for Business, Energy and Industrial Strategy, would have the whip hand. He would be able to say to the DNOs, "You have to do this. You can put it in your regulatory base, and therefore it is a cost not to you but to electricity consumers as a whole. Here is a national plan for doing it." We could then be confident that over a number of years, there would be on-street charging the length and breadth of the cities where it is needed. I do not think anything less would do the job.

I recognise that that creates an oddity: this Department for Transport Bill would in effect have to become a DFT and BEIS Bill for the purposes of that set of measures. It is not complicated otherwise. I do not think that there is a compelling regulatory structure that would allow that to happen. Obviously nothing will be done now or on Report, but I urge the Minister to talk to BEIS and to introduce some such provision in the Lords. It is a no-regrets policy, because if it turns out that I am wrong and the charging points are put in by local authorities without the need for those powers, the powers will just sit there and not do any harm. If I am right, the powers might solve a problem that would otherwise have to be solved by someone coming back in one, two or three years from now with a further Bill. That would be a terrible waste of time when we can do it right now.

Several hon. Members *rose*—

The Chair: I am not sure who is speaking now.

Sir Oliver Letwin: Well, I have stopped speaking.

The Chair: You have. My attitude is that you reply to that point, Minister, and the two hon. Gentlemen on your left may intervene on you if you wish—are you happy with that, Minister? Perhaps you want more time for cogitation—I call Clive Efford.

Clive Efford: I was going to speak on this matter under the next clause, but it seems more relevant to this debate, so I will get it out of the way. Clauses 9 and 10 overlap.

My starting point is this: why are we taking powers in clause 10 that impose requirements but are not imposing requirements in other areas? The Government have to go away and come up with an overall strategy that involves DCLG and BEIS in planning how to roll out charging points in a variety of places. Clause 10 refers to large fuel retailers, but in a sense their sites are not a logical place for vehicles to park for long periods. We will need charging points in more realistic, more strategic places where people park for long periods, which is large retail outlets and other sites. For instance, in workplaces we could put a surcharge on parking spaces that do not have electrical charging points, which could be hypothecated back into a grant that would allow businesses—

The Chair: Order. Will the hon. Gentleman try to stick reasonably close to the amendment?

Clive Efford: It is about extending the number of charging places, Mr Leigh. We could look at a strategic approach from the Government.

Matt Western: One of the interesting things that came out of the evidence, particularly from the likes of National Grid and others, was the challenges they face in particular in their dealings with developers, whether it be for commercial or residential property, and the fact that they are very much driven by the price or cost envelope that they are being driven to. As the right hon. Member for West Dorset described, they were saying at the meeting—or perhaps afterwards, in the evidence—that they will only put in the minimal amount of cabling that is necessary. They are not thinking strategically; they are not forward-thinking, because they are commercial and are working within a budget envelope. That is why I believe this has to be mandated and we have to take that responsibility in this.

Clive Efford: I agree with my hon. Friend. I think that the charging point operators need to have their toes held to the fire. For instance, we have spoken about the problems that may arise for council tenants who live in a tower block and are unable to access these points. Earlier, the Minister said that if charging points go in they have to be open access, so that anyone who needs a charging point can access one, but that can create problems. We all have parking areas in our constituencies around tower blocks where parking spaces are at a premium and fines are imposed on people who do not live in those properties who go and park there. If we start to lose parking spaces, we can foresee the conflicts that will arise, hence the need for what the right hon. Gentleman the Member for West Dorset proposed.

We need an explosion of charging points, so that we overcome competition for roadside parking spaces. It may be that we should talk to providers about how we use renewable energy. The top of a tower block could be a wonderful place for a wind turbine feeding into a power point downstairs for charging electric vehicles; perhaps we could make that accessible using the key fob to the tower block, so that the people from the block benefit. If those people are on low incomes, that brings

back into play the whole social mobility issue that the Government have mentioned in regard to this Bill in the past.

There is a variety of ways that we need to look at expanding the provision of charging points. It needs to be part of an overall strategy that different Government Departments are signed up to—not just the Department for Transport but DCLG and BEIS. We need a sea change, to bring the benefits of electric vehicles and make a huge impact on the growing problem of air quality that we have to address.

Mr Hayes: I will be brief, because I need only to address two matters that have not been covered extensively already. It is absolutely clear what the Government's intent is and what the Bill does to make that intent binding. My right hon. Friend the Member for West Dorset raised a point about DNOs. All I will say to him is that we will certainly work with Ofgem, and I will facilitate that work as a result of this debate. We have already had conversations, but I will make sure that they are intensified with the network industry. I think that he is right that that must not become a barrier, even with local authorities' enthusiasm growing, as was illustrated earlier, so I will certainly do that.

As for the point made by the hon. Member for Eltham, I am very happy to consider whatever approach is necessary to ensure that the infrastructure roll-out is as effective as it can be. I am mindful of the circumstances he described of someone who lives in a tower block and cannot get access to a charge point. I talked about the potential disparity between urban and rural areas, but there is also a disparity between people who live in houses with easy access to a street charge point or who have off-street parking or their own parking, and those as he described who may have none of those things. Are we really going to say to those people that they cannot have ready access to electric charge points and therefore remove their incentive to buy an electric vehicle? Of course not. So we certainly need to take his point into account, and we will.

Karl Turner: This has been a very instructive debate and it is clear that the Minister has thought very carefully about this issue. On that basis, I am happy to beg leave to withdraw the amendment.

Amendment, by leave, withdrawn.

Clause 9 ordered to stand part of the Bill.

Clause 10

LARGE FUEL RETAILERS ETC: PROVISION OF PUBLIC CHARGING POINTS

Karl Turner: I beg to move amendment 4, in clause 10, page 6, line 34, at end insert—

‘(2A) Regulations under subsection (1) must provide exemptions for retailers and operators in instances where adhering to such regulations would—

(a) require an expansion of land, or

(b) result in any other disproportionate costs for retailers and operators.’

This amendment ensures that there are exemptions for operators with limited forecourt space who are unable to accommodate public charging points without an expansion of land and that retailers and operators do not incur disproportionate costs for complying with regulations.

The Chair: With this it will be convenient to discuss amendment 5, in clause 10, page 6, line 36, at end insert—

(4) The Secretary of State must publish, in draft, the criteria and definition of “large fuel retailers” and “service area operators” at least six months before regulations under subsection 10(3) are made.’

This amendment would require the Secretary of State to consult on and publish criteria to be used for the definitions of “large fuel retailers” and “service area operators”. This will make clear to the industry which kinds of companies are covered by these regulations.

Karl Turner: Amendment 4 would ensure that there are exemptions for operators with limited forecourt space that are unable to accommodate public charging points without an expansion of land, and that retailers and operators do not incur disproportionate costs for complying with the regulations.

As it stands, the Bill allows the Government to impose requirements on what are described as “large fuel retailers” and “service area operators”, but the problem is that Ministers have yet to define or outline the criteria for what those actually are. The requirements will apply to large fuel retailers and service area operators, and the definition of those is what the Government say they are. Amendment 5 is designed to resolve that issue by requiring the Government to publish in draft the criteria for and the definition of large fuel retailers and service area operators that they intend to use.

It is just as important to consider how charging infrastructure can be expanded in supermarkets, shopping parks and workplaces. Those are all points that have been raised by my hon. Friends and others. All those things seem to go well beyond the kind of charging infrastructure it is envisaged the Bill covers. In the meantime it is worth putting on record that businesses are concerned what the Government taking the kind of powers conferred by the Bill will mean for them. I think, for example, of a small fuel retailer in my constituency. It is a small business that is very important to the local economy and to local people, but the investment that it would have to make might be absolutely huge and the business might not be in a position to make that financial commitment.

These are much more immediate, practical issues, but the Government’s impact assessment lays out the potential significant costs to the operators affected by this part of the Bill, which could run into many millions of pounds. The Minister will correct me if I am wrong, but I think that the average cost of installing a charge unit runs up to about £50,000.

3.15 pm

I hope that the Minister can provide greater clarity on these issues, so that operators of motorway and other service areas know a bit more about who is likely to be affected, what will be required of them and how much it will cost. In Committee on the Vehicle Technology and Aviation Bill, the Minister gave assurances that he would consult and introduce draft regulations on the matter as soon as possible. I hope that he can do that again today. On that basis, I will not press the amendment to a vote.

Amendment 5 would require the Secretary of State to consult on and publish criteria to be used for the definitions of “large fuel retailers” and “service area

operators”. That would make clear to the industry which kinds of companies were covered by the regulations. Fuel retailers, particularly those with limited forecourt space, are worried that they simply will not be able to meet the requirements of the regulations that the Government bring forward, particularly if they have to accommodate a variety of charging and connecting points. Inevitably, some fuel retailers will not have the space to implement the changes without expanding the land that is immediately available to them. The amendment would provide an exemption when meeting the regulations would result in disproportionate cost to the retail business.

A number of operators are concerned about the costs involved. They are also concerned that they will not have the forecourt space to install the charging infrastructure. They are very worried about this issue. I hope that the Minister will acknowledge the need to give them greater clarity and certainty on such matters. On amendment 5 and the broader question of the scale and scope of the powers that the Minister seeks, I hope that this will help to clarify things and that the Minister will ensure that before the powers are enacted, there is full consultation of all stakeholders.

I hope that the Minister will use this opportunity to address some of those concerns. As I said, I do not intend to push amendment 4 to a vote.

Graham P. Jones: The Minister talks about Ruskin, and a quote from Rousseau comes to mind:

“What wisdom can you find that is greater than kindness?”

That probably sums up the Minister’s efforts in Committee, and I greatly appreciate the tone and manner in which he always conducts Bill Committees in which he leads for the Government.

I want to take up the comments of my hon. Friend the Member for Eltham, who said, “Why just fuel stations?” It seems a good question. If the Minister and the Government can regulate for the imposition of charging points at fuel stations, why not do so for other places? My hon. Friend talked about workplaces, which seem an ideal location, for many reasons. They may be able to capture renewable energy, for example—and people spend a lot of time at workplaces. Why not retailers? If we are going to have fast charging, why not in a big car park, with plenty of space? Sometimes fuel stations are a bit more limited in the space that they afford the motorist. In fact, they are very limited in some cases, particularly in metropolitan areas. Why not public spaces? Why not encourage a whole new enterprise culture whereby people provide, in open spaces, charging points? Why is it just fuel stations?

I am concerned that this seems like a restrictive practice. We are accelerating an advantage for fuel stations, rather than thinking about the benefit to the nation of rolling out as many charging points as possible, as the right hon. Member for West Dorset has said numerous times this afternoon.

There is another disadvantage that ought to be mentioned in restricting the acceleration of charging points. For those homeowners, middle or upper class, who have off-street car parking, a drive and a garage, and are probably charging off the solar panels on the roof or can even afford to charge out of the mains grid at home, that is fine. However, restricting access will result in poor people in my constituency paying a price. If those

[*Graham P. Jones*]

in a detached or semi-detached house with off-street car parking are charging a vehicle using renewable energies or using the grid, then they will be doing so at a cheaper and more affordable price. Over 50% of my constituents live in terraced properties, and there is no way that they can access a domestic charging point. It is not there. They would have to use a commercial charging point, and there is a cost to that. We are imposing a cost on the poorest people: the cost of moving the vehicle to the location wherever that is, the cost of leaving the vehicle there, and then the cost of paying for that service. The middle-class or wealthy person in my constituency with a drive and off-street car parking can, however, enjoy all the advantages of a home consumer.

We are making regulations for only a few places, but I urge the Minister to see that there are far-reaching consequences to the policy. My hon. Friend the Member for Eltham made this point: we ought to be rolling out charging points everywhere. We should be mindful, as I have said previously, that we are not doing enough for some of our poorest constituents in some of the properties least able to be adapted. Those people are going to end up paying higher premiums should they wish or be able to acquire an electric vehicle. This restricted availability is wrong. It does not allow for social mobility and it denies some of the poorest people access to the market. I would ask the Minister to reconsider and—when he wants to encourage or even mandate retailers or anyone in society that can afford and offer a charging point—to think positively about how many charging points we can achieve over the period of time, how many opportunities there are and why we are restricting it to just a single section of the market.

The cynical person might say that this is the petrol retailers, that as the market changes from fossil fuels to electricity we have to give them some kind of commercial advantage. Perhaps it is in the Government's mind to say, "Let's give them a heads-up and a lead on this issue." I would say that it is not right, that electric charging points should be made available to all and that we should be thinking about the nation and the national interest, not a limited commercial interest that seems to be in clause 10. I would urge the Government to rethink this clause.

Sir Oliver Letwin: There are two specific points that I would like to raise in relation to clause 10, but before I do so I would like to explain why they arise.

As I understand it, about 90% of charging for current electric vehicle use goes on at home, largely overnight at low voltage. In trying to achieve the Minister's aim—which is the Government's aim and the cross-party aim of the House of Commons as a whole—of achieving a step change in which we move from 100,000 electric vehicles to tens of millions of them, one of the things that needs to be addressed is what we were discussing a moment ago: the issue of overnight, on-street parking. However, there is a paradox.

Even if there were 10 million on-street parking charging points working beautifully, unfortunately, there would not be very many electric cars using them because there is range anxiety. That is another limiting factor in the expansion of electric car take-up. That range anxiety may in due course be resolved by the advance of battery

technology, the introduction of solid state batteries and so on—I very much hope that it will be. The Minister, I and the Committee as a whole recognise that we cannot predict the speed at which battery technology will advance to the point at which relatively cheap and light batteries can carry someone for 400 or 500 miles on a reliable basis. The overwhelming majority of journeys per day are 20 miles and under in the country and do not actually cause any range problems.

I am sure that other Committee members feel, as I do, inhibitions about purchasing a vehicle that will run out of charge if I am trying to make the journey from London to my constituency, then travel around my constituency, if I cannot find a point at which to charge it. Unlike the position on the overnight charging, range anxiety can be cured—unless we adopt the Israeli model, which I am not recommending—only by very high voltage, fast charging at points on the journey that are not too far from the start and are interspersed at relatively short distances. We could debate whether that distance is 50 miles or 100 miles, but if we fixed in our mind the importance of making sure that nobody who started in London and was trying to get to any point in the country would find that it was more than 50 miles before the next fast charging point was actually available—I do not mean was sitting there and being occupied by some other car, but was actually usable at the time they wanted it and could charge their car in five or 10 minutes, at a reasonable price, while we went to buy the paper, went to the loo and did the other things we do at service stations on motorways—range anxiety would be at an end in the UK. Is that achievable, and does clause 10 allow the Government to ensure that it will quickly be achievable? Those are the questions that we need to address.

The answer to the first question—is it achievable?—is yes, it is abundantly achievable. The National Grid is conducting a trial with UK Power Networks to show the cost of stringing lines from the nodes on the high-voltage network to service stations, which will establish the cost of a core network of 50-mile spaced service stations, on the motorway network in the first place and, quickly thereafter, on those parts of the trunk road network that are necessary to cover in relation to, say, Cornwall or Scotland.

I stress that it is all about Highways England, the National Grid company and a few of the DNOs from time to time. Nobody else needs to play a part. If they were all working together to install the relevant infrastructure quickly, it is perfectly doable and not terribly expensive. I have spent time talking to the National Grid company about the likely cost of this, and even if we take quite a high estimate, the effect on bills for customers buying electricity would be in the order of 0.1p per kilowatt hour. It is very small beer. I cannot overemphasise the importance of curing range anxiety early—if we do, we will get scale, and if we get scale the price of electric vehicles will drop, then we will get demand. We would get a virtuous circle. The speed with which we do that will very much influence the future industrial history of this country, because if we do it quickly enough, so that we get scale in electric vehicles before other European countries do, we will be ahead of the market and all sorts of investment decisions will flow to the UK. If we are slightly behind them—and I welcome what the Minister said about being ahead of

the curve—it will have the opposite effect. They will be built in Germany and later exported to the UK. That must be our aim: to establish a national network of fast charging points, supported by very high-voltage cables, quickly installed at distances along our motorways and trunk roads, which enable people to make a journey from any point to any point in the UK without anxiety about range, even if their vehicle only has 75 miles of battery range.

Two items are missing from clause 10 that would enable the Government to achieve that. First, there is no power to compel the National Grid company to install such links. It goes back essentially to the same kind of structural point that I was making about DNOs in relation to on-street charging, although the item here is quite different: we are talking about a big, heavy-duty, high-voltage cable. However, the principle is the same. At the moment there is no knowing whether Ofgem would allow NGC to charge to its regulatory asset base such links, because there is no power in the Bill or anywhere else that allows the Minister or the Secretary of State to mandate the creation of such links. That is another item that I strongly hope the Minister will consult his friends at BEIS about and, in due course, come forward in the other place with appropriate minor amendments.

3.30 pm

There is a second lacuna. We heard in the evidence sessions a pretty strong plea from the representative of service stations and petrol retailers that the Minister should not regulate them as suggested in clause 10. The more I heard of that plea, the clearer it became that the Minister was right to take the powers he is taking in clause 10. It seems to me abundantly clear that if someone is running a motorway service station that is a monopoly franchise, and if there is in that station a provider of charge points that is in itself a monopoly franchise—for reasons that defeat me, that is how it has grown up—it is absolutely right that the Minister should have powers to regulate them into providing, once the cables are there from NGC, the right kind of charging equipment in the right quantities to cure the range anxiety.

However, as I said, there is a lacuna. If a monopolist is told by a Minister that under a regulation, they have to provide those things, they will consult their economics textbooks and discover that they can exact a monopoly rent. They can charge an unlimited amount of money and thereby seek to prove to Ministers that they should not be telling the monopolist to build too many of the charge points because, at the exotic prices being charged, not many people are using them. The only problem with all that is that we would not get the electric cars.

In order to complete the circle, the Minister needs a power not contained currently in clause 10: the power to impose price caps on the provision of these services. Those caps ought to enable providers to earn a normal return on the asset, as in any other utility transaction. Ofgem is quite capable of adjudicating those matters, but it needs some primary legislation enabling the Minister to impose those price caps or to impose on Ofgem the duty to construct such price caps. I neither know nor care which way it gets drafted, but it needs to be drafted to the effect that, one way or another, NGC puts in the high-voltage cables in the appropriate points to give us

the appropriate network, and the providers of the charge points in those service areas in the motorway and trunk road network have to provide them at a capped price. Then all the other things the Minister has provided for in the Bill about making regulations to ensure that the charge points are of the right kind, are paid for in the right way, are uniform in their connection to cars and so on would apply. We would close the circle and get the golden combination of enabling our population to charge up at home overnight at low voltage, cheaply, and curing range anxiety by charging very fast at relevant points on the trunk and motorway networks when making long journeys.

Sir Greg Knight: Does my right hon. Friend not accept that the argument he is now developing applies today to retailers of petrol and diesel on our motorways, some of which charge exorbitant prices because they are in a monopoly position? Should the price cap not also apply to them?

Sir Oliver Letwin: I think it is an academic point, but my right hon. Friend is completely right. I have always regarded the regulation of motorway service stations in Britain as an abomination. In terms of both quality and price, they do not compare with their properly regulated counterparts in many European countries. However, I am not sure we ought to detain Parliament by legislating for the past when we can now legislate for the future. I think this will be much quicker than many people think. My guess is that about 20 years from now, we will not have very many petrol vehicles on our roads. I would much prefer to persuade the Minister to regulate for electric charging points, but if he is minded to pay attention to my right hon. Friend the Member for East Yorkshire and fold in a power to regulate for petrol too, I do not mind.

The last thing I want to say about clause 10 is that I think there is a missing entity, as well as missing powers. Interposed between the service station provider and the motorist lies the bizarre phenomenon of the national monopolist who provides the power points at service stations. That is a very odd feature of the scene. I do not understand why it has grown up this way, but we need to make absolutely sure that the powers in clause 10 can apply to anybody who holds any kind of market power over the provision of the charging points in the service stations, and not just over the service station operators. Parliament often legislates and thinks it has legislation that will have the effect that it intended, then discovers that it is not there. This could be such a case unless the lawyers have thought about all that. If they have and it is drafted appropriately, no one will be more delighted than me.

Mr Hayes: I will deal with the last point first: yes, it does apply in the way my right hon. Friend said.

Let me now deal with the issue of motorway service areas, about which I have very strong views. I am the Minister responsible for motorway service areas, so I am in regular dialogue with them. I visit them with alarming regularity—from their point of view, not mine. I am determined that we can do more and better, and so are they, by the way. They are committed to building on the progress that has been made in motorway service areas over a considerable time, but we can do more. I

[*Mr John Hayes*]

want more particularity, more local source of supply and better design. I want them to be places that people choose to go to rather than have to go to. I want the quality of motorway service stations and their connection to the localities to be a thing of style and grace, and that includes the provision of electric charge points.

The reason we have spoken about major retailers is very much as a start. This is not a reason that limits what we might do later. In fact, we will need to do more later. It is an attempt to make an important start in providing more charge points. Highways England has already committed £15 million to ensure there is a rapid charge point every 40 miles on the strategic road network in England. That picks up the point about battery life, of course, because this is about the regularity of provision. People need to know that, on a major route, they are never more than 40 miles away from a charge point. Highways England is running a procurement exercise as we speak to fill the gaps to achieve that end and it expects to deliver on that commitment as soon as possible. That was part of the road investment strategy, which I launched when I was a Minister in the Department on a previous occasion. I have been a Minister in the Department on many occasions, and when I launched the road investment strategy, that was part of it and one of the commitments we made then.

I know that the good point that my right hon. Friend the Member for West Dorset made about the link to Ofgem is a particular concern of his, as he expressed it in an earlier part of our debate. It is important that we facilitate the kind of work with the providers of power that he describes. I am determined they should not be a barrier to growth in the number of charge points. As I said earlier, and I do not want to become tediously repetitive—repetitive while it is exciting, but not tediously so—we will make sure that those discussions are exaggerated helpfully as a result of this short debate.

We have spoken already about our determination to grow the number significantly. My right hon. Friend poses an interesting challenge: that we should lead the field internationally and be ahead of our principal competitors. That is a perfectly reasonable challenge and one I am happy to meet. I am determined that Britain should be a leader in this field. We have often led in the field of technology and we can again. As I said, it is a challenge I welcome and which I am determined to meet.

With regard to the amendment, which the hon. Member for Kingston upon Hull East spoke to, I am going to abbreviate my remarks a little. I have quite a long speaking note, but I want to come to the core elements that address the arguments the shadow Minister advanced. The shadow Minister drew attention to our debate in the Vehicle Technology and Aviation Public Bill Committee, on which some members of this Committee sat. They will remember the helpful debates we had then and how we have moved on in a sense, although we set out our ambitions in that Bill. I committed to be more precise about the regulations and the shape they might take by publishing a draft. To be helpful today, I ought to say what that draft is likely to contain in respect of the specific circumstances that any regulations would need

to take account of in mitigating the effects of the obligations that we are creating in the Bill to make charging points available.

Certainly, where the commercial viability of fuel retailers, their forecourts and service areas and the effect that mandatory electric vehicle infrastructure would have upon that are concerned, we would need to be mindful of the interests of retailers. We are not in the business of creating such a burden that people, first, will not do it and, secondly, will be compromised by it.

Secondly, there is the issue raised by the hon. Gentleman about places where there is not space available and the total land take makes provision impossible. Thirdly, there is the point about the impact on the local electricity grid. Fourthly, there is the proximity of other charging points, which relates to the consideration we enjoyed earlier about concentration. We do not want a cluster of charging points in a small area and yet no charging points for a long stretch. The proximity of the electric vehicle infrastructure and of other fuel retailers and service areas also seems to be salient.

The hon. Member for Kingston upon Hull East was right in moving the amendment to say that we need to be mindful of the practical effect of the obligation we are creating. It must not be crude in its effect; it must be measured, and the regulations will ensure that. They will certainly contain the elements that I have set out. The hon. Gentleman is also right that clause 15(3) specifically commits the Secretary of State to consult with appropriate persons before making regulations under this part of the Bill. Given that the effect of the Bill is to make the provision of charging points mandatory, it is right that we should consult.

Equally, we should be bold and ambitious. I think it was Ezra Pound who said that when faced with two options, choose the boldest. That is very much the recommendation of my right hon. Friend the Member for West Dorset and the hon. Member for Kingston upon Hull East. We do need to be bold and ambitious, but we need to be measured. We must not create an obligation that is heavy handed in its effect. I want to achieve what the Committee has recommended to me, which is to lead the field. The best way to do that is to put in place regulations that can be effected quickly, efficiently and effectively.

We will consult. The consultation needs to be wide ranging and thorough, and we would like to commence much earlier, so that the regulations come into force after proper reflection—probably earlier than the six months proposed by amendment 5, but not so early that I do not have time to consider the results of the consultation.

3.45 pm

Clause 14 already allows for exceptions to the requirement imposed in the regulations under this part of the Bill. Those exceptions, as I have already described, can be incorporated into the regulations in the manner I described. There are promising signs already—for instance, there is a charging point in the vast majority of motorway service areas—but we do have this continuing challenge of ensuring that they are consistent, accessible, easy to use and have the same payment methods.

My right hon. Friend the Member for West Dorset was right: if there was a monopoly provider with a particular kind of charge point, people might turn up at

the service station only to find that they could not plug their vehicle in, did not know how to pay or did not have the means to pay because of the particular regime that applied in that location. That would be intolerable and certainly inconsistent with our desire to make these things as straightforward as possible.

With the assurance I have offered that we will ameliorate these obligations in the way I have set out, I hope that the hon. Member for Kingston upon Hull East might withdraw the amendment.

Karl Turner: I beg to ask leave to withdraw the amendment.

Amendment, by leave, withdrawn.

Clause 10 ordered to stand part of the Bill.

Clause 11

INFORMATION ABOUT PUBLIC CHARGING POINTS

Question proposed, That the clause stand part of the Bill.

Sir Greg Knight: My right hon. Friend the Member for West Dorset referred earlier to petrol cars as being in the past. Let me say to him: not quite yet. Although manufacturers estimate the average life of a car to be 10 to 12 years, I have to tell him that I have a petrol-powered car that is 81 years old, and I still enjoy driving and using it.

Can the Minister confirm his intentions regarding subsection (2)(c)? Whether their car is powered by a battery or by petrol, the motorist has a right to expect the Government to intervene to protect him or her from being ripped off. Clearly, where the retailer is in a monopoly, or near-monopoly, position, such as a petrol or diesel retailer on a motorway—or indeed the provider of a charging point on a motorway—it is essential that the motorist is made aware, before he or she commits to a purchase, of the price they are going to be asked to pay. Can the Minister confirm that he will use the power in the Bill to require the electric charging point providers to display the cost to the motorist—as is now the case for petrol and diesel suppliers—so that if there is an intention to overcharge and rip off the motorist, that motorist has the opportunity to drive away and go to the next retailer?

Graham P. Jones: Does the right hon. Gentleman also agree that that information should be displayed in a manner that the customer understands?

Sir Greg Knight: Absolutely, and I would go further and say that it also has to be displayed in position where it can be read from the interior of the car, before the motorist has alighted from the vehicle and made his or her way right up to the charging point.

Stephen Kerr: Does my right hon. Friend agree that the information should perhaps also be available in open data format, so that when apps are constructed to advertise the availability of charging points, as described in the Bill, the price should also be there in plain sight?

Sir Greg Knight: I can answer my hon. Friend very simply: absolutely. He is absolutely right on that point.

Mr Hayes: When my right hon. Friend the Member for West Dorset spoke of the past, he may have been doing so mildly pejoratively. I take the view that we are the past: all we are is what we remember; now is an illusion, as it becomes then in an instant, and the future—as we have said repeatedly in our considerations on this Bill—is an uncertainty. So when my right hon. Friend the Member for East Yorkshire speaks of those vehicles, vintage and classic, that he holds so dear, I can say with certainty that the future of Jaguar XK120s, 140s and 150s, Bentley Continentals, Humber Snipes, Singer Gazelles, Ford Anglias, Morris Minor Travellers, and Jensen Interceptors, among many others, is secure in my hands.

The substantial point that my right hon. Friend makes is about clarity when it comes to price. He is right that petrol stations show the price of the goods they sell—petrol, diesel, et cetera—and it is right that we should be clear about that. I believe we can ensure that that happens in the way that he sets out, as it seems to me perfectly fair and reasonable.

Sir Oliver Letwin: I am, as ever, grateful for my right hon. Friend's mellifluous misinterpretations of philosophy, but to return to the matter in hand, while I very much welcome what my right hon. Friend the Member for East Yorkshire has said about transparency of pricing, I hope he will agree that, at least in the interim, that is not going to be enough. The reason it works for petrol is that the petrol engine and the fuel tanks that go with it now have range capacities, which mean that people can almost always choose where they want to fill up. At least for the short term—that is, the crucial moment in which we either will or will not achieve a transition to a vast scale of electric vehicles in this country—electric vehicles do not have a range that enables people to make that choice under all circumstances. Therefore, having people know that they are going to be ripped off when they get to the relevant service station, which is the only one they can charge at, is adding insult to injury, because they are told in advance that they are going to be ripped off, but they are still ripped off because they have no choice. Therefore, at least in the interim, we do need price-capping powers—which, alas, my right hon. Friend the Minister did not mention in his response to the last clause, but which I hope he has taken on board.

However, the point I want to make in relation to information is different. Clause 11 begins very well, by saying in subsection (1):

“Regulations may require operators of public charging points to make available prescribed information relating to such points.”

Unfortunately, subsection (2), if I have understood the way it is articulated correctly, limits that power by saying that what can

“be prescribed under subsection (1) in relation to a public charging point is such information as the Secretary of State considers likely to be useful to users or potential users of the point”,

which is followed by a perfectly sensible list. That is a very valuable power to have, because, for the reasons that my right hon. Friend the Member for East Yorkshire advanced, and other reasons, it is good that there should

[*Sir Oliver Letwin*]

be transparency for users and potential users. I very much agree with a point that my hon. Friend the Member for Stirling made about open data sources and apps, but there is an information flow that is even more important than the information flow to the users.

We need to look ahead to the time when there are 20 million of these electric vehicles in the UK, or even to when we are a quarter or half of the way to that total. At that point the dynamics of the electricity supply industry will—as my right hon. Friend the Minister knows from his time in Energy—fundamentally change. We will have the capacity to deal with intermittent provision of energy to the grid by a flexible demand response engendered by electric vehicles, in their millions, either ceasing to charge or ultimately delivering electricity to the grid at points when the intermittent supplies from, shall we say, solar energy are not available and when the load curve would otherwise create additional demand that could not be met.

That is a huge gain to our country, and it could eliminate very expensive investment in fixed storage or additional capacity from fossil fuel or nuclear stations. In order for that gain to be realised, there needs to be a flow of data back from every kind of charging point all over the country into National Grid, so that the National Grid planners can plan ahead in the knowledge of the patterns that are being established, dynamically, as there are more and more electric cars and the interactions of those with the smart charging points and the smart grid change.

This is really a very important flow of information indeed. At the moment it does not exist, and there is nothing in the Bill that gives the Secretary of State the power to mandate that it should exist. It would be a simple matter to do so; we would need only to enlarge the scope of the power in clause 11(1) and (2) by changing the drafting so that it is possible to mandate information useful not only to users or potential users, but to operators of infrastructure relevant to charging: the grid, for example. I am not trying to draft on the hoof—it is obviously easy for the Minister to commission the appropriate drafting—but I hope that the intent is clear. It would make a significant difference.

I am told by National Grid that at the moment it has considerable difficulty accumulating any serious information about patterns. Car manufacturers do not want to give it, because they regard it as commercially sensitive information, and the commercial operators of the current charge points do not want to give it, for the same reason. Therefore, the Minister will need powers that compel a range of people providing various different kinds of charging points to provide that information back to the grid if the grid is to have a reliable supply of data to enable it to plan in an appropriate way.

The grid—and the DNOs, to the extent that we are talking about distributed power—has good information at the moment on the generating side, and it will get pretty good information from people's homes through centralised computing after the smart meter roll-out. However, that brings me to my last point. As I understand it—I do not know how it happened; the Minister might have been responsible, or me, or one of our colleagues at the relevant time—unfortunately, by oversight, we have not so far required the information that electricity

suppliers get through the central computing system attached to smart meters to be transmitted to the DNOs and the NGC. Therefore, to the extent that cars are being charged off-street, at people's homes, they are unable to get that data flow. That goes back to a decision by our right hon. Friend Lord Maude to allow the continuation of the use of suppliers rather than DNOs to supply smart meters in people's homes.

Be that as it may, it is now also urgently necessary that the data flow be mandated back from the smart meters in people's homes to NGC, so that as electric cars are charged overnight off-street at people's homes, that can also be built into NGC's planning horizons. If we can do those two things—mandate data flows from all public charging points and all smart meters installed in private residences back to NGC—the Minister will be able to contribute significantly to the much more economically efficient development of our electricity supply industry, as part of the roll-out of electric vehicles, which is part of the aim that the Government have always had.

Mr Hayes: I will deal briefly with the two points made by my right hon. Friend; I think that he is wrong about both. In respect of the powers, I am advised that work is under way with the Department for Business, Energy and Industrial Strategy on that. He will understand that, as he said earlier, that needs to be a cross-governmental piece of work. That work is designed to consider what we can do to catalyse the deployment of technology, including potential funding for innovation.

The key point is that the powers proposed in the Bill are sufficiently broad to allow for regulations to include requirements for information relating to vehicle-to-grid charging. That would include information between the vehicle and the grid. Obviously, that would have to be defined in regulation, but I understand that powers can be introduced to fill the gap that he describes in providing information back to the grid about demand and supply.

Sir Oliver Letwin: I would be delighted if the Minister is right, but can he explain how the phrase

“likely to be useful to users or potential users”

in subsection (2) allows the mandation of the information to be provided to the grid, which is neither a user nor a potential user of the charging point?

4 pm

Mr Hayes: I will return to that when I have dealt with what my right hon. Friend got wrong in his first point. On the relationship between subsections (1) and (2), he is right that, in his words, subsection (2) limits subsection (1)—I would say explains it, but that is a matter of interpretation and semantics. Subsection (2) sets out a series of pieces of information that, for example, the Secretary of State might deem appropriate. It is not an exclusive list, although it is pretty comprehensive:

- “(a) the location of the point and its operating hours,
- (b) available charging or refuelling options,
- (c) the cost of obtaining access to the use of the point,
- (d) the method of payment...
- (e) means of connection...
- (f) whether the point is in working order, and
- (g) whether the point is in use.”

The Secretary of State may prescribe other matters as he sees fit, but those are offered “for example”, as the subsection states. I think that my right hon. Friend is wrong about that, or perhaps he will tell me why he is not.

Sir Oliver Letwin: I do not doubt that the list is a very good one, or that it is a list of examples; as the Minister says, the subsection states “for example”. My problem is with the governing phrase above that:

“likely to be useful to users or potential users of the point”.

The National Grid Company is not a user or potential user of the point. Therefore, I do not think that the Minister has the powers under subsection (2) to prescribe that the information flows to it. As he has already said, subsection (2) explains or interprets or restricts (1), so I do not think he has those powers under that subsection either. I am not trying to be a parliamentary jobsworth and I would be delighted to be proved wrong.

Mr Hayes: We come to the nub of the difference between us, over which I think we can reach a Hegelian synthesis in the few short words I will offer my right hon. Friend. I understand that he accepts that subsections (1) and (2) are about providing information for people who might seek to charge their vehicle. He freely acknowledges that the list is not exclusive, although it is extensive. What concerns him is that the subsection does not stipulate any link back to the providers of power—it provides information to the users of power but not to the providers of power. That is because the powers to which I am referring are contained not in this part of the Bill, but in clause 12. I do not want to debate that clause now, because you will not let me, Sir Edward, but I highlight the fact that clause 12(2) speaks of the ability

“(a) to receive and process information provided by a prescribed person,

(b) to react to information of a kind mentioned in paragraph (a) (for example, by adjusting the rate of charging or discharging)” and so on. We believe that there is sufficient power in clause 12 to get to the destination that my right hon. Friend seeks. If that is not the case by the time we come to debate clause 12, I will explain why not and put that right. I hope that for the time being at least I might have satisfied him.

Sir Oliver Letwin: Of course I will wait until we get to clause 12. I do not read it the way the Minister does, but we will come to that.

Question put and agreed to.

Clause 11 accordingly ordered to stand part of the Bill.

Clause 12

SMART CHARGE POINTS

Karl Turner: I beg to move amendment 6, in clause 12, page 7, line 29, after “security” insert “and provide safeguards against hacking”.

This amendment clarifies that smart charge points must have measures in place to safeguard against the risk of being hacked.

The Chair: With this it will be convenient to discuss new clause 19—*Cyber Security and hacking of electric vehicle charge points*—

“The Secretary of State must, within 12 months of this Act receiving Royal Assent, consult with such persons as the Secretary of State considers appropriate on what steps will be required for the effective cyber security of electric vehicle charge points to protect those charge points against hacking.”

This new clause would require the Secretary of State to report within 12 months what steps would be required to protect electric vehicle charge points against hacking.

Karl Turner: Amendment 6 and new clause 19 address the issue of cyber security and hacking in relation to charging points. A lot of what we covered this morning applies to the amendment and the new clause, so I do not want to repeat what has already been said. Any element of data, digital infrastructure or digital function is incredibly valuable and increasingly involves a risk of being hacked. The data infrastructure and digital function behind the charging infrastructure and its interface with electric and automated vehicles are no different. We need to address cyber-security and data protection in relation to all these areas, including charge points.

Amendment 6 relates to charge point cyber security. Clause 12 contains a range of non-exhaustive specifications—we discussed them a few minutes ago—that a charge point must comply with. It appears that will involve a large amount of data being transmitted from the charge point. Measures are therefore needed to ensure that charge points and the data they process are protected against attempts at hacking. I think that is what the Government are getting at in subsection 2(e). Will the Minister clarify whether that provision also covers cyber security and the risk of hacking? I also invite him to clarify who the information that clause 12 refers to is to be shared with and where.

We need safeguards. It is not beyond the realms of possibility that if the safeguards are not in place, information could be downloaded from an electric or automated vehicle being serviced that would allow hackers to obtain information or—perhaps worse—control safety-critical elements of the vehicle’s functions.

On new clause 19, I will not repeat the points made this morning, but I would be grateful if the Minister could indicate what work has already been done. I am aware that a great deal of work is being done behind the scenes, but it would assist us to know who specifically his Department is consulting.

Sir Oliver Letwin: In this useful dialogue we have got to the point of agreeing that it is necessary to have the information flow back to NGC, and that clause 11 does not provide for that to be mandated. The Minister ended his remarks on clause 11 by saying that clause 12 does allow the Secretary of State to mandate the provision of that information by charge points to the National Grid Company.

I said that I did not read clause 12 the way the Minister does, and that is because I suffer from this problem of reading the thing as if it were in English and I were a speaker of English. Let me illustrate to the Minister why a normal reader of English would not take clause 12(1) and (2), as currently constructed, to have the effect he is describing. If he can then explain to me why a lawyer reading it in some other language

[*Sir Oliver Letwin*]

believes that it will have that effect, I will gracefully and happily give way, because I have no desire to engage in unnecessary redrafting.

In English then, clause 12(1) states:

“Regulations may provide that a person must not sell or install a charge point unless it complies with prescribed requirements.” That is entirely about the design of the charge points; it says nothing about the provision of information. It is perfectly true that clause 12(2), again in English, states in the governing phrase:

“The requirements that may be imposed under subsection (1) include requirements relating to the technical specifications—”.

It then gives some examples—I take the point that this is not an exhaustive list—which do include, in clause 12(2)(g), the capability of the machine in question to be “accessed remotely” and, in clause 12(2)(a),

“to receive and process information provided by a prescribed person”

and even more appositely, in clause 12(2)(c),

“to transmit information...to a prescribed person”.

I accept that clause 12 is drafted in such a way that, when read in English, it would enable the Minister to pass a regulation stating that the charge point in question must be designed to have the capacity to transmit information to the prescribed person—namely, the NGC, if the Minister prescribed that. I accept all that, but having a machine with the capacity to transmit certain information does not entail the person who has the machine in their possession actually transmitting or allowing the transmission of the data in question.

There is nothing here in English that gives the Minister the power to mandate that the person who owns or supplies the relevant charge point has to allow the transmission of those data. I know of no obvious principle of jurisprudence that would mean that having a machine of a certain capacity means that it has to be used in a way that lives up to that capacity. It would indeed be strange if there were such a thing, because there are many instances in which people have things with capacities that are lawful, or even mandated, without having the obligation to use them in that way.

If the Minister can explain why enforcing a rule that the charge point has the capacity to deliver the relevant information to the NGC will automatically entail the machines all doing that, I will be delighted and I shall stop inquiring about it. If he cannot, this clearly needs some adjustment so that he has the further power to mandate the flow of data and not just the capacity of the relevant equipment to transmit such data.

Mr Hayes: Let me deal first with the shadow Minister’s comments about cyber security. I am grateful for his brevity, because we dealt with this at length in your absence this morning, Sir Edward. The Government take cyber security very seriously, and the shadow Minister is right that we need to be mindful of the risks associated with malevolent activity, including, as he described it, the hacking of software and other matters. It is important that in the Bill the Government take account of the requirements relating to security, and I simply say to him that they do. If he looks at clause 12(2)(e), we specifically speak of complying with “requirements relating to security”. It is right that information should be shared with those persons who are prescribed in regulations. That would include security measures and, by the way,

might also include the National Grid. We are taking powers in the Bill to ensure that information will be made available in the interests of ensuring security.

I turn to the remarks made by my right hon. Friend the Member for West Dorset about whether clause 12 is sufficient to provide the mechanism that I described earlier and the information that he sought in his speech—this is about creating greater clarity over electricity supply and demand, as he described it, and I will not repeat what he said for the sake of time. I am advised that that is the case, but I am inclined to reflect and write to the Committee. It may be, as with our earlier considerations, that in doing so I am able to satisfy him. When we were debating clause 1, he made the point that the wording of the Bill was not sufficient to make clear its full extent, and I think my supplementary letter helped to clarify that. I suggest that I might do that again, which will allow us to make more rapid progress. I know that will please the whole Committee, and not least you, Sir Edward.

Karl Turner: I beg to ask leave to withdraw the amendment.

Amendment, by leave, withdrawn.

Clause 12 ordered to stand part of the Bill.

Clauses 13 and 14 ordered to stand part of the Bill.

Clause 15

REGULATIONS

4.15 pm

Karl Turner: I beg to move amendment 7, in clause 15, page 8, line 32, leave out from “consult” to end and insert—

- “(a) the National Grid,
- (b) large fuel retailers and service area operators as defined under section 10, and
- (c) any other such persons as the Secretary of State considers appropriate.”

This amendment would require the Secretary of State to consult specifically with the national grid, large fuel retailers and service area operators before introducing regulations.

The Chair: With this it will be convenient to discuss the following:

Amendment 13, in clause 15, page 9, line 33, at end insert—

“(3A) Before making regulations under this Part, the Secretary of State must consult the Scottish Government, the Welsh Government and the Northern Ireland Executive and have regard to their views.”

New clause 5—*Review of regulations in Part 2*—

“(1) Within 12 months, and once in each 12 month period thereafter, the Secretary of State must lay a report before Parliament on the regulations made using powers granted in Part 2 of this Act.

(2) The report must consider—

- (a) the effectiveness of the regulations,
- (b) the impact the regulations are having on public charge point operators,
- (c) the impact the regulations are having on fuel retailers,
- (d) the impact the regulations are having on the National Grid, and
- (e) how the regulations are impacting on the uptake of electric vehicles.”

This new clause would require the Secretary of State to lay a report before Parliament each year assessing the effectiveness and impact of the regulations in Part 2.

Karl Turner: I rise to speak to amendment 7 and new clause 5, which appear in my name. Amendment 7 would require the Secretary of State to consult the National Grid, large fuel retailers and service area operators before introducing regulations. New clause 5 would require the Secretary of State to lay a report before Parliament each year assessing the effectiveness and impact of the regulations in part 2.

Amendment 7 would require the Government to consult widely before regulations were implemented. One significant area that our proposals will deal with is the potential impact of the expansion in the number of charging points on the national grid. To be frank, the Bill barely addresses this issue. There is a fear that huge, sudden spikes in demand could easily damage the network and even lead to power cuts in extreme situations. Serious planning and consultation between the Government, the grid and the charge point operators are required if the policy is to work. I appreciate that the Government are trying to address some of that with smart charging, but the risk is still there, particularly if rapid charging is used at charge points during peak rush hour.

Those concerns need to be carefully considered, and the impact must be monitored in the roll-out of infrastructure changes. Will the Minister commit to considering the matter further, to consulting with the necessary bodies to ensure that the impact is limited, and to ensuring that measures—including smart charging—will be in place to prevent network overload? The Government will have to consider a great many things that they do not know now. They do not yet know what regulations they want to bring in, who these will affect, nor how they will be affected. That underlines the importance of the Government consulting with stakeholders, as requested in amendment 7.

I am not opposed to the use of secondary legislation, because it is necessary to future-proof the Bill, but it is important for the Minister to come back to Parliament with more detail and specific proposals for regulation, particularly on something that, as it stands, does not include much detail. I am sure the Minister will agree that regular reviews can help not only in assessing how things are working, but in guiding future action.

The new clause would require the Government to lay a report before Parliament each year that considers how the regulations are working, specifically their impact on charge point operators, fuel retailers, the National Grid and the overall uptake of electric vehicles. The Government's intention is for the Bill to enable and encourage the uptake of electric vehicles, and we all want to achieve that goal. I think we are right to do that. It would therefore make sense for them regularly to review whether that is actually happening, and whether things need to be changed down the line. Involving Parliament in this issue would not only be beneficial to the Government; it would enable them to regularly reassess their efforts. I would like to think that the Minister would say that to us if our seating arrangements were reversed. We must keep the matter constantly under review and we should be prepared to revisit it if the circumstances require it.

I do not intend to press the amendment to a vote, but I give the Minister notice that we definitely wish to return to this issue. I hope that, as the Bill continues its progress through the House, the Minister reflects on that. Perhaps on Report, his position will have changed

and we can consider using the affirmative procedure. New clause 5 is about review, and if the Minister can give assurances that he is prepared to review, reassess and change the legislation as necessary, I do not intend to press it to a vote.

Mr Hayes: The amendments and the new clause address the issues of consultation and review, as the hon. Gentleman briefly set out. I could give a short version of my speech and simply say to him, "Yes, yes, yes, yes and yes," but I am not sure that that would satisfy the more demanding members of this Committee, so let me explain what I mean.

The hon. Gentleman is right that consultation must be part of the continuing determination to ensure that the objectives of the Bill are met. I am determined that we should consult with the National Grid, large fuel retailers and others before making regulations. I completely agree with him that it will be important to consult a wide range of stakeholders on making regulations under these powers, and that will include the devolved Administrations detailed in amendment 13.

The hon. Gentleman will note that we have an obligation, set out in clause 15(3), to do so:

"Before making regulations under this Part, the Secretary of State must consult such persons as the Secretary of State considers appropriate."

It is right that the hon. Gentleman asks, "Well, who does the Secretary of State consider appropriate?", because these are broad powers. It would certainly include all the organisations he has mentioned and, by the way, others across the industry. The providers of charge points and others must be consulted, as I have emphasised throughout our consideration of the Bill. He can have the binding assurance from me that we will consult in precisely the way his amendment suggests.

Furthermore, I agree with the hon. Gentleman about the business of review. Given that I have emphasised, as I think have other members of the Committee, that this is a rapidly changing area of work, with evolving technology—the modest nature of the Bill means that we know more will need to be done, both in secondary legislation and, I suspect, beyond—it is important that we keep a close eye on how things are developing.

I have already agreed, as a result of the brief exchanges between myself and the hon. Member for Kilmarnock and Loudoun, both today and in earlier consideration of these matters, that we should map the provision of charge points across the country. It is very important that we monitor closely how charge points are rolled out. We have spoken about workplaces, local authorities, service stations and so on and so forth, but we need to get a clear view about where the concentrations of charge points are and what needs to be done to fill in any gaps that emerge.

More than that, it is appropriate to review more generally. I draw the attention of the hon. Member for Kingston upon Hull East to the Small Business, Enterprise and Employment Act 2015, in particular to section 28. He will remember, probably having debated it at other times and in other places, that section 28 creates a

"Duty to review regulatory provisions in secondary legislation"—in my judgment, absolutely properly. Section 28(2) makes it clear that:

[Mr John Hayes]

“The Minister must—

(a) make provision for review in the secondary legislation in which the regulatory provision is made...or

(b) publish a statement that it is not appropriate in the circumstances to make provision for review in that legislation”.

Either the Minister must justify why he is not reviewing, or review.

My strong indication to the Committee is that in those circumstances, we would want to review and consider the ramifications that result from the legislation, for the very reasons I have just given. It is a rapidly evolving and changing field and we want as much debate and scrutiny of it as possible. It is not a matter of contention, but a case of the whole Committee—indeed, the whole House—wanting to get it right. There is provision for us to do so; we have committed to that in clause 15. For those reasons, and with the strong assurances I have offered, I hope that the hon. Gentleman will withdraw the amendment.

Alan Brown: I agree with the principle of amendment 7, and it is good that the Minister says he will take that on board and do the necessary consultation. New clause 5 is about annual review, reporting and updating Parliament, so I would like to hear a wee bit more about how the Minister will do that kind of review of the uptake of electric vehicles and feed back to Parliament, working out, if necessary, what targeted interventions might be required on the back of that.

The Minister said that he would consult the devolved Administrations listed in amendment 13, which appears in my name. I welcome that, but the whole purpose of the amendment was to get the involvement of the devolved Administrations into the Bill, to absolutely ensure that it happens. Based on his earlier intervention, I am sure that the hon. Member for Stirling would agree with that concept.

Certainly, there are advantages to a UK-wide approach, and that requires the involvement of the devolved Administrations. For example, Scotland has its own electric and automated vehicles strategy, which was announced in this year’s programme for government. Scotland is trying to take a lead in the roll-out of such vehicles, and we have set a target of 2032 as opposed to 2040. If the Bill had not been so tight, I would have tabled an amendment to bring forward the 2040 deadline, but unfortunately I have not been able to do so. There is a different strategy in Scotland, and the UK Government need to take that on board, with the Scottish Government.

Scotland has an excess of commercial and academic expertise in smart grids and data management, and we need to ensure that that expertise is tapped into in the consultation and brought forward for the benefit of everyone. I have mentioned the Scottish Government; clearly, other devolved Administrations might have their own priorities that need to be fed in as well. The Minister said that he would give that assurance, but I will look to see how it is taken forward and whether we need to revisit amendment 13 on Report.

I am happy not to push the amendment to a vote; I am just looking for that certainty on an ongoing basis. The Minister is probably aware, regarding the Brexit negotiations just now, that the Scottish and Welsh Governments have raised concerns that they are not fully involved and are getting overlooked. We cannot be in a position where decisions are imposed on the devolved Administrations without consultation and without those decisions being agreed.

Mr Hayes: The hon. Gentleman is not the first, and will not be the last, to clamour to hear more from me, but I do not want to tire the Committee unduly. I have given the commitment that he will have heard about the consultation, but just in case he is uncertain about the good will that lies behind it, let me say, merely on the grounds of unvarnished self-interest, that the Government would certainly want to consult, because we want to get this right. Frankly, there is little for the Government to lose from that kind of dialogue with the devolved Administrations and the whole of the industry. Any responsible Government would want to engage in such dialogue and consultation. I do not suggest for a moment that the hon. Gentleman does not trust my good will, but just in case he does not want to depend on it, I assure him that it is in the Government’s interests to ensure that we get this absolutely right.

Karl Turner: I beg to ask leave to withdraw the amendment.

Amendment, by leave, withdrawn.

Clause 15 ordered to stand part of the Bill.

Ordered, That further consideration be now adjourned.
—(Andrew Stephenson.)

4.29 pm

Adjourned till Thursday 16 November at half-past Eleven o’clock.

Written evidence reported to the House

AEVB 11 Addison Lee

AEVB 12 Vivergo Fuels

AEVB 13 LEVC

AEVB 14 Daniel Scharf

AEVB 15 Matthew Roberts

AEVB 16 Tom Vanstone

AEVB 17 David G. Edwards

AEVB 18 H S Marks

AEVB 19 Andrew Fischer

AEVB 20 Cycling UK

AEVB 21 Simon Hilton

AEVB 22 Mayor of London and Transport for London

AEVB 23 Stephen Mason

AEVB 24 UK Power Networks (supplementary)

AEVB 25 Guide Dogs for the Blind Association

AEVB 26 UK Petroleum Industry Association (UKPIA)

AEVB 27 Letter from the Minister on levels of automation

AEVB 28 Letter from the Minister on Handover period and contributory negligence

AEVB 29 Hubject GmbH, supported by EV Driver Ltd, PlugSurfing GmbH and The New Motion BV

PARLIAMENTARY DEBATES

HOUSE OF COMMONS
OFFICIAL REPORT
GENERAL COMMITTEES

Public Bill Committee

AUTOMATED AND ELECTRIC VEHICLES BILL

Seventh Sitting

Thursday 16 November 2017

(Morning)

CONTENTS

CLAUSE 16 agreed to.
SCHEDULE agreed to.
CLAUSES 17 TO 19 agreed to.
New clauses considered.
Bill to be reported, without amendment.
Written evidence reported to the House.

No proofs can be supplied. Corrections that Members suggest for the final version of the report should be clearly marked in a copy of the report—not telephoned—and must be received in the Editor’s Room, House of Commons,

not later than

Monday 20 November 2017

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The Committee consisted of the following Members:

Chairs: MR ADRIAN BAILEY, † SIR EDWARD LEIGH

- | | |
|---|---|
| † Argar, Edward (<i>Charnwood</i>) (Con) | † Mann, Scott (<i>North Cornwall</i>) (Con) |
| † Brown, Alan (<i>Kilmarnock and Loudoun</i>) (SNP) | † Rodda, Matt (<i>Reading East</i>) (Lab) |
| Duffield, Rosie (<i>Canterbury</i>) (Lab) | † Stephenson, Andrew (<i>Pendle</i>) (Con) |
| † Efford, Clive (<i>Eltham</i>) (Lab) | † Stewart, Iain (<i>Milton Keynes South</i>) (Con) |
| † Foxcroft, Vicky (<i>Lewisham, Deptford</i>) (Lab) | Tracey, Craig (<i>North Warwickshire</i>) (Con) |
| † Hayes, Mr John (<i>Minister for Transport Legislation and Maritime</i>) | † Turner, Karl (<i>Kingston upon Hull East</i>) (Lab) |
| † Jones, Graham P. (<i>Hyndburn</i>) (Lab) | † Western, Matt (<i>Warwick and Leamington</i>) (Lab) |
| † Kerr, Stephen (<i>Stirling</i>) (Con) | |
| † Knight, Sir Greg (<i>East Yorkshire</i>) (Con) | Farrah Bhatti, Mike Everett, <i>Committee Clerks</i> |
| † Letwin, Sir Oliver (<i>West Dorset</i>) (Con) | † attended the Committee |

Public Bill Committee

Thursday 16 November 2017

(Morning)

[SIR EDWARD LEIGH *in the Chair*]

Automated and Electric Vehicles Bill

11.30 am

The Chair: We now resume line-by-line consideration of the Bill. I remind colleagues to turn off any electronic devices, please.

Clause 16 ordered to stand part of the Bill.

Schedule agreed to.

Clauses 17 to 19 ordered to stand part of the Bill.

New Clause 10

REVIEW OF PART 1

(1) By September 2019, the Secretary of State must lay a report before Parliament assessing the effectiveness of the system for defining and insuring automated vehicles introduced by Part 1 of this Act.

(2) The report must consider—

- (a) the impact on the insurance industry,
- (b) the impact on the cost of insurance premiums for automated vehicles,
- (c) the impact on the uptake of automated vehicles, and
- (d) the levels of disagreement between manufacturers and insurers on liability.—(*Karl Turner.*)

This new clause would require the Government to lay a report before Parliament assessing the effectiveness and impact of the system introduced in Part 1.

Brought up, and read the First time.

Karl Turner (Kingston upon Hull East) (Lab): I beg to move, That the clause be read a Second time.

The new clause, which stands in my name and that of my hon. Friend the Member for Lewisham, Deptford, is self-explanatory, so I will not talk at great length about it. We agree that in future automated vehicles have the potential to improve personal transport arrangements, as well as air quality—which is crucial, given the dire state of the environment and its impact on health—and to provide many other benefits mentioned by Committee members and witnesses during our evidence sessions.

The Bill could lead to a transport revolution. I know from debates in Committee and private discussions with the Minister and his officials that the Government are keen to ensure that that is the reality arising from the Bill. Answering the question of how automated vehicles can be insured, however, is essential. I welcome the Government setting out how to do that, but it is important to consider how the measures will work in practice and not just as legislation. It is also important for the Government to ensure that regulations work as intended, monitoring unexpected impacts—which there always are—before attitudes and practices become entrenched and before automated vehicles become common on our roads.

The list in the new clause is not exhaustive, but given the focus on part 1 of the Bill, it makes sense to review, report on and seriously consider not only the impacts listed but any disagreements about liability. I will not press for a vote on the new clause, but this will be a fast-moving area and primary legislation is not necessarily the way forward. We may well have to revisit this overall area as and when advances in the technology take place, and we will have to look at how they affect the way vehicles are insured.

It is important for the Minister to give an assurance today that he will keep Parliament informed about the effectiveness and impact of the legislation to ensure that we keep it as up to date as possible, given the new technologies in this area.

The Minister for Transport Legislation and Maritime (Mr John Hayes): The shadow Minister once again does credit to the Committee by insisting that these matters should be carefully considered not just now but as they develop. He is right that this is a developing technology, and the whole Committee recognises the Government's attempt to do sufficient, but not too much—that is to say, sufficient to create the certainty that will allow the development of the insurance framework, but not so much that we constrain those developments. It is right, of course, that we continue to bring these matters to the attention of the House, which is essentially what the new clause would do. He argues rightly that we need to ensure that the purpose of the legislation is being fulfilled. It is as simple as that.

I risk repeating myself—I know that many rather enjoy the repetition of my arguments; I am not one of them—but I drew the Committee's attention to the Small Business, Enterprise and Employment Act 2015, which specifically makes provision to review secondary legislation in which the requisite provisions are made. It confers that duty on Ministers. There is some advantage to be gained from that. None the less, I have made it clear during the course of our consideration that I am not in any way ill disposed to other means by which we can continue to consider these matters. It is important that we recognise that, in a rapidly changing field, further consideration may be efficacious. On that basis, I hope the hon. Member for Kingston upon Hull East will withdraw his new clause.

Talking of sufficiency, I do not feel that that is quite sufficient an argument. I want to talk a little bit about how we envisage the system working, which might offer further reassurance to the hon. Gentleman and other Committee members. The international standards by which these vehicles will be approved for safe sale and use are still being considered, as I said previously, by the United Nations Economic Commission for Europe, in which the UK plays a leading role. Those standards will form the basis of the type approval process. That means that nothing will be sold or used on our roads that does not meet those standards, and it is vital that standards are agreed internationally, for obvious reasons: the nature of the automotive industry and of the vehicles' use means that it must be done in that way.

The Government take the view that it is not appropriate at this early stage to set criteria that are too precise or to constrain the identification process until we know what those standards are. We certainly need to maintain

sufficient flexibility to ensure that all vehicles relevant to the clause can quickly be identified and included on the list that the Secretary of State is missioned to draw up in clause 1.

Sir Oliver Letwin (West Dorset) (Con) *rose*—

Mr Hayes: I see my right hon. Friend indicating that he wants to intervene. I know that whatever he says will add value to our consideration, so I happily give way.

Sir Oliver Letwin: Can my right hon. Friend confirm that, as he says in the first of the three letters he has helpfully written to the Committee, it will be high on the Government's agenda that the type approval process will be used as the means for ensuring the cyber-security of the vehicles, in addition to their safety? Can he also confirm that he is confident that the international negotiations will result in a type approval system that covers security as well as safety?

Mr Hayes: Yes. That was debated at some length when we last met. My right hon. Friend is right that because of the character of the software we use to make these vehicles work, data and cyber-security become ever more significant. My letter addresses this, as he helpfully reminded the Committee, but I can confirm that the discussions we are having have at their heart all the considerations to which he has drawn the Committee's attention.

We will continue to engage with the Driver and Vehicle Licensing Agency and other stakeholders to ensure that the system works effectively once in place. In addition, we have produced a detailed impact assessment that looks at potential direct economic impacts on the insurance industry. Hon. Members will remember that we rehearsed the effect that this will have on insurance premiums and the industry as a whole in oral evidence. The industry is already preparing for those effects, because it knows that the shape and character of the insurance industry will alter as a result of all this. Indeed, one of the UK's major insurers has stated that it expects insurance premiums to become cheaper because automated vehicles will be safer. That view was echoed by the Bank of England, which reported in March this year that the safety benefits from automated vehicles could see insurance premiums become more than 20% cheaper by 2040.

As part of this regulatory programme, we will continue to work with the industry to ensure that, as the new insurance framework is implemented, we still meet our intended policy objectives. I therefore hope I have made it clear that we entirely agree with the hon. Member for Kingston upon Hull East that these matters need to be considered now and in the future, and I have no doubt that there will be a need for the House to be involved in that process. With those assurances, I hope the hon. Gentleman might see fit to withdraw the new clause.

Karl Turner: I beg to ask leave to withdraw the clause.

Clause, by leave, withdrawn.

New Clause 12

REVIEW OF IMPACT OF PART 2

“(1) The Secretary of State must, within 12 months of this Act receiving Royal Assent, lay a report before Parliament setting out the impact of regulations made under Part 2 on—

- (a) the number and location of charge points in the United Kingdom,
- (b) the resulting uptake of electric vehicles in the United Kingdom, and
- (c) the manufacturing of electric vehicles in the United Kingdom.

(2) Before exercising their duties under subsection (1), the Secretary of State must consult the Scottish Government, the Welsh Government and the Northern Ireland Executive and have regard to their views.”—(*Alan Brown.*)

This new clause would require the Government to produce a report examining the uptake and manufacturing of electric vehicles in the United Kingdom.

Brought up, and read the First time.

Alan Brown (Kilmarnock and Loudoun) (SNP): I beg to move, That the clause be read a Second time.

It is a pleasure to serve under your chairmanship, Sir Edward. I apologise for being late; I am glad I got here in time to make some comments. New clauses 12, 13 and 14, when looked at in the round, encompass a common theme: ensuring a proper UK-wide approach and commitment to reviewing the policy's implementation and effectiveness across all nations of the UK, in terms of the roll-out and uptake of electric vehicles.

I appreciate that the Minister appears to be a listening Minister who reflects, reviews and advises as appropriate. That has been evident throughout the Committee. I also appreciate that he has already made a number of commitments, but the reality is that nothing is absolutely certain unless it is in the Bill. In February 2016, as part of the Enterprise Bill Committee, I was urged not to push an amendment about cash retentions to a vote and was assured by the then Minister that the issue would be resolved by the end of 2016. We are now a full year on from that deadline and the Government are consulting on a previous consultation. That is proof that Ministers and commitments come and go, which is why we are trying to incorporate these measures into the Bill.

New clause 12 would require a binding 12-month review of the impact of the regulations and ensure that the views of the devolved nations are taken on board. For example, the Scottish Government are creating their own strategy for the uptake of ultra low emission vehicles, which they are linking with the Scottish energy strategy, which is obviously a common-sense alignment. It is important that the Scottish Government's 2032 target for phasing out new petrol and diesel cars is not undercut by a UK Government strategy. A further example is that the Scottish Government are offering interest-free loans and free infrastructure installation over and above UK Government grants.

It is quite clear that the UK Government and the Scottish Government can and will work together on future strategies. That could include, for example, the UK Government introducing a vehicle scrappage scheme. New clause 12 would therefore formalise that aspect of working together towards a common goal in the long-term future.

Mr Hayes: It is our concern that these things should be dealt with in the way the hon. Gentleman describes. I have regular dialogue with the Scottish Government, the Welsh Administration and other parts of the kingdom on transport matters and will continue to do so. We get on well, and I think we share a common view that these things should be crafted in a way that works for the whole of the United Kingdom. We make it our habit to involve all relevant bodies in these considerations. The hon. Gentleman can be absolutely certain that that will continue, and I am happy to put it on the record that that dialogue will form an important part of how we see these measures coming into force.

I see the objective of his new clause, and he makes a perfectly understandable case, but I think he will have determined from working with me in Committee in the past that I always try to find means by which we can build bridges across the House—particularly in those areas where, frankly, it is very hard to make party politics. Any Government, of almost any colour, would introduce legislation such as this. It is a necessity. It is vital, relevant and, one might even say, demanded. Those in the industry, such as those engaged in research and development, whom we have all mentioned, know that the Government need to work in collaboration with them to make it all happen in the interests of the common good. I hope that with that firm, strong assurance, the hon. Gentleman will see fit to withdraw the new clause.

11.45 am

Alan Brown: I certainly welcome the Minister's assurances and his comments. I still have the slight feeling of having had my fingers burnt in the past, but I recognise the genuine commitment from him and I beg to ask leave to withdraw the motion.

Clause, by leave, withdrawn.

New Clause 13

REPORT ON ELECTRIC CHARGING POINTS

“(1) The Secretary of State must, within 12 months of this Act receiving Royal Assent, lay a report before Parliament setting out a UK-wide electric charging point strategy that must include, but is not limited to, a strategy for establishing charging points for —

- (a) domestic properties,
- (b) urban and rural settlements, and
- (c) the road network.

(2) Before exercising their duties under subsection (1), the Secretary of State must consult the Scottish Government, the Welsh Government and the Northern Ireland Executive and have regard to their views.”—(*Alan Brown.*)

This new clause would require the Government to consult with devolved administrations and produce a report setting out a UK-wide strategy for electric charging points.

Brought up, and read the First time.

Alan Brown: I beg to move, That the clause be read a Second time.

New clause 13 would formalise the need for a reporting strategy for establishing charge points covering the varied demographics and geography of the UK, and would include differentiating between rural and urban areas. I appreciate that the Minister has spoken at length about the commitment to consider how we can roll out so as to ensure that rural areas are not left behind.

Again, this is about ensuring a UK-wide approach and picking up on other investment required for rural areas, which I have touched on before, such as mobile coverage upgrades. Additionally, as other hon. Members have highlighted, a strategy for domestic properties needs to be developed covering solutions such as charging points accessible to terraced houses and flats, and possibly roll-out in future developments, so that infrastructure is incorporated as new developments take place. We also need to consider the road networks and allow best practice to be rolled out fully across the UK. That is the idea behind the clause, and I look forward to the Minister's response.

Matt Western (Warwick and Leamington) (Lab): As I did on Second Reading, I want to re-emphasise the point about the provision for other forms of electric vehicle—the Minister and I have had conversations elsewhere about it—particularly in the provisions for EV buses, for example, and cycles.

We are facing a revolution, not just in cars but in all forms of mobility. It is incumbent on us to recognise that at this juncture we should be thinking about how to integrate those needs into the Bill, and specifically about infrastructure. We have talked about where sites might be located, and about commercial properties, but we should be thinking specifically about the infrastructure needed for buses in our town centres. I urge that that be incorporated into the new clause as well.

Alan Brown: I welcome that intervention. It is a valid point; we need to look at the wider considerations. Buses and other vehicles are the biggest polluters in terms of NOx, so it is certainly an important consideration. As I said, I will be happy to hear the Minister's response; I hope that it will encapsulate these issues as well.

Mr Hayes: In 2013, as the whole Committee, including the hon. Gentleman, will know, the Government published “Driving the Future Today”, which set out the path to achieving zero-emissions vehicles. It was Yeats, my favourite poet, who said that

“Happiness is neither virtue nor pleasure nor this thing or that, but simply growth. We are happy when we are growing.”

The growth of new kinds of vehicles has been almost unremitting since that publication. The facts speak for themselves. There are around 10 times more ultra low emission vehicles registered in the UK than in 2013, so although the aims of the strategy published then remain the same, the hon. Gentleman is right that we need a new one. I have thought about it since I read his new clause and since hearing the arguments made from both sides of the Committee. We shall publish a new strategy that will include all vehicles. The hon. Member for Warwick and Leamington is right: we have had private discussions about this and he has made representations to me. We will start work on it now, because I do not want to delay—I am casting an eye only at the politicians in the room, by the way. Shall we say that we will have it completed and published by March? That would be well within the time in which the Bill is being considered. On that basis, I hope the hon. Member for Kilmarnock and Loudoun will withdraw his new clause.

Alan Brown: As the Minister says, the facts speak for themselves. I certainly welcome that review and that forward direction. I would also be grateful if he wrote to the Committee to confirm the timescale and the terms of reference.

Mr Hayes indicated assent.

Alan Brown: On that basis, I beg to ask leave to withdraw the motion.

Clause, by leave, withdrawn.

New Clause 14

REPORT ON IMPACT OF ELECTRIC VEHICLE CHARGING POINTS ON ENERGY CONSUMPTION

“(1) The Secretary of State must, within 12 months of this Act receiving Royal Assent, lay a report before Parliament on the impact of charging points on—

- (a) energy consumption,
- (b) grid management, and
- (c) grid storage capacity.

(2) Before exercising their duties under subsection (1), the Secretary of State must consult the Scottish Government, the Welsh Government and the Northern Ireland Executive and have regard to their views.

(3) As well as consulting those in subsection (2) the Secretary of State must consult with—

- (a) the National Grid, and
- (b) any other such persons as the Secretary of State considers appropriate.”—(*Alan Brown.*)

This new clause would require the Government to consult with devolved administrations and produce a report on the impact of energy consumption as a result of increased number of electric vehicles in the UK.

Brought up, and read the First time.

Alan Brown: I beg to move, That the clause be read a Second time.

The Minister’s comments on new clause 13 almost make mine on new clause 14 superfluous, because some of the matters that I will raise can be incorporated as he outlined. New clause 14 returns to the theme of assessment and understanding of the impact of uptake on the energy network. We know that spikes in electricity usage are predicted while vehicles are being charged, but there is a huge variation among analysts’ predictions of how big peak surges could be. It all depends on when electric vehicles are plugged in and charged. We heard in evidence from the National Grid that it does not think the surge will be as large as predicted by many other analysts, who say that it will completely overwhelm the network.

The facts speak for themselves, as the Minister said. The number of electric vehicles on the road is still at a low point; we will fully understand the impact on the grid only once the uptake of electric vehicles has increased massively. That proof will be really important, and it is important that the Government review how uptake works in practice. What will the increase in peak electricity demand be? What impact will that have on the National Grid? What upgrades will be required? How will that feed into smart grid charging strategies and future energy storage requirements? All those questions need to be taken into account.

New clause 14 sets out a 12-month timescale, but at the predicted rate of uptake of electric vehicles, we will probably still not understand the full impact on the grid of people’s behaviour in that time. The roll-out of electric vehicles may be patchy across the UK, so on reflection I must admit that even 12 months might not

be enough. However, I hope that the strategy assessment that the Minister mentioned in his remarks on new clause 13 could also incorporate consideration of this issue, with a commitment to further reviews in future.

Sir Oliver Letwin: I am delighted that the Minister is talking to the National Grid and others. I entirely sympathise with the hon. Gentleman’s desire to see a transparent product of those discussions: a continuous published analysis of impacts.

There are two kinds of impact. The hon. Gentleman mentioned the adverse impact on the grid from peak moments early in the morning or late in the evening, and in winter there is a lot of fast charging, which will increase the peak effect. However, I am much more interested in the other kind of impact, which I see as much more serious: the benefits, which many of us have seen for some years, that the National Grid anticipates from peak shaving. Night-time, and indeed daytime, vehicle charging can be switched off at moments indicated as economically advantageous to the car owner by the half-hourly settlement price. It is also highly economically advantageous for the grid to have reduced demand at such moments, avoiding the need for additional power. That would transform the economics of intermittent energy supply, including through renewables, for example solar, which are currently not regarded as having any contribution to capacity. I am very much in favour of new clause 14’s general principle; I am sure the Minister is about to assure us that he will fulfil that principle through regular publications.

Matt Western: To emphasise the point and go back to buses, which I mentioned earlier, the scale of the need will be quite significant, say in our town centres, where we may have a bus that will be using these charge points for opportunity charging—an immediate fast charge—drawing 300 kW. If we think about, say, 10 buses in our town centres, we can imagine what sort of requirement would be needed. I add that to the debate.

Sir Oliver Letwin: The hon. Gentleman is clearly right that the bus issue is serious. This is not the place for a prolonged discussion about the patterns of charging and so on, but my own instinct is that battery life will have got to the point at which overnight charging will probably mainly suffice for buses. I am also quite optimistic about the ability to have charging en route on the most thickly used routes. Let us leave that aside for the moment. Clearly, we are joined in the view that the Minister will need, through the grid and others, to publish assessments of all kinds of use and storage, including not just cars but buses, taxis and vans, and indeed bicycles, although that is a minor item.

Another issue connected to new clause 14 goes back to the third of the letters that the Minister has helpfully written to the Committee in response to points that I raised earlier about clauses 11 and 12. I am very grateful for the subsequent discussions the Minister has facilitated about that with his officials. I hope he can confirm that he will now look at one specific issue further, which I do not think is wholly handled in the third of his letters. That is the question of ensuring that the vires given by clause 12(1) and (2), for him or the Secretary of State to issue regulations mandating the transfer of data from charge points through to the grid and the distribution

[*Sir Oliver Letwin*]

network operators, are sufficiently well established by a technical drafting amendment to ensure that they are not challenged successfully in court.

That is obviously vital, because if the spirit of new clause 14 is to be observed and the grid is to be able to publish reasonably reliable forecasts of the pattern of charging and storage provided or demanded by electric vehicles, it needs to be able to use and mine the data from the use and charging of electric vehicles as it evolves. The only way to structure an electricity system is to plan some years ahead. Therefore, we need evolving information to be relayed from an early stage, so that before the load or the opportunity for storage become very big, the pattern is well understood.

To say one further word about that, the Committee must be aware that it is not a marginal point. If those patterns are well understood, the history suggests that one can save in the order of one quarter to one third of the investment costs of the entire electricity supply industry, compared with a situation in which there is chaotic unanticipated demand. The whole system relies on ensuring that one has a capacity margin at peak. If we cannot accurately predict the peak, because we do not understand the configurations of demand and supply on the system, we have to over-provide. We thus end up having bought a lot of heavy metal that is sitting there doing nothing, which is very expensive for the economy. We are talking about fives or 10s of billions of pounds. It is material that that data flow starts, starts early, and starts accurately, without missing anything off, so that the grid can start building a transparent picture that then, as in the hon. Member for Kilmarnock and Loudoun's new clause 14, is regularly published and updated.

12 noon

The last point I want to make is that although I am not suggesting that the regulations necessarily need to cover this, it is very important that in the Minister's discussions with BEIS, the grid and the DNOs he makes it clear that we will not tolerate a private assessment of this. It needs to be transparent. The reason I say that is, unfortunately, bitter experience. There is a terrible tendency inside the electricity supply industry, when things are getting tight, to go into a huddle and pretend all is well. The two worst Christmases I have spent in my life were when I was alternating between walking around in gumboots in flood zones and sitting tearing my hair out because it was clear that we did not know whether the system was going to balance because the grid had not been transparent enough about the real status of the interconnector contracts. There was this tendency to keep things in a cupboard.

The only way that we can ensure security of supply in this country is if there is maximum transparency of all these data, so that all sorts of people, not just the experts, can look it at, understand it and come to their own common-sense conclusions about whether we have sufficient margins of supply. That is very important, because even the sums I was talking about pale into insignificance when compared with the economic disutility of having power cuts.

The hon. Gentleman's intent behind new clause 14 is absolutely right, and I am pretty confident that this Minister and his colleague, the Minister responsible for energy, will fulfil the spirit of it.

Mr Hayes: It is indicative of the generosity that typifies your stewardship of this Committee, Sir Edward, that you have allowed us to speak about the new clause, arguably tangentially but not in a way that is not helpful to our consideration. I will return to the argument of the hon. Member for Kilmarnock and Loudoun in a second, but the remarks of my right hon. Friend the Member for West Dorset are reminiscent of the conversations that he and I had many years ago when I was the Minister responsible for energy and when we unsuccessfully attempted jointly to address these matters.

My right hon. Friend is right to say that it is important that the Bill creates the necessary means by which powers could be taken, should they become necessary, to deal with the flow of information in the way he described. He will know well, having studied the Bill in detail, that although clause 11 and clause 11(2) in particular suggest that the Secretary of State can indeed take powers that he considers necessary, those powers are defined as being

“likely to be useful to users or potential users”

of a charge point. Moreover, there is nothing in clause 12 that specifically addresses the argument that my right hon. Friend just made.

In the light of that I am minded to consider a minor technical Government amendment, which either adds a further Roman numeral to the list or amends one there already, to be certain that the Secretary of State taking the powers detailed in the Bill could do so for the purpose that my right hon. Friend set out. I hope that will be sufficient to persuade him not to become rebellious and, even if the hon. Member for Kilmarnock and Loudoun, who I am about to try to satisfy, withdraws his new clause, bring something potentially destructive to bear, thereby changing the whole atmosphere of this extraordinarily convivial Committee.

I think the hon. Member for Kilmarnock and Loudoun is right again, if I may say so. It is certainly true that the strategy that I described, which we will bring in with vigour and rigour, with diligence and alacrity, should include the manufacture or use of electric vehicles. That is a given. It needs furthermore to relate that to the Government's environmental objectives, which I spoke about earlier—our desire to create a low emission vehicle environment that is helpful to our broader air quality plans. However, he is also right that consideration of the matters brought up by his new clause must be part of that broad sweep or strategic approach. So, again, he does us a service by highlighting that.

I will take that point away and I hope that by the time we get to the next stage of our consideration of the Bill I will be able to say a little more about the characteristics of the strategy. On that basis, I hope that my right hon. Friend the Member for West Dorset and the hon. Member for Kilmarnock and Loudoun will feel that I am going not the extra foot or yard but the extra mile to ensure that their wishes are granted.

Alan Brown: It is often asserted that the SNP is never satisfied in this place, but I am certainly satisfied with the Minister's remarks and with that direction of travel, so I beg to ask leave to withdraw the new clause.

Clause, by leave, withdrawn.

New Clause 15

LIABILITY OF INSURERS ETC WHERE ACCIDENT IS CAUSED BY AUTOMATED VEHICLES IN CONVOY

“(1) That the Secretary of State must set out in regulations liability for insurers and other parties where an accident is caused by automated vehicles driving themselves in convoy.

(2) These regulations must make provision for—

- (a) a definition of automated vehicles driving themselves in convoy,
- (b) determining liability of insurers and automated vehicle owners in cases where—
 - (i) the automated vehicles travelling in convoy are insured, including where the vehicles may be insured by different companies;
 - (ii) one or more of the automated vehicles driving in convoy are not insured.
- (c) resolving liability disputes where automated vehicles are driving in convoy,
- (d) ensuring any compensation received by the injured party in such accidents is not delayed by liability disputes.

(3) Where a statutory instrument contains the first regulations made under this section, the instrument may not be made unless a draft of it has been laid before Parliament and approved by resolution of the House.

(4) A statutory instrument containing regulation under this section that is not the first such regulation made under this section, is subject to an annulment in pursuance of a resolution of either House of Parliament.”—(*Clive Efford.*)

Brought up, and read the First time.

Clive Efford (Eltham) (Lab): I beg to move, That the clause be read a Second time.

The Committee will be pleased that this is the last of my amendments and my last contribution to the debate. It has been a pleasure to be on the Committee under your chairmanship, Sir Edward; please pass on my regards to Mr Bailey. I also thank the Clerks for their assistance in loaning me a few of their grey cells, from their humungous brains, to draft my ideas for amendments and make them legible; I am very grateful for their assistance.

The Bill attempts to make it easy for an injured party to claim in the event of an accident. That is necessary because we are opening up the insurance industry and disputes in the event of an accident to considerations that have not been part of our road system in the past. That is, we are bringing manufacturers further into the possible area of liability than they have been before, because vehicles will be controlled not by people but by machinery and computer software. Software designers may even be dragged in to these disputes.

As we heard in our evidence sessions, in some circumstances these automated vehicles will be connected and moving in convoy. It is an interesting concept that vehicles moving in convoy will communicate with one another, as is how they will share information and how that information will be used. When we look out of our vehicles, we see the immediate environment around us, but if vehicles are travelling in convoy and communicating with one another, they can see the road ahead exactly as it is seen by the vehicle at the head of the convoy. So, if something is amiss in the first vehicle with the data or the design of the software, or if there is a glitch, that will affect the vehicles further down the line.

When we discussed this issue at our last sitting, the potential hacking of the software was mentioned. If there is hacking, the driver of the vehicle cannot therefore be held responsible—he or she did everything they could to make sure the vehicle was roadworthy—and the manufacturer of the vehicle and the designer of the software may say, “Well, we did everything that was reasonable”. Helpfully, the Minister has written to us to say that in those circumstances the insured person—the person who took the vehicle on the road—is the responsible party.

However, in those circumstances the situation will become more confused and, again, this is an area that the Government need to consider, because who is responsible when we know that the vehicles are not necessarily driving themselves as they are communicating with one another? The assumption in this Bill is that the insurance companies will pay out and it will all be sorted out afterwards, but we know that that is not true.

My daughter had a collision. No one was injured, but her vehicle was damaged. Only when the two insurance companies had sorted out the blame—that is, who had caused the dent in the vehicles—was the claim settled. That took several months, during which time she was driving around in a brand-new damaged vehicle. The insurance company did not pay out straight away, so under circumstances in which consideration of who is responsible could be quite complicated—particularly instances where several vehicles were travelling in convoy—it could take some time for insurance companies to settle who should pay in the first instance. The Bill needs to protect the consumer—both the insured, and the third party, who may be the injured party. We could be creating a situation where no party is paid for some time while those complications are sorted out.

With these automated vehicles, which will be communicating with one another on the road, we are introducing an area that needs further consideration. I am not suggesting for a minute that the Minister should have the answer now—not even on the bit of paper that he may be passed in a few seconds—but I do think that this matter is worth further consideration by the Government, particularly as the Bill progresses through both Houses. We may well come back and look at this complication in more detail at a later date, so that we ensure that we are protecting the consumer—both the insured, and the third party.

Sir Oliver Letwin: I want to add one or two words to what the hon. Gentleman says. I do not know whether it is sensible to try to address this in regulations under the Bill, whether it is better to leave it to the courts to settle, or whether some other legislation is necessary, but the hon. Gentleman’s point, although it has its analogue in existing practice, is very serious. Of course there are effectively already convoys on motorways when they are very busy, with somebody at the head of it and, some miles behind, me chugging along in my car. All sorts of complicated things happen, and I am sure that the Minister will be advised to assure the Committee that the courts and insurers already have mechanisms for resolving between them how everything works, and that in principle it makes no difference whether an automated vehicle driving itself or a human-driven vehicle is at the head of the queue.

[*Sir Oliver Letwin*]

I see that point entirely, but the difference is that that only happens from time to time on our motorways at the moment. Although it is not at all certain, it is quite likely that motorways will turn into automated, semi-autonomous trains, and that people will basically go onto the motorway and lock into a system which they are then part of, perhaps then travelling hundreds of miles in convoy. The convoys themselves may be hundreds of miles long.

Sir Greg Knight (East Yorkshire) (Con): How boring.

Sir Oliver Letwin: My right hon. Friend says how boring; I see life entirely differently. He is of course a driving enthusiast, and has the most magnificent machines to drive. I drive one of the smallest and cheapest cars in the United Kingdom, and hate driving. I cannot think of anything more delicious than being able to lock in and leave the machine to it while I am reading, listening to music, or talking to my wife. I think all of those things are much nicer than driving, but there we are—tastes differ, chacun à son goût.

My point is, whether we like it or not, we are likely to be in that condition in the future. Once that starts being the case on motorways, Governments and Parliaments—regardless of the political colour of the Administration—will be ineluctably driven to mandate those circumstances, because the efficiency with which motorways can be used will multiply by some considerable factor. Therefore, the amount of motorway building that needs to go on, a significant component of total capital expenditure in the UK budget, will reduce by some appreciable factor. We will clearly be driven in that direction if the technology permits, and it may very well do so.

12.15 pm

Given all that, there is a chance that there will at some point be some mega problem, potentially involving thousands, perhaps tens of thousands, of cars, if the technology is not perfect. We all hope it will be, but it probably will not. It may happen on only very few occasions—perhaps far less frequently than crashes today—and perhaps the problems will have far less significance. I am not prophesying doom and gloom. Nevertheless, these events could be very complicated and very large in scale. They could be much more like what happens when there is a natural disaster, when there is flooding all over the place and thousands of people are seeking insurance claims, than what happens with the normal traffic accidents that we are used to, in which one, two, five or 10 vehicles are involved.

It would be worth hearing from the Minister that somebody has at least gone through this and ensured that if there were such a massive concertina affair everybody would be clear about the problems that the hon. Member for Eltham raises. Which insurers will, in the first instance, pay out? I am not concerned about everybody settling it between themselves. We all want to ensure that the injured parties get their money quickly and that no insured party is unjustly treated, has to pay up a large amount of money and has to go to court to recapture it. It is worth thinking this through for clarity, even in the event of a massive concertina crash. I hope the Minister will tell us that he has done that, that he is going to do it or that some independent group is going to do it so we do not lose sight of this issue.

Mr Hayes: Given that it is not our intention for platooning to be self-driving at this stage—the trials I am about to describe do not include autonomous vehicles—it seems that in allowing us to have this brief debate, Sir Edward, your generosity knows very few bounds indeed. None the less, it is a helpful debate.

As the hon. Member for Eltham knows, we started platooning trials in August. We are adopting a highly consultative approach, and the trials are ongoing. The hon. Gentleman is right that we will need to consider a range of issues not necessarily directly related to the Bill but not unconnected from it, one of which might be the gradual addition of autonomous vehicles into the platooning mode, as it were—that way of driving.

There are potential benefits to platooning, particularly for the movement of goods nationally, which is why we are trialling it. I accept that the insurance issues will need to be considered very carefully for reasons set out by the hon. Gentleman and my right hon. Friend the Member for West Dorset. As a result of this very useful though short debate, I will be happy to ensure that we include in the consultation discussions with the insurance industry in anticipation of the addition of autonomous vehicles into the platooning field. It will, of course, already be considering the insurance issues relating to non-autonomous vehicles that are platooning. That is implicitly part of what that consultation is about. I am happy to commit to including autonomous vehicles in that.

I obviously cannot comment on individual cases; it would be quite wrong to do so. It is right to say that as an insurance framework develops from the Bill it must be sufficient to take into account the arguments made in the new clause. I will certainly ensure that that message is transmitted not only from this Committee but from the Government. On that basis, I hope the hon. Member for Eltham will withdraw the new clause.

Clive Efford: The Minister is in an extremely generous mood this morning. I am reassured by his comments that he will take these matters on board and consult on them in the future. There are some important issues here, but I am satisfied by what he has said, so I beg to ask leave to withdraw the motion.

Clause, by leave, withdrawn.

New Clause 16

SHARING OF DATA TO RESOLVE LIABILITY DISPUTES

“(1) Where an accident occurs under sections 2, 3 or 4, the insurer and other interested parties have the right to acquire data from the automated vehicle for the purpose of determining the extent of liability.

(2) The Secretary of State must set out in regulations a system for handling and sharing data generated in respect of accidents involving automated vehicles.

(3) These regulations must make provision for—

- (a) the format and content of the data recorded by automated vehicles,
- (b) identifying who is responsible for data collection,
- (c) identifying which interested parties have the right to acquire data from the automated vehicle,
- (d) how such data may be acquired by the insurer and other interested parties, and
- (e) any limitation that should be placed on how that data can be shared or used.

(4) Prior to making regulations under this section, the Secretary of State must consult with such persons as the Secretary of State considers appropriate.

(5) Where a statutory instrument contains the first regulations made under this section, the instrument may not be made unless a draft of it has been laid before Parliament and approved by a resolution of each House.

(6) A statutory instrument containing regulations under this section, that is not the first such instrument made under this section, is subject to annulment in pursuance of a resolution of either House of Parliament.”—(*Karl Turner.*)

This new clause would ensure that insurers and other interested parties have access to automated vehicle data for the purpose of resolving disputes on the extent of liability where an accident has occurred. This clause would give the Secretary of State power to make regulations on how such data should be handled and shared.

Brought up, and read the First time.

Karl Turner: I beg to move, That the clause be read a Second time.

The new clause will ensure that insurers and other interested parties have access to automated vehicle data for the purpose of resolving disputes on the extent of liability when an accident event has occurred. The clause will give the Secretary of State the power to make regulations on how such data should be handled and shared.

An automated vehicle is likely to produce huge amounts of data on such things as car location, traffic information, weather information, its route, passenger information and even the parcels that it carries, if used commercially by a courier. Clearly, there are huge advantages to vehicles producing that data when resolving disputes on the extent of liability—for example, increasing the speed and quality of decisions. The data will be a valuable source of information for the insurer and other interested parties.

There are risks. The information gathered by the vehicles might be sensitive; information that needs to be kept private could be damaging if placed in the wrong hands. It is important that the Government ensure that the gathered data is secure, private and accessed only by relevant authorised parties.

Sir Greg Knight: Does the hon. Gentleman agree that without this new clause, the data would probably still be made available, but only after one of the parties sought a court order to obtain it by arguing that it was necessary to settle the issue of liability? Does he also agree that there would be a cost in obtaining that information and that, generally speaking, the person requesting the information should pay that cost, even if he or she is later reimbursed in the settlement of the case?

Karl Turner: Yes. The right hon. Gentleman makes a valid point. As a lawyer, I am always reluctant to make lawyers redundant, but that is clearly a potential outcome.

New clause 16 will give insurers and other interested parties access to that information. It will require the Secretary of State to consult with the appropriate persons and then to put in place regulations for the handling and sharing of such data. [*Interruption.*] The Minister is nodding along nicely to my remarks and I look forward to his response.

Mr Hayes: With you in the Chair, Sir Edward, I feel I am surrounded by lawyers.

The hon. Gentleman is right that data collection will be vital as the technology develops. Furthermore, he is right that this is a potentially challenging area because of the sensitivity of some of that data. I would go still further and say that there is a balance to be struck

between the desirable collection of data to establish what might have occurred in the event of an accident and the privacy of drivers. That balance will need to be struck with great care and must be struck internationally, because people drive across borders. I have spoken repeatedly about the development of international standards, mainly in relation to the type approval process. Those international discussions should and will include the parallel issues of data storage and data collection. As I have made clear, we are engaged in those discussions, and we will certainly want to highlight the issues raised in the new clause as those standards develop.

The debate about what data, beyond who or what was in control of the vehicle, needs to be collected has begun but still needs to conclude. That debate will include engagement about who needs to access that data, and on what basis and for what purpose they will be allowed to access it. That will need to be clearly established to avoid the eventuality—which the hon. Gentleman, given his previous professional circumstances, teasingly offered us—of countless legal cases, no doubt with countless legal fees.

Matt Rodda (Reading East) (Lab): I share the Minister’s concerns about this point. As a non-lawyer, I must admit that my knowledge of the legal aspects is somewhat limited. However, I represent a constituency with large IT businesses, and I urge him to consider the IT industry’s views about the management of big data. There is an ongoing debate in the industry about the various international conventions and rules that govern data. Will he and his officials consult the industry and take on board its concerns about the impact of Brexit and, indeed, our ongoing relationship with the United States on the management of that data? A number of those businesses operate in the European Union, the US and the UK, and I hope that they continue to do so.

Mr Hayes: I regard Brexit as the prospect of a dream coming true. It is a subject of great joy and delight to me. However, I do not want to open up—

The Chair: This was going to be the only Committee where we did not mention Brexit. Let us get back to the point.

Mr Hayes: I should not have done so; I allowed the debate to run away with me. Notwithstanding that, there are challenges associated with Brexit, and the hon. Member for Reading East makes the perfectly fair point that we need to take that into account.

Sir Greg Knight *rose*—

Mr Hayes: I was about to reach my enthralling conclusion, but I happily give way briefly to my right hon. Friend.

Sir Greg Knight: Does the Minister agree that, without international agreement about how it is stored, the data will be in as many forms as there are car manufacturers? That would mean that only the manufacturers themselves were able to decipher it. There is a strong argument for seeking international agreement on this matter.

Mr Hayes: My right hon. Friend is right; he makes a sound point. That is precisely why I said in response to the shadow Minister that we need cross-border international agreement.

[Mr John Hayes]

By the way, the hon. Member for Reading East is right, too, about the need to ensure that industry—not just the automotive industry, but the IT industry—is engaged. As he knows, my background is in the IT industry, and it is important that we take advantage of all available expertise in judging why, but also how, we manage data. The “why” is about the balance I described earlier, and the “how” is about the mechanisms for achieving that balance.

I end with this statement, which I hope is sufficiently reassuring. I assure hon. Members that the UK Government and others around the world are investing heavily in automated and connected technologies that will assist in providing evidence of what minimum event data recording and sharing requirements might be needed and wanted. We will work on an international basis to decide what can be done, what should be done and how it will be done. Given that assurance, I hope that the shadow Minister withdraws the new clause.

Karl Turner: I am happy to do so. I beg to ask leave to withdraw the motion.

Clause, by leave, withdrawn.

New Clause 17

ACCIDENT RESULTING FROM UNAUTHORISED INSPECTION, REPAIR OR MAINTENANCE OF AUTOMATED VEHICLE

“(1) An insurance policy in respect of an automated vehicle may exclude or limit the insurer’s liability under section 2(1) for damage suffered by an insured person arising from an accident occurring as a direct result of unauthorised inspection, repair or maintenance of the automated vehicle, made by the insured person, or with the insured person’s knowledge, that are prohibited under the policy.

(2) But as regards liability for damage suffered by an insured person who is not the holder of the policy, subsection (1) applies only in relation to unauthorised inspection, repair or maintenance of the automated vehicle which, at the time of the accident, the person knows are prohibited under the policy.

(3) Subsection (4) applies where an amount is paid by an insurer under section 2(1) in respect of damage suffered, as a result of an accident, by someone who is not insured under the policy in question.

(4) If the accident occurred as a direct result of unauthorised inspection, repair or maintenance of the automated vehicle, made by the insured person, or with the insured person’s knowledge, that are prohibited under the policy, the amount paid by the insurer is recoverable from that person to the extent provided for by the policy.

(5) But as regards recovery from an insured person who is not the holder of the policy, subsection (4) applies only in relation to unauthorised inspection, repair or maintenance of the automated vehicle which, at the time of the accident, the person knew were prohibited under the policy.

(6) For the purposes of this section the Secretary of State must by regulations establish a scheme for authorised inspection, repair and maintenance of automated vehicles by licensed and accredited technicians.

(7) The scheme must include details of—

- (a) which professional body will operate the licensing and accreditation of technicians,
- (b) how the licensing and accreditation scheme will operate,

(c) a minimum level of training for technicians working on listed automated vehicles, and

(d) how a list of accredited individuals will be prepared and kept up-to-date.

(8) Prior to making regulations under this section, the Secretary of State must consult with such persons as the Secretary of State considers appropriate.

(9) Where a statutory instrument contains the first regulations made under this section, the instrument may not be made unless a draft of it has been laid before Parliament and approved by a resolution of each House.

(10) A statutory instrument containing regulations under this section, that is not the first such instrument made under this section, is subject to annulment in pursuance of a resolution of either House of Parliament.”—(*Karl Turner.*)

This new clause would ensure that insurers should not have to bear liability to the insured person for accidents caused by the vehicle being inspected, repaired or maintained by unauthorised technicians in breach of the insurance policy. This would apply subject to various conditions regarding the level of knowledge of the insured person or policyholder about the insurance policy requirements. This clause would give the Secretary of State power to make regulations on a scheme for authorised inspection, repair and maintenance of automated vehicles by licensed and accredited technicians.

Brought up, and read the First time.

12.30 pm

Karl Turner: I beg to move, That the clause be read a Second time.

The new clause, which stands in my name and that of my hon. Friend the Member for Lewisham, Deptford, would protect the insurer against accidents caused by vehicles having been repaired by unauthorised technicians. It would also require the Government to establish a scheme for authorised inspection. The automotive industry already relies on hundreds of thousands of individuals in roles to support, work on and maintain vehicles. As the technology develops, so too must the skills of those working on them.

We are aware of existing skills gaps in the industry. The Minister and I have had discussions about this very issue. I think the Government have got a really good intention to skill up people in this area, but as the technology develops, skills gaps seem to be worsening. The Bill does not address the worsening skill gap. If we do not start planning now, we will be left with a huge hole in the support structures for the new vehicles. That is why the Opposition believe, as do a number of stakeholders, that the Government should introduce an accreditation scheme for technicians to work on future vehicles. I think the Minister previously said publicly that he may do just that.

If the Government are not proactive, the UK will not be able to support growth in the new technologies. Will the Minister therefore consider introducing an accreditation scheme for technicians, not only to address the skills shortage but to provide a wider set of protections for insurers against unauthorised repairers and unauthorised maintenance of these vehicles, as set out in the new clause?

Mr Hayes: It is a paradox that, as we become more ambitious in respect of future transport, we simultaneously create a greater and greater problem in respect of the skills necessary to deliver those ambitions. With the road investment strategy, which I began, and with our rail investment strategy, High Speed 2, Crossrail and all

the other developments, the need for transport skills is growing at a pace that is hard to satisfy. We have analysed that thoroughly. Indeed, I think we can fairly say that the Department for Transport is a leader in terms of mapping those future needs and identifying the space between where we are now and where we need to be. Encouraging more and more people to gain those skills will be critical and could be the “make or break” of the technology. Investing in infrastructure means investing in people as well as in things.

If that is a paradox, it is a pseudodox that the only means of gaining fulfilment comes through academic accomplishment. Curious, is it not, that we should have convinced ourselves of that for so long. Frankly, I was never convinced, but many were. Of course, it is through the application of technical and vocational skills that many people find not only their ultimate fulfilment but the means by which our economy works. Encouraging more people to take the practical journey towards the achievement of such competencies is vital. That is why I am so passionate about apprenticeships and why, when I was apprenticeships Minister, I championed those practical skills.

It is perhaps through practical accomplishment—the combination of the work of one’s hands and one’s mind—that people are most likely to achieve the sublime. Most academic learning, at least up until master’s degree level, is derivative. Technical learning is creative at a much earlier stage. Perhaps a journey to the sublime is made more likely through what we do practically, technically and vocationally.

I agree with the hon. Member for Kingston upon Hull East. Furthermore, I agree that we need to codify and accredit such skills. The argument becomes, therefore, not about intent, but about method. It is probable that we are at too early a stage to be certain about what that kind of accreditation might look like. Nevertheless, I am happy to agree to have further discussions with the Institute of the Motor Industry and others to help the Government to understand the challenge of ensuring that vehicle maintenance and repair is carried out in a professional and safe manner for technicians and drivers.

May I add a relevant further point, Sir Edward, that does not directly relate to the proposed new clause? I hope your earlier generosity will not have ended.

The Chair: Well, lunch is approaching, so it is getting a bit frayed.

Mr Hayes: Your generosity declines the closer we get to food; I can understand that, Sir Edward.

There is a risk that smaller providers of services—the small garages and small businesses—will be disadvantaged if those skills are found only in the proprietary repair centres of major manufacturers. I am keen that that should not be the case, not only because it will make those small businesses less viable, but because it will mean that people will travel further to get their car serviced and repaired—the major centres will not be so evenly distributed—and that those acquiring the skills will have to travel much further to do so.

I hope we might be able to emulate the industries that the hon. Member for Reading East mentioned earlier and represents. In the IT sector, while there are a relatively small number of very large manufacturers,

they work through a whole series of other smaller businesses that are accredited to work with them or for them. Perhaps that is the model we should look at to avoid the unfortunate eventuality that I have taken the liberty, with your indulgence, Sir Edward, of drawing to the Committee’s attention.

The hon. Member for Kingston upon Hull East and most of the House are well aware of my absolute commitment to and passion for skills. On that basis, I hope he will withdraw the amendment.

Karl Turner: I will happily do so. It is fair to say that the Minister has gone beyond what I had anticipated, so I beg to ask leave to withdraw the motion.

Clause, by leave, withdrawn.

New Clause 20

CONSULTATION ON THE COLLECTION AND USE OF DATA FROM ELECTRIC VEHICLE CHARGING POINTS AND SMART CHARGE POINTS

‘The Secretary of State must consult with such persons as the Secretary of State considers appropriate on the collection and use of data from electric vehicle charging points and smart charge points. The consultation must address—

- (a) who is responsible for collecting the data from electric vehicles and from any associated charging or network infrastructure used by such vehicles,
- (b) how the data is shared between different parties, and
- (c) any limitations on the use of such data.’—

(Karl Turner.)

This new clause would require the Secretary of State to consult on the collection and use of data from electric vehicle charging points and smart charge points.

Brought up, and read the First time.

Karl Turner: I beg to move, That the clause be read a Second time.

I do not intend to speak for long to this new clause, which stands in my name and that of my hon. Friend the Member for Lewisham, Deptford. It focuses on the collection and use of data from electric charging points, which will bring about many of the same issues that we discussed in the debate on new clause 16.

As with automated vehicles and the data they collect, charging points for electric vehicles will also hold important and useful information, which, were it to fall into the wrong hands, could be damaging. It is important that we get that side of the legislation right. As the technology advances, it is likely that more and more information will be held. Some of that information will be personal, sensitive information. That is why it is important that the Government ensure that the gathered data is secure and private. It is also important that the legislation deals with who is responsible for collecting the data, how the data is then shared between the different parties, and any limitations on such data.

With new clause 20, we are asking the Minister to properly consult the relevant stakeholders in this area to ensure that the correct safeguards are put in place. I hope that the Minister supports my intention and will be able to give some assurances in this area.

Mr Hayes: I can deal with this very quickly: I do agree and I will take those steps.

Karl Turner: On that basis, I beg to ask leave to withdraw the motion.

The Chair: A very good note to end on.

Clause, by leave, withdrawn.

Mr Hayes: On a point of order, Sir Edward. As we conclude our work on the Bill, I want to offer my thanks, of course, to you, Sir Edward, and Mr Bailey for chairing the Committee, and to all members of the Committee. I think it is now a matter of fact that our considerations have been dutiful and considered and continued in the spirit of conviviality and good will in which they began.

Bernard Shaw said:

“We are made wise not by the recollection of our past, but by the responsibility for our future.”

But he was wrong about that. In truth, all we have known, been and done informs, inspires and enlivens all we can know, be and do. What we do in respect of the Bill must be informed by all that has passed and that we have learned from the past. This is a new technology, although many of the principles that we have discussed are time-honoured ones. We have spoken just today about skills. We have spoken about the balance between privacy and the useful exchange of information; where responsibility lies and who should take it; and the balance between Government and private individuals and private businesses. Those are not new or modern things, although the technology may be. They are things that should always drive and inspire the proper scrutiny of legislation and the proper business of Government, and this Committee has once again shown that.

I am delighted that the contributions from my right hon. Friend the Member for West Dorset have shown that even intellectuals add value. I am delighted, too, that my right hon. Friend the Member for East Yorkshire, with his *recherché* approach, has again made the case for all that is glorious about that which is vintage. His own vintage performances have delighted me and, I am sure, many others.

May I particularly thank the Opposition Members, as well as the Government Members, including members of the Select Committee on Transport, who know far more about these subjects than I do? I also thank my Parliamentary Private Secretary, my hon. Friend the Member for North Cornwall, and of course my former PPS, my hon. Friend the Member for Pendle, who is now my Whip. I particularly thank Opposition Members. For it is very easy in opposition to criticise and carp. It is very easy in opposition to critique a Bill in a way that

is designed to be unhelpful rather than helpful. That has not been the case in this Committee. Opposition Members have sought to contribute in a positive, constructive and thoughtful way. I know it is much easier to be a Government Minister than a shadow Minister, because I have done that job, too, so I am extremely grateful to the hon. Member for Kingston upon Hull East for the approach that he has adopted.

With those brief words—some will say all too brief—I thank everyone once again for making the Committee such a success.

12.45 pm

Karl Turner: Further to that point of order, Sir Edward. I thank you and Mr Bailey for chairing the Committee. I also thank the Clerks. Without their assistance, I would have struggled a great deal, having come to the brief relatively recently. I also thank the officials, who have been extremely supportive with my colleagues in my office and have helped a great deal, even by just having telephone conversations about certain amendments that we planned to table. I also thank the Minister for the discussions that we have had both privately and publicly on the issues that we have been debating.

Alan Brown: Further to that point of order, Sir Edward. I, too, want to put on the record my thanks to you and Mr Bailey for chairing the Committee. I thank the Clerks for their assistance and helping with amendments. I realise that they had to be robust in terms of keeping to the guidelines of the Bill, and I appreciate the guidance that was given. I thank the Minister, who certainly seems to have listened and engaged. He has a good way of getting us to withdraw amendments with a mix of humour, appearing to listen, and a wee bit of flattery thrown in at the start just to keep us off guard. It has been an enjoyable process and I thank everyone involved.

The Chair: On behalf of Mr Bailey, myself and the Clerks, I thank all Committee members for attending. I am thankful for the remarkably good nature of the debate, for the mellifluous tones of the Minister, and for the good nature of the Opposition spokesmen. Whether we will end up with Hayes hooks, Turner turnkeys or something that alliterates with Leigh, we do not know, but there have been some good moments. I look forward to one of Sir Greg’s old cars colliding with Sir Oliver’s 100-mile convoy. I thank you all. We have not deviated too far into the realms of Ruskin.

Bill to be reported, without amendment.

12.47 pm

Committee rose.

Written evidence reported to the House

AEVB 30 Institute and Faculty of Actuaries

AEVB 31 David Gregory

AEVB 32 Riversimple Movement Ltd

AEVB 33 The Institute of the Motor Industry

