Transport Knowledge Hub National Workshop
Decarbonising Transport – 3 March 2020
Minutes

WELCOME AND INTRODUCTION

Claire Haigh, Executive Director of the Transport Knowledge Hub (TKH) opened the event by welcoming delegates to the Decarbonising Transport National Workshop. She said this was the second in a series of national workshops that will look at the role of transport. The previous event looked at the future of mobility.

Claire said that as hosts of this year's COP26 UN Climate Summit the UK had a major role to play in setting the course for determining the world's future. Referring to the launch of the COP26 private finance strategy by Mark Carney (now the PMs finance adviser) the previous week, she noted that private finance will play a key role in ensure a successful transition to a net zero future. However, she said the UK had to show real leadership on the issue, which meant keeping its own house in order. She also referenced the Committee on Climate Change's warning that the UK's current decarbonisation plans are significantly off track, especially in transport, although she noted that the Government recognises this which is why it had committed to a transport decarbonisation plan.

She said the purpose of this national workshop was to explore what would be a credible and politically deliverable framework for decarbonising transport. She noted that in this framework, there needs to be a consideration of equity implications and the wider political context. What does net zero mean for Global Britain, for the levelling up agenda and for a stronger economy?

Following the recent High Court judgment against a third runway at Heathrow, Claire noted that climate change will now have to be considered in assessing all major infrastructure projects going forward. Whilst this was a big win for climate change campaigners, what did it mean for global Britain, and future airport expansion in the UK? These questions underlined the importance of the need to secure international cooperation on reducing emissions from aviation, which Claire said must be a priority for COP26 this year.

Claire also referenced the Government's levelling up agenda and asked whether there were contradictions between this agenda and in decarbonising transport. By using the removal of the freeze on fuel duty as an example, she said this could be a challenge for the Government as it will have to choose between those who only "lent their vote" to the Conservative Party at the last General Election and in pursuing net zero policies. She argued that the fuel duty freeze had been of benefit to those on lower incomes but that in the nine years of the freeze there had been an additional 5 million tonnes of greenhouse gas emissions. She said this challenge will form a litmus test for the Government's priorities, noting that such choices were not politically easy.

She said that encouraging greater use of public transport was an excellent way to reduce greenhouse gas emissions but that it also improved life chances for people. She said that there were a range of different views on the extent to which economic growth can be compatible with meeting carbon reduction targets. She said it was clear that compact mass transit models of urban development provide the best chance we have for decoupling economic growth and carbon emissions.

Finally, she warned that if there is a recession due to the recent outbreak of coronavirus that the issue of climate change could be downgraded.

Following the conclusion of Claire's introduction, the session moved on to a short video message by **Professor Dieter Helm, Professor of Economic Policy at the University of Oxford**. He said that if the UK wanted to achieve net zero emissions by 2050 then it must decarbonise transport quicker. We need to think about the key principles for decarbonisation, the technologies involved, and the infrastructure required. He said the UK will still be contributing to climate change from world trading and by importing carbon intensive products. As such, he said an important point to consider is not just net zero carbon production but net zero carbon consumption in the UK. He noted that everything we consume includes transport and transport costs and highlighted the impact transport has on the wider economy and internationally. He argued that the public needed access to transport as a universal service obligation, especially in deprived areas.

He emphasised the importance of a low carbon integrated transport system. We have devised a whole framework for analysing public investment, the Treasury's Green Book etc., with cost benefit analysis as a tool to analyse the value of individual projects, but what will really drive transport decarbonisation is having a low carbon integrated road, rail, air system. This will require central planning and system regulation. Transport infrastructure must be centrally planned with a need for smart and modern rail and road infrastructure. He emphasised the vital role digitalisation can play in transport decarbonisation, for example 3-D printing, reducing the need to travel through video conferencing etc. Fibre networks will be critical in enabling smart autonomous vehicles. He finished by saying that there is very little time to waste in tackling transport emissions and underlined the significant challenge of net zero carbon consumption being more demanding than net zero carbon production.

SESSION 1 – KEY PRINCIPLES FOR DECARBONISATION

Following **Professor Dieter Helm's** video message, the workshop moved into its first session focusing on the key principles for decarbonisation. The three speakers were given the task of answering the statement below:

"What would be a credible and politically deliverable framework for the decarbonisation of transport that will deliver the necessary emissions reductions in the shortest time possible whilst mitigating any negative social impacts?"

The first speaker was **Professor Stephen Glaister, Professor of Transport and Infrastructure in the Centre for Transport Studies at Imperial College London.** His central argument was firstly that the UK must give more attention to transport taxes and prices and we must reverse the decline in fuel duty, secondly to make this less unacceptable to the public we must think carefully about how the revenue is used. Specifically, he proposed that the incremental revenues from raising fuel duties should be ringfenced to create a proper capital base raise for local authorities to invest in local transport. He said there were four problems he wanted to address. The first was the urgency to decarbonise, the second

was addressing road congestion, the third was how to compensate for the falling revenue from fuel duty and other road taxes and the fourth was a lack of funding for local authorities to look after local transport infrastructure.

On decarbonisation, he said that getting to a zero-carbon future will be painful and that any pain must be minimised. This shift, he noted, required a significant change in behaviour and as such, any solution must be acceptable and fair. To meet this challenge, he said that we needed strong rules and regulations, changes in public attitudes and aggressive incentives to change behaviour, in particular the correct price incentives. The principle that the polluter should pay must be central. Unlike the development of new technologies which will take time, getting taxes right will produce a response almost immediately, crucially also yielding revenue which could be used for compensation to deal with the fairness point. Correct prices will guide people to make the right choices.

He highlighted the need for a more intelligent public debate on how to use remaining carbon. The key is not to identify the sector with the biggest emissions, but to work out the incremental costs of reductions in different activities. To do this, we should work out the incremental cost of carbon activity and start with those activities that have the lowest carbon compliance cost per unit of reduction. It may not be sensible to reduce carbon emissions that quickly in some parts of transport because liquid fuel is a fantastically valuable resource and the compliance costs will be very high particularly in regard to heavy goods vehicles.

He said that in recent years road traffic has grown but that the revenue of fuel duty had fallen. The current price and tax system is grotesquely distorted and until we get that right we won't succeed. In the longer term the obvious solution is road user charging which has a negative compliance cost because it generates benefits in terms of congestion relief as well as delivering carbon reduction. It will have to come because the Treasury will need to replace the revenue from falling fuel duty. However, he said that in the interim, we must use fuel duty to decarbonise transport. He presented different scenarios for the next five years of increasing fuel duty within the envelope of what the rate was at its highest in 2000. He said that this will reduce carbon emissions and congestion while benefiting the environment. He added that it also creates the incentive to switch to electric vehicles and encourage public transport.

Crucially the removal of the freeze in fuel duty will generate significant revenue. The key question is how you use those revenues sensibly to mitigate the public opposition. He argued that if this revenue is ringfenced for local authorities to use for transport purposes, then ending the fuel duty freeze will be more acceptable to the public. He floated the idea of public trusts as a way to ringfence funds, as public trusts legally require trustees to use money for a dedicated purpose. A trust being legally watertight with an income stream can also borrow, so there is an opportunity to decentralise funding to local authorities, and to create a capital fund which local authorities can use to borrow and lend as they used to do in the nineteenth century on the strength of the rates income.

He concluded that we have to focus much more on prices and taxation if we are to succeed in moving sensibly to zero carbon at lower compliance costs.

The second speaker was **Professor Glenn Lyons, Professor of Future Mobility at the University of the West of England, Bristol.** He opened by saying that his answer to the question emphasises the important distinction between what is possible and deliverable. He listed six themes for his presentation. The first theme was velocity. Transitioning away from business as usual towards a net zero economy requires being very clear about the direction of travel and the speed of travel. He argued that every effort is needed to identify quickly the best and quickest routes to decarbonise as we are already at risk of being late for the net zero date of 2050. How quickly can new infrastructure be commissioned and rolled out? How quickly can fleets turnover? How quickly can the make-up of travel demand be changed?

The second theme concerned ambiguity around exactly what decarbonising transport covered. Are we all picturing the same thing? For example, does it include international travel? Does it include only tailpipe emissions, or building vehicles and maintaining infrastructure as well? Do we need to completely decarbonise transport or are concessions for transport possible as long as a net zero economy is achieved overall. He highlighted that ambiguity did not serve us well and may lead to inertia in tackling climate change. The third element he raised was political will and the need to foster cross-party support to help support the continuity of conviction to see through the uncomfortable changes and politically challenging decisions required.

The fourth element was education. Glenn cited Greta Thunberg as an example of someone who has helped shape the public appetite for tackling climate change. However, he noted that this message had been heard by the few as opposed to the many. As such, he argued for more communication and education to help businesses and the public get onside with why decarbonisation is needed and required, and what it means for them. The fifth element focused on the need for travel behaviours to change. Carbon intensive modes should be used less. He said that more journeys had to be made by walking and cycling. He also said that fiscal and regulatory measures will be needed to encourage this behaviour change. The final element concerned pricing. A longstanding proposition has been the notion that the external costs of transport should be internalised. Urgent consideration should be given to how today's digitally connected society and technological means could support personalised mobility pricing. He said that dialling down on motorised mobility did not need to amount to dialling down on accessibility for those on lower incomes. Greater use of active travel modes and digital connectivity can allow continued economic and social activity.

The third and final speaker was **Professor Jillian Anable, Chair in Transport and Energy at the Institute for Transport Studies, University of Leeds.** She opened her presentation by outlining essentially two broad ways to reduce transport emissions: the first, approach A, was to get rid of fossil fuels altogether in cars, planes, trains and buses; the second, approach B was to use these modes of transport less. The more you do of one the less you need to do of the other. She noted that both ways of reducing transport emissions were a trade-off. Approach A was politically more acceptable than approach B. She said she had found this a very helpful way of framing the question in the local and national citizens Climate Assemblies which she had participated in over the recent months. When you explain the trade-offs between A and B to the public they understand. For example, the idea that we are going

to need to swap out the most polluting vehicles. While this offers less choice in vehicles, it offers fewer restrictions on how you can drive those vehicles.

Having touched on public and political acceptability she moved on to credibility, the other part of the "exam question". Our politicians think we can decarbonise by electrification, hydrogen, synthetic fuels and CCS. The net part of net zero is about "stuffing it underground". She warned that although net zero is written into legislation, the "net" part means that lawyers can still find ways that mean climate change strategies can be rewritten. She argued that the UK's transport decarbonisation plan needs to be on a trajectory that meets the 2015 Paris Climate Change Agreement. She said that the Committee on Climate Change's budgets and targets are not necessarily working in alignment with the 2015 Paris Climate Change Agreement as they do not consider the UK's role in global emissions, and issues of fair apportionment globally.

She emphasised that technical solutions will fail us. She said that the challenge of decarbonising transport at a local level had recently been highlighted to her after attending a transport workshop with the Local Government Association and other local authorities. She said she was shocked by how many local transport representatives placed an emphasis on electric vehicle charging infrastructure. She said she understood this mindset, as the policy is in line with the wider national framework in decarbonising transport, but strongly argued that to have this as the flagship local policy for reducing emissions was going backwards. She also noted that for every electric vehicle being sold, 15 SUV's were sold.

She argued that we not only have to get out of our electric vehicle bubble in decarbonising local transport but that we also need to get out of our urban short distance bus, cycling and walking bubble. For instance, she noted that the Netherlands is often lauded for its spending per capita on cycling and walking infrastructure, compared to other countries, but said that there is the same level of car use in the Netherlands as there is in the UK. As such, her central argument is that there needs to be a systemic approach to decarbonising local transport that considers all modes. She also highlighted the need to tackle long distance car journeys made mainly for leisure, noting that 3% of car journeys in the UK represented under 30% of the distance travelled.

Returning to her starting point about the trade-off between getting rid of fossil fuels in modes of transport or using these modes less, she said that we must ban polluting vehicles now. Currently 23% of new cars sold are SUVs compared to at most 4% electric. It is going to be more politically feasible to restrict the cars we drive rather than restrict how much we use them. Secondly, we must be clear that increasing charge points for electric cars will simply not meet the scale of the decarbonisation challenge. We must also introduce carrot and stick measures to change travel behaviour. Thirdly, we must rip up current appraisal system. We must prioritise carbon reduction, early savings should be valued much more than later savings and that the total package of transport policies must be appraised, not just one single scheme. Fourthly we need a total reformulation of transport pricing, as other the speakers have already argued. But we must rip up terms such as 'road pricing' and 'congestion charging' as these are toxic and politically undeliverable. Instead we should use terms such as 'eco-sharing' and 'eco levy', which are truer to our values and goal to reduce the core negative

impacts of carbon emissions and air pollution. And the public is ready for that when we have a conversation about the trades offs.

Following the conclusion of the presentations, **Jim Steer, Director at Greengauge 21** and **Steven Gooding, Director at the RAC Foundation** opened a Q&A session to the audience.

Steven Gooding asked whether public transport should be a universal service obligation, referencing that an empty bus does not feel like an essential service.

Professor Jillian Anable said that she agrees with the principle of a universal service obligation with regards to access to public transport. She argued that every citizen has a basic human right to mobility, and a right to live without a car. She referenced that these principles are written into some local transport infrastructure plans, where for every settlement there are minimum transport service requirements. She cited Munich and Zurich as examples.

Steven Gooding also asked for more financial information on Professor Stephen Glaister's presentation, asking how funding local transport schemes through a public trust would work.

Professor Stephen Glaister said that the vision behind public trusts is that there would be specific objectives in improving transport in a relevant geographical region. He said it would be up to local administrations in these regions to publish transport proposals and for trustees to advise on these proposals. He argued that this presented a real move away from spending by central Government, for local authorities to handle their money as they see fit rather than it all being determined by the centre. This would be a way of providing real cash, either capital or revenue.

Martin Higginson, Independent Transport Economist and Consultant said that politics, both locally and nationally, runs on short-term electoral cycles and as a result climate change policy fails to be long-term and radical. He asked what could be done about this to have long-term political success in decarbonising transport.

Professor Glenn Lyons said that it was imperative that decarbonising transport transcends party political lines. He has some optimism for this but was concerned that the collective diagnosis of urgency could collapse between different political parties over disagreements on policy detail. He also hoped for continuity in tackling climate change in an international environment but said that there is a lot of uncertainty on this issue.

Professor Stephen Glaister said that a cross party consensus on decarbonising transport is born of a genuine change in public attitudes, and that this is how politicians should be challenged.

Chaitanya Kumar, Head of Climate and Energy at the Green Alliance asked the speakers to imagine a scenario where local authorities had the funding to do what they wanted to do on transport in the next five years. He then asked what these local authorities should prioritise, if not on electric vehicle charging infrastructure.

Professor Jillian Anable said that there is not one solution to transport funding for local authorities but that there needed to be some form of revenue raising such as a workplace charging levy or a payroll levy. She said there also needed to be a franchising model for bus services, and that we must think about every urban area as a city region. She further argued that local authorities need to think about longer distance journeys and that buses need to change to be more demand responsive to reach outskirts. She added that cycling also needs to reach outskirts, noting that this is where e-bikes would be beneficial, for maximum carbon reduction. She concluded that local authorities should prioritise measures to reduce car ownership, for instance through reduced provision of car parking.

Jim Steer asked whether a pricing regime would reduce the propensity of car ownership.

Professor Stephen Glaister said that the important thing about a pricing regime is that it would reduce the propensity to use cars and to burn carbon. He argued that there needed to be an aggressive national policy and national taxation on reducing carbon, with funds available for local authorities, for specified transport purposes. It should be up to local authorities to decide how to use these funds provided that they are working within a framework set by central government.

Peter Molyneux, Major Roads Director at Transport for the North said that the speakers had not talked about the customer in their presentations. He asked the speakers what their vision and plan was for giving the customer a better transport experience.

Professor Glenn Lyons said that transport specialists were not best equipped to be marketing professionals. The transport industry tended to look at the current transport offer to customers and how to make incremental improvements, when what we really need is discontinuous innovation. He called for more harmonisation of the arts and social sciences, with a focus on STEAM rather than STEM, as an approach to properly understanding the customer and encouraging real innovation.

Professor Stephen Glaister rejected the accusation that he was not thinking of the customer, despite not using the word. He said that customers chose modes of transport according to what they faced in terms of the cost of different alternatives. He said that it was hopeless telling people what they should be doing, instead you must face them with the right prices so they can choose to do the right thing as customers.

Alex Greatholder, Senior Policy Officer at Transport for West Midlands asked if there was anywhere local authorities can look to for inspiration to work into a narrative of decarbonising transport.

Professor Jillian Anable said that there was not much inspiration. She referenced Zurich and Munich as examples of places with good integrated planning systems which have reduced car traffic by 9-10% over the past decade, but she said that this was nowhere near enough. There hadn't been enough measures on car restraint.

SESSION 2 – ROLE FOR SUSTAINABLE TRANSPORT

Following a short break, the workshop moved onto its second session with a focus on the role that sustainable transport can play in decarbonisation.

Gareth Powell, Managing Director of Surface Transport at Transport for London opened his presentation by outlining that Transport for London (TfL) needed to account for the population of London which is growing at a fast pace. He said that the current population of London was 8.6 million and will rise to 10 million by 2030. He said that while this presented challenges, it also presented opportunities, as outlined by the Mayor of London, Sadiq Khan's Transport Strategy. This strategy, he said, brought together a list of policies in an integrated way, which include the objective to reduce carbon emissions in transport. He noted that the flagship transport policy for London was to have 80% of trips in London to be made by foot, by cycle, or by using public transport by 2041, accounting for the growth the city in a way that is sustainable. Gareth said this strategy was important for two reasons. The first is because London would not be able to move otherwise unless TfL made efficient use of the existing space in the city, and the second is that the strategy offers the best chance of improving air quality and minimising carbon emissions in London.

Gareth outlined that as there was no sign of people in London travelling less, TfL have to meet this challenge by increasing access to public transport. He referenced Public Transport Accessibility Levels (PTALs) in London as evidence that the more connected an area is to public transport, the less people rely on a car. He noted the existing challenge for TfL is to decarbonise its bus network. This, he said, required enormous change such as having to buy new electric buses and new bus garages and ensure that these buses have charging hubs and can charge throughout the day. He also noted that the bus network will have to deal with range sufficiency. He said that if the bus network was to decarbonise entirely, it would require an extra 20% of the current TfL bus fleet to provide the same service today. While noting the scale of this challenge, he said that it was not impossible to achieve and that the TfL bus network has made significant progress in recent years to decarbonise. TfL already has the largest zero emission bus fleet in Europe.

He also said that TfL railways also needed to decarbonise in innovative ways. For instance, TfL recently piloted a scheme in Islington where transmitted heat from the Northern Line was transferred to heat homes. He said that projects such as these are needed, noting that while this was at a small scale, it presented an exciting opportunity for the future of decarbonising transport from a systems perspective. With regards private hire vehicles, 15% of black taxi fleet is now zero emission capable. Freight is one of the hardest areas to decarbonise because the technology is less evolved. Gareth went on to say that growing electric vehicle charging infrastructure in London was also important, as it ensures that there are different transport choices available to Londoners.

Gareth argued that the role of regulation can be important for improving air quality in London. He noted that Sadiq Khan had raised this issue prominently and, as a result, there is now a greater awareness of air quality problems. On the back of this increasing recognition of air quality, Gareth said that London had introduced an Ultra Low Emission Zone (ULEZ), which will expand further across

London next year. He said that such regulated initiatives can change behaviour, with the introduction of the ULEZ leading to a 30% reduction in nitrogen oxide in the area that it operates.

Gareth concluded by saying that through TfL's future plans, transport in the city can be decarbonised in a sustainable and high-quality way. Firstly, we need to make better use of existing infrastructure and that means more walking, cycling and public transport. Secondly public transport needs to be decarbonised and that is very expensive undertaking. Thirdly there will be a role for changing behaviour through pricing as ULEZ has demonstrated. TfL will be expanding the ULEZ, moving to a zero emission rail fleet, a fully electric bus fleet, 80% mode share for sustainable transport. Ultimately we need to get to a zero emission city.

Andy Eastlake, Managing Director at the Low Carbon Vehicle Partnership said that based on the last 27 years, the UK is not really decarbonising road transport, noting how big the problem continues to be. He said it was right to focus on decarbonising road transport as 91% of transport emissions come solely from road transport. He said that between 2007 and 2017, the carbon contribution of cars and taxis had reduced by 10%, heavy goods vehicles by 1%, buses and coaches by 30% but the carbon contribution of vans had increased by 15%.

He said that we needed to fundamentally think about travel demand as well as carbon intensity. In relation to cars, he said that the UK needed to deliver low carbon intense journeys. This, he noted, includes the energy use of the vehicle, the efficiency of the vehicle and the capacity of the vehicle. We need metrics for all three and at the moment we don't necessarily have the right policies.

There are some successes. He said that electricity and renewable fuels are leading the way for more low carbon intense journeys made by car. Over the last 10 years the grid has decarbonized by 50%. Renewable fuels have delivered 78% carbon reduction compared with fossil fuels. There is clearly a role for renewable fuels. However, he stated that 4% of fuels in cars are renewable and that 0.7% of cars are electric. Clearly, we have options to decarbonize the energy but need to be far more aggressive about how we use those tools if we are to make a significant carbon reduction.

He also noted that the uptake of ultra low emission vehicles had not made much progress, with the Government's Road to Zero Transport Strategy aiming for new sales of these vehicles to reach 60% by 2030, but currently standing at 3%. As such, he said that the UK needed to be far more aggressive with its road transport policies in order to make a significant contribution to decarbonisation. He argued that when fossil fuels became cheaper, when we stopped escalating the fuel price, people became less engaged with the carbon dioxide of their vehicle. New car CO2 is actually going up. Bigger, heavier vehicles are a big part of the problem because people are less incentivized to get a more fuel efficient vehicle.

Andy also warned that we should not focus solely on the tailpipe of carbon dioxide when it comes to decarbonsing road transport. He said that the lifecycle of electric vehicles for instance mean that they still have a carbon impact via their production. As such, he said that we need to use electric vehicles intensively and that the worst thing to do would be to buy an electric vehicle and not use it all. He also

addressed concerns over car battery size and believed that the more charging infrastructure there is, the smaller battery sizes can be.

There is scope for displacing far more fossil fuel in the immediate term in city centres with electric vehicles than on motorways, with all the challenges of delivery. So city centres is where we should be focusing our efforts for electrification. Finally, we need to get the cost structures right. What we can't do is continually make it more expensive to use public transport than to drive if we are to successfully decarbonize transport.

THE BIG DEBATE – HOW CAN SUSTAINABLE TRANSPORT CONTRIBUTE TO DECARBONISATION?

Following the two presentations by **Gareth Powell** and **Andy Eastlake**, Claire introduced the panellists and speakers for the big debate on how sustainable transport can contribute towards decarbonisation.

The first speaker to make their case to the panel of experts was **Gaynor Hartnell, Head of Renewable Transport Fuels and Landfill Gas at The Association for Renewable Energy and Clean Technology.** She said that her subject area is fuel which does not involve behaviour change or infrastructure change but was nevertheless important in delivering carbon savings. She highlighted to the panel that the UK needed to decarbonise transport as quickly as possible and listed fuels that offered a solution to this.

She said that bioethanol currently has a petrol blend at 5% but that this should be increased to 10% to keep pace with other European countries. She said that biodiesel could also be effectively used on TfL buses, saving carbon emissions of up to 86%. She further noted that biomethane can provide a popular solution for decarbonising Heavy Goods Vehicles. She also said that HVO fuel can provide a total drop in fossil fuels and can get to 100% renewable fuel.

She said that in decarbonising transport, it was important to note that is it not just about tailpipe emissions but the process of emissions from well to tank. In saying this, she warned that hydrogen fuel cells and electric vehicles can provide some of the worst carbon savings when the full process of their production is considered. She concluded in this scenario, that biofuels are the least bad for the environment.

Phillip Sellwood, Chief Executive Energy Savings Trust commented that any real solution for decarbonisation must also look at behaviour change.

Panellist, **Ewa Kmietowicz, Team Leader for Transport, Agriculture and Land Use at the Committee on Climate Change** said that biomass was a scarce resource and there were other means to decarbonise service transport that were more environmentally friendly.

Gaynor Hartnell replied that an electric battery truck did not make much sense, and that there needed to be biofuel for these types of vehicles. She noted, for instance, that biomethane can be produced

more easily for Heavy Goods Vehicles and may be a good interim solution, moving on to hydrogen in the longer term.

The second witness, **Richard Dilks, Chief Executive at CoMo UK** said that transport emissions had increased since 2013, while all other sectors had reduced their emissions. He said that sharing how we move around rather than always owning how we move around is a critical part of sustainable transport that contributes to decarbonisation. 83% of passenger kilometres in UK are by car. He argued that more trips should be made on public transport, and in all forms of shared transport.

He advocated for more car sharing to reduce transport emissions, saying that people who drive shared cars drive less than people who own their cars. He also said that this would lead to fewer cars on the road and that these cars could be cleaner. For instance, the car club fleet in London is 100% ULEZ compliant.

He also called for more bike sharing schemes as an inherently low carbon option. He said that these schemes effectively spread transport decarbonisation to more deprived areas to those on the lowest incomes who do not have access to a car in the first place. He also said that bike sharing is an effective way to get people back on to a bike and can enhance public transport by offering a multi-modal option.

Hilary Chipping, Chief Executive South East Midlands LEP, asked whether one of the challenges for car sharing is that people tend to work different hours. She also asked about the potential for demand responsive buses.

Peter Molyneux, Transport for the North, asked what could be the potential market share for shared mobility?

In answer to the question about different working hours, he said it was important to focus on those areas where large numbers of people lived and worked as the chances of a match would be greater. On demand responsive buses firstly there needs to be greater awareness of the options available and secondly on costs tax regime and subsidies need to be addressed to make DRT a less expensive option for consumers. On market share, he said it is potentially significant but still a minority of households. There are nearly half a million car club members in London.

The third witness, **Ashok Sinha, Chief Executive at London Cycling Campaign** said that politicians have the most important role in coming up with sustainable ways to decarbonise transport. He said that the London Cycling Campaign will launch a new report for the London mayoral elections, calling on the candidates to commit to decarbonise roads by 2030 so that it becomes unnecessary to own a vehicle.

He said that the scale and speed of human climate change activity is threatening our way of life, and that people are already suffering from this. He noted that there is a very real moral responsibility to tackle this and said that the London Cycling Campaign will call on London mayoral candidates to do three things to decarbonise transport sustainably. The first is to accelerate the rollout of Transport for

London's strategic cycling network, achieving 50% by 2024 and 100% by 2030, rather than the current target of 2041. The second is to put in smart road user charging to provide more money for buses and cycling infrastructure. The third is for all candidates to commit to work with the private sector to introduce more shared vehicles. He said that these demands would ensure that roads are better, safer and cleaner, and that London can be a happier place as a result.

He referred to a report which the London Sustainable Development Commission (which he chaired) was about to publish on a London future finance facility looking at how to unblock a volume of investment from the city in order to fund some of the measures needed for decarbonisation. He concluded that the tide of political and public change on this issue was shifting, and that Londoners needed to grasp the opportunity to decarbonise its roads by 2030.

Phil Selwood said that there are a lot of risks with cyclists interacting with cars and buses on the road. He asked if that there should be proper education about cycling to avoid more cycling incidents by vehicle owners.

Ashok Sinha endorsed more cycling education and said that every road user should be made aware of those more vulnerable on the road. He noted that in other countries such as the Netherlands and Denmark, education for cyclists starts at school, which should be the same for the UK.

The fourth witness, **Graham Vidler, Chief Executive at the Confederation of Passenger Transport** said that there is more that the bus industry can do to be more sustainable and reduce carbon emissions. The industry had committed to decarbonise the entire bus fleet by 2025.

He noted that it was important to persuade people to get out of their cars and onto the bus. He said that if one vehicle owner swapped one car journey per month to one bus journey, it would save 2 million tonnes of carbon dioxide per year. He said that change can happen now, and that people are ready for this change. He noted that people agree on the need to use cars less but that they needed a nudge to change their behaviour which buses could provide.

Panellist, **Peter Molyneux, Major Roads Director at Transport for the North (TfN)** said that TfN are introducing a single smart ticketing system across the TfN network. He asked Graham how he was going to get 1 in 5 car journeys onto the bus if people cannot use a single ticket across different bus operators. He said that there was a lot to do to make buses the most attractive option for customers and called for more action.

Graham Vidler said that the challenge with the TfN smart ticketing system was that it was too slow and too costly. The bus industry has committed to delivering a multi-operator price-capped ticketing across the country by 2023, with the first scheme up and running by the end of this year, and recognised that this is a really important element reducing transport emissions by encouraging people out of cars onto public transport.

On information he highlighted that many operators already provide apps with live travel information which is very helpful for existing passengers and regular commuters. This will be further improved as open data is rolled out later in the year when it will become possible to see information about services run by multiple bus and rail operators. This will be a really element in improving the customer offer.

Panellist, **Hilary Chipping, Chief Executive at South East Midlands Local Enterprise Partnership and Chair of the Transport Knowledge Hub board** said that the challenge for bus services is in rural areas and getting people from rural into urban areas, especially for young people and the elderly. She said that it was not good that buses are infrequent and unreliable and asked how this could be fixed.

Graham Vidler agreed that rural areas were especially challenging, and we need to look for different solutions. We need to look more at shared mobility and demand responsive transport. We need a tool box of different solutions to connect people in rural areas to bus networks, and a multi-modal such as using cycling and taxis to reach buses.

Ewa Kmietowicz asked how the bus industry will use the increased bus funding that the Government has recently committed to halt the decline in bus patronage.

Graham Vidler said that the funding should be focused on increasing the visibility and availability of buses on the roads. He said that this would lead people to recognise that the bus is there and is more available to them. He said that the funding should be split between resource spending for bus services and capital spending on bus priority measures which would help with improving bus journeys times and reliability and lead to increases patronage over time. This spending, he said, would enable buses to generate more journeys, more money, and ultimately become more sustainable.

The fifth and final witness, **Gareth Williams, Head of Sustainability at Avanti West Coast** underlined the importance of rail as a sustainable mode of transport. He said that rail can take people off cars if trains are more reliable and more sustainable. Rail provides the backbone of sustainable transport it can make a big difference in city centres getting people in by sustainable modes and help to create more efficient roads.

Gareth noted that rail provides a quick and efficient travel option for people. Rail is inherently energy efficient because of the low friction between the wheel and the track. There is a decarbonisation task force for rail which brings all parties together to deliver further carbon savings and efficiencies. Technology is playing a key role, with more electric trains and we will soon have hydrogen trains as well. He said that Avanti will work with Network Rail and local authorities to discuss ways to create zero carbon stations and more widely to integrate transport and provide access to multi-modal transport alongside rail networks.

Phillip Sellwood asked about pricing for rail as this was an area in serious need of improvement. **Gareth Williams** accepted that ticket pricing structures need to become much clearer, and that there was a lot of work underway within the industry to improve the customer offer. **Peter Molyneux** asked about potential market share of rail, could this be increased from 4%? Gareth replied that passenger

growth had been really strong, and the UK has one of the highest used railway networks in the world. It would be good to investigate whether there is more scope to grow further grow rail market share as part of a transport decarbonation strategy.

Following the conclusion of the panel session, delegates were invited to ask the witnesses questions.

Professor Jillian Anable asked the witnesses to link hands with one another to present a symbol of integrated transport and to provide a message that different modes of sustainable transport should not act against each other but argue for how they are going to be greater than the sum of their parts. She said that all the witnesses should fight against car use and asked how they are going to win car users over to their respective organisations and modes of transport.

Ashok Sinha said that as the climate crisis intensifies all sustainable transport groups are going to be under an obligation to work together to get people out of their cars and that each witness is putting forward a genuine agenda for different modes of transport that reduce car usage. Sadiq Khan has already declared that if elected re-he will bring forward his decarbonisation target from 2041 to 2030. He argued that due to Sadiq Khan's focus on sustainable transport that other candidates might be echoing this policy direction too. He added that the increased prominence around the issue of sustainable transport will perhaps lead to the next Mayor of London calling for more urgency to sort this issue out after May.

Graham Vidler said that there is a huge opportunity to reduce car usage and a willingness from the bus industry to engage with this challenge. He recognised that this challenge cannot be met solely from the bus industry and that a multi-modal transport shift must be involved with a bike to bus, walk to bus, and train to bus approach. He also called for different modes of transport to complement each other via smartphones, so that for instance, an app can tell you where you can hire a bike at the end of a bus journey. He noted that the public are ready for environmentally friendly transport but that the opportunity must be taken. He said that people need to be given a nudge about the choices available for sustainable travel, arguing that as it stands it is too easy for people to get to a car.

Gareth Williams agreed that there needed to be more collaboration between operators of different modes of sustainable transport. He said that local authorities are able to integrate these different modes of transport together and that they needed to be pushed to outline a holistic transport vision.

Neil Durno, Infrastructure Sector Manager at ABB Power Grids UK asked what stops autonomous vehicles from providing an attractive travel option for people. He then asked how big a risk these vehicles are to sustainable transport options reducing carbon emissions and whether their increased production mean people become even more dependent on cars.

Ashok Sinha said that there is still a long way to go for fully automated vehicles to enter the car market. He also said that while the technology for automated vehicles may advance, the regulatory environment accounting for these vehicles will lag behind. He argued that if the UK decarbonises its

transport in ten years' time then autonomic vehicles will provide less of a threat as an alternative form of transport.

Graham Vidler said that we need to decide what sort of places we want to live in, and do we want to replace congestion by human driven vehicles with congestion by autonomous vehicles. We must also remember that shared vehicles – buses, minibuses, smaller vehicles – can also be autonomous.

Professor Glenn Lyons said that greater velocity is needed to tackle the climate crisis and asked what the witnesses would do to speed up the process of implementing sustainable transport.

Graham Vidler said that the bus has the advantage over rail and light rail in terms of being very flexible and can adapt quickly as circumstances require, for instance by increasing bus routes and services.

On the need for greater velocity **Phil Selwood** commented that we shouldn't underestimate the power of incumbency. It is unlikely that the incumbents will be the progenitors of change, because they have massive financial investment in the status quo and have a vested interest in keeping the future similar to the past.

Richard Dilks said in answer to the question what speed might look like, we would have a Treasury taskforce looking urgently at a revolution in taxation policy that would drive towards decarbonisation as its number one goal. You would have a sustainable and consistent rail electrification roll out programme. MHCLG would come forward with systemic changes to the planning system that would clamp down heavily on car parking.

Alan Francis, Milton Keynes Green Party Committee Member said rail industry as a whole seems to have stopped electrification, asked how can the rail industry decarbonise without more electrification?

Gareth Williams answered that there would indeed be more rail electrification. Once the Williams Review was published there would be greater clarification on these sorts of issues.

Jim Harkins, Light Rail UK asked about road tyre dust, a growing health risk which will pass tail pipe emissions in two years and which doesn't get nearly enough attention.

Richard Dilks agreed road tyre dust was a major issue, which is another reason why carbon reduction cannot not synonymous with electric cars. You remove the tailpipe but are still left with health and environmental emissions problems.

Claire Walters, Bus Users UK made a plea for accessibility issues to be given greater attention. The rest of the transport sector has a long way to catch up with buses and coaches which are already fully accessible.

Alexander Wallis, DfT, agreed that road tyre dust was an issue of concern. EVs tended to be heavier which made the problem worse. On accessibility, he confirmed there is funding to improve accessibility of stations. The first phase has been on those stations which have been identified through passenger surveys as having the greatest accessibility problems. The second phase will focus on the rest of the stations.

Cllr Joanna Wright, Cabinet Member for Transport Services at Bath and North East Somerset Council firstly commented that there currently is much talk about franchising of buses but there needs to be much more funding to deliver that. Her question was with regards transport for new developments and in placemaking. On appraisal and modelling she said that WebTAG poses a big challenge for local authorities as the values can be misleading and unhelpful in the context of decarbonisation.

Hilary Chipping agreed that this was a major concern and one of the reasons that the TKH came into being. How do we get money into integrated transport solutions and how do we integrate sustainable transport with new developments? Good placemaking can reduce transport emissions. As Chief Executive of a Local Enterprise Partnership, she recognised that there is a huge amount to do in terms of integration across different modes of transport but also said that the planning system needed to deliver developments in a sustainable way.

Hilary also said she agreed that the system of appraisal of transport schemes needs to be re-considered and made more effective. WebTAG has tended to focus predominantly on travel time savings. She commented that another important issue is how funding comes to local authorities, LEPS and other bodies. There are various initiatives and pots of money and it is a complex picture which needs greater clarity.

Professor Stephen Glaister said for that the magnitude of what needs to be achieved in terms of decarbonising transport, the current level of funding and taxpayer support feels completely inadequate. How much taxpayer support is needed to meet the decarbonisation challenge and where should it come from?

Graham Pendlebury commented that during his time as a Director at Department for Transport they did a lot of work looking at where the greatest carbon savings could be achieved. They looked at journey purpose, mode, different lengths of journey etc. They found that car journeys of 5 to 25 miles contributed a very significant amount of carbon but were particularly difficult to switch to other modes: too long for walking and cycling, too short for most heavy rail, too complex for most buses because it needed multiple changes. This is one of the reasons DfT went down a predominantly technology route. But if as we have heard technology won't be enough, and road pricing is too politically challenging, so how do we encourage people out of their cars?

Peter Molyneux said that the challenge of decarbonising transport required a significant response from all Government departments, not just the Department for Transport but other departments such as the Department of Health and Social Care and the Treasury. **Ewa Kmietowicz** commented that there definitely needs to be more money put into decarbonising transport – energy receives £8 billion

per year compared with just £1 billion for OLEV and funding EV infrastructure to date. The policy framework needs greater cohesion. It doesn't make sense on the one hand to give out EV grants and on the other to have a VED system that encourages the uptake of SUVs. There's a big role for the regulation of manufacturing of cars, which has successfully helped push down the intensity of new car emissions.

At the end of the second session, **Claire Haigh** returned to the stage to thank the speakers, expert panellists and witnesses for their contributions. She also thanked the audience for asking a wide range of questions on decarbonising transport. She said that there would be future opportunities for these discussions to continue as she confirmed that the Transport Knowledge Hub is planning to host more of workshops and that this was just the beginning of this stream of work.