Department for Transport

Transport Decarbonisation Plan update

October 2020

Dear colleagues,

Welcome to the latest edition of the Transport Decarbonisation Plan (TDP) newsletter intended to update you on our work to develop the plan to decarbonise transport.

Please feel free to share it and indeed your feedback on what we are doing.

Since our last newsletter, we have been busy engaging with stakeholders and the public, welcoming all views on how to reduce emissions from transport. Thank you to everyone who gave their time to engage through the policy workshops, the online feedback opportunity, written submissions, and through the Net Zero Transport Board led by the Secretary of State for Transport and Minister for Decarbonisation Rachel Maclean.

Sections 1 and 2 of this newsletter give an overview of this engagement and personal thanks from me and the TDP team for sharing your views, which have been crucial as we create and put together the plan needed to put transport on a path to meeting net zero.

In section 3, you will find details of the deliberative research project that will inform the Transport Decarbonisation Plan and section 4 sets out our ambition for Tees Valley and the UK's first Hydrogen Transport Hub which will be based there, a real trailblazer.

Section 5 updates you on the Department's ambitious plans to boost cycling and walking, with a vision for half of all journeys in towns and cities are cycled or walked by 2030. This includes a £2 billion package of funding for active travel over the next 5 years.

We are currently developing policies and drafting the Transport Development Plan. We will continue to engage with stakeholders over the coming days and weeks. We hope to be able to share the Transport Decarbonisation Plan by the end of the year.

Stay safe,

Bob Moran, Deputy Director, DfT Environment Strategy

1. Your views heard

Thank you to all those who gave their time over the summer, to share their views on the steps to be taken to decarbonise transport.

Workshops

We hosted 59 workshops based around the six strategic priorities set out in Decarbonising Transport: Setting the Challenge. We heard from a broad range of stakeholders including specialists, innovators, businesses and NGOs from across the transport and environmental sectors on decarbonising transport.

The Energy Savings Trust supported the Department to collate the views of the 600 plus attendees. Summaries of the views shared on each strategic priority can be found here.

We also hosted workshops which engaged representatives from around 40 local authorities, as well as representatives from sub-national transport bodies, mayoral combined authorities and local enterprise partnerships. These sessions were supported by a set of online questions. A summary of all these discussions can be found here.

Online feedback opportunity

We also invited people to share views via the online public feedback opportunity. These questions were available online for 8 weeks and we received a total of 7293 responses, which are being considered as the TDP is developed.

The questions covered a range of topics including:

- what steps you think government should be taking to reduce emissions from transport;
- what emissions-reducing changes you would like to see to transport in your local area;
- how we can reduce emissions from the distribution and delivery of goods across the country; and
- what information you find useful in making informed travel choices in relation to emissions produced.

Direct responses

In Decarbonising Transport: Setting the Challenge we encouraged you to share your views, research or evidence, directly.

A total of 307 responses were submitted from representatives across the transport sector and the public which included, vehicle manufacturers and those involved in the supply chain, trade and professional associations, energy companies, environmental groups, charities, local government, local organisations, ports, airports, freight and logistics companies.

2. Net Zero Transport Board

Our Net Zero Transport Board – first announced in 'Decarbonising Transport: Setting the Challenge' as a forum for independent, objective and impartial advice on transport decarbonisation – has now met four times. The meetings, chaired by the Secretary of State for Transport and Minister Rachel Maclean have covered all six of the strategic priorities we are exploring as we develop the Transport Decarbonisation Plan (TDP), in addition to a session dedicated to delivering a green recovery from Covid-19.

The Board comprises a wide variety of stakeholders including modes of transport, behavioural insight specialists, technology, academia and environmental NGOs. As with our engagement workshops, their insights are feeding directly into the policy that will be included in the TDP to ensure we arrive at the best possible plan that works for people and businesses up and down the country.

More information about the Board's work, including details of the membership and minutes of meetings, is available on the dedicated page on GOV.uk. Minutes of more recent meetings will be published in due course.

3. Deliberative Research

We are excited to have recently completed the fieldwork for an innovative large-scale research project which aims to feed directly into the Transport Decarbonisation Plan.

The objectives of the project are to:

- Understand in detail the rich complexities and underlying drivers of individual and household decision-making in relation to current and more sustainable transport behaviour - and how Covid-19 plays into these.
- Understand what interventions will encourage people to travel sustainably (including the maintenance of sustainable behaviours adopted due to Covid-19 such cycling) and how these can be optimised to suit how people behave.

For the main strand of the work we convened a broadly representative sample of 167 UK adults to take part in a 3-week online community and 4 rounds of re-convened discussion groups. We talked to them to understand how Covid-19 has affected their travel behaviour, how we might encourage them to travel sustainably and what interventions might work to change their behaviour.

We also conducted a similar (albeit smaller scale) project with 26 people aged 11-18 to understand their hopes and aspirations for transport in the future and we conducted a nationally representative survey with 2000 adults to provide some quantification of the attitudes and behaviours in question.

4. Hydrogen Hub

On 30 September 2020, the Transport Secretary Grant Shapps announced the Government's ambition for Tees Valley to become a trailblazing Hydrogen Transport Hub as we took another big step forward towards our net zero future. Already home to leading expertise in the field and one of the world's largest versatile hydrogen refuelling facility Tees Valley is perfectly placed to reap the benefits of new, clean technology needed to decarbonise transport and build a green recovery.

To kick-start work on the project, DfT have commissioned Mott MacDonald to create a masterplan to understand the integration of the hub into the region and how it can accelerate the UK's ambitions for a successful hydrogen economy. The masterplan, expected to be published in January, will pave the way for exploring how green hydrogen could power buses, HGV, rail, maritime and aviation transport across the UK, and will set out how the area will be home to leaders in industry, academia and work alongside government to drive forward the use of green hydrogen to decarbonise transport and help meet the UK's net zero targets.

The hub will bring together representatives from academia, industry and government to drive forward the UK's plans to embrace the use of hydrogen as an alternative fuel. This could create hundreds of jobs while seeing the region become a global leader in the green hydrogen sector.

The Government has also announced wider plans to drive forward progress on net zero ambitions by funding 19 new hydrogen powered refuse trucks in Glasgow. This comes alongside the start of trials for Britain's first hydrogen powered train.

5. Gear Change – A bold vision for cycling and walking

In July, the Prime Minister launched government's most ambitious plans yet to boost cycling and walking. The 33-point plan, Gear Change: a bold vision for cycling and walking, includes commitments to improve safety and the quality of our streets, and sets out a comprehensive, long term vision to increase active travel and embed the benefits of walking and cycling into how we live, work and move around.

Government will invest £2 billion of dedicated funding over the next 5 years to fund at first hundreds, then thousands of miles of protected cycle lanes, so anyone can ride safely; mini-Holland schemes in 12 areas, measures to stop rat-running and make it easier to walk and cycle; bus and cycle corridors on some main roads. We will also provide funding for a massive rise in e-bikes, all of which will open up cycling to more and different people and make places better for everyone.

Some of the other key highlights are:

- Increase the number of "school streets" to protect children
- Create at least one zero transport-emission city pilot, could be done in conjunction with the current All Electric Bus Town (AEBT) to include wider modes, including e-bikes, e-cargo bikes and road adaptation measures
- Set much higher standards on cycle infrastructure design and only fund schemes that meet the new standards
- Ensure that new local and strategic A road schemes include provision for cycling
- Make the railways work better with cyclists
- Carry bikes on more bus routes
- Increase cycle parking and ensure that it goes where it is needed
- Ensure that all new housing and business developments are built around making cycling and walking the first choice for journeys
- Promote cycling for the carriage of freight (freight consolidation pilots), and work to reduce unnecessary motorised freight and servicing traffic
- Provide combined authorities with powers over key route networks
- Create a new funding body and inspectorate ("Active Travel England") to enforce the standards and time limits, and raise performance generally, including by becoming a statutory consultee on planning applications for developments above a certain threshold
- Ensure that every adult and child who wants it can be trained how to ride a bicycle safely
- More to combat bike theft

You can access the document here.

Annex A – Strategic Priority Workshop Summaries

Accelerating modal shift to public and active travel

Decarbonising road transport

Decarbonising how we get our goods

Place-based solutions

Reducing carbon in a global economy

UK as a hub for green technology and innovation

Annex B – Local Authority Workshop Summaries

Local Authority Workshops

Accelerating modal shift to public and active transport – July 2020

Overview

Energy Saving Trust (EST) supported the Department for Transport (DfT) with the delivery of 13 online workshops with 139 stakeholders on 29th July 2020. The workshops gathered views on accelerating modal shift to public and active transport. Ensuring that these low-carbon modes of transport are the natural first choice for daily activities will be crucial for decarbonising transport. This was part of the DfT's planned engagement to understand related stakeholders' views on how they and central government can support the six strategic priorities set out in *Decarbonising Transport: Setting the challenge*, and to gain a better understanding of the barriers, enablers and opportunities for decarbonisation.

DfT colleagues facilitated the workshops based on a set of standardised questions. These questions were designed to stimulate ideas and encourage conversation. To tailor the session to the interests and experience of the attendees, every question was not asked in each session. Each workshop lasted approximately 1.5 hours.

Below is an executive summary of the major discussion points across all 13 workshops, followed by key themes and common responses for each question, grouped under the question the response was most relevant to.

Workshop attendees represented a range of organisations, including local authorities, charities and campaigners, consultants, academic institutions, engineering companies and market disruptors. Transport operators from a variety of services, including rail, bus, coach, shipping and highways, were also well-represented. Attendees represented a mix of rural and urban regions. England was best represented amongst the attendees whilst Scotland was least represented.

Executive summary

Discussions on public and active travel demonstrated that decarbonising transport extends beyond just decarbonising vehicles. To begin to tackle the challenge, solutions must be found which influence the way consumers interact with the wider transport system, focusing on resetting consumer habits and perceptions. Individuals should not only be deterred from using high carbon private vehicles, but also incentivised to use lower carbon transport. Before this shift happens, public and active travel services need to be improved so that the public are confident in these sustainable alternatives.

The **COVID-19** (C-19) pandemic has broadly had a positive impact on active travel and a negative impact on public transport. Public transport usage has declined dramatically since March 2020 and the public's confidence in public transport needs to be restored quickly. However, the public has observed benefits from reduced traffic and would be more supportive of active and public travel initiatives, although the window of opportunity to capitalise on this may be short.

One key barrier and enabler of accelerating the modal shift to **public transport** is the ticketing system. At present, public transport tickets are felt to be too expensive and complicated.

Integrated multi-modal ticketing, supported by open data policies, could make end-to-end journeys via public transport the most convenient choice. The high cost of upgrading the power supply at bus depots is proving to be a significant barrier to bus electrification.

Suggested **enablers for active travel included the concept of a '15-minute city'** and reallocating road space away from cars, with the planning system needing to be modified to reflect this shift in emphasis. A specific barrier to cycling is that it is perceived as unsafe. Improved infrastructure and amendments to the Highway Code could address this. A cultural barrier to active travel, particularly cycling, was identified, with sections of the population perceiving it to be inaccessible to them.

Innovative modes of transport, such as e-bikes, bike sharing schemes and Mobility as a Service (MaaS), were generally supported, although opinions were nuanced. An effective docking solution for bike sharing schemes would be essential to avoid street clutter.

Urban and rural areas require different transport solutions. In rural areas, public transport, particularly buses, should be cheaper and improved cycle routes would make rural cycling safer. Investment in superfast broadband is seen as crucial for supporting rural areas, advancements in transport technology and increased home working.

As well as making public and active travel more attractive through improved services, car usage needs to be made less attractive. Numerous mechanisms to engineer this were suggested, most of which increased the fiscal cost of car ownership, such as through road charging or a workplace parking levy. In order to influence individual behaviour change**, high carbon transport should be made more expensive, whilst promoting the health benefits of public and active travel.**

A **clear vision for transport** in the form of a national transport strategy with long-term policy commitments would be essential to give planners, engineers and industry the confidence to deliver a cohesive and inclusive sustainable transport system and accelerate the current slow pace of change. This would require integrated working between government departments, notably in planning and health, and strong leadership from government to make difficult decisions.

Accelerating modal shift to public and active transport

What does the transport restart and green recovery from C-19 mean for this strategic priority?

- Attendees highlighted that the public have observed benefits from reduced traffic, such as safer streets and cleaner air, and that there would be a **greater public buy-in to active and public travel initiatives**. It was suggested that the Government should act to implement initiatives while there is momentum, but some warned that the window of opportunity would be short.
- Examples were given of often-strong **backlashes against measures** such as bike lanes, wider pavements and road closures, installed during the pandemic by local authorities. One attendee referenced social distancing measures which reduced the number of parking spaces in a car park being removed by residents and experiencing social media abuse.

- Messaging around **avoiding public transport** during the pandemic could lead to a shift back to private cars and that the public's **confidence in clean and safe public transport needs to be restored**. Scotland has more nuanced language around travel during the C-19 pandemic, with active then public transport advised before driving.
- **Public transport operators are finding it challenging** to remain in business due to the decline in public transport use.
- Whilst there has been an increase in cycling during the pandemic, it was suggested that this is more as a leisure activity than a mode of transport. There needs to be a campaign to **encourage people to embrace bikes as a utility**.
- Many attendees said that the **home working** adopted during the pandemic will be important for reducing commuting and that **investment in digital connectivity** should be a priority to enable this.
- Attendees observed that the C-19 pandemic has enhanced the public's appreciation of the **local neighbourhood** facilities and services, which could be **used to reduce travel**. Some suggested synergy between increasing home working and improving local neighbourhoods to reduce travel.
- It was suggested that **behaviour change strategies** would be essential to accelerate the modal shift. However, a couple felt that the pandemic revealed a campaign on behaviour change is unnecessary if there was less traffic and more infrastructure or the impacts of travel choices were presented as stark as needs be.
- The green recovery was seen as an **opportunity to promote a new vision** of transport which clearly demonstrates how active, public and low-carbon travel integrate.
- Several suggested that the pandemic has provided a unique **opportunity for reconsidering** transport services, funding, investment and trialling innovations.

What are the barriers and enablers for different forms of public transport to transition to zero carbon technology, thinking first about technology and then behaviour change?

- Attendees advocated for **ticketing to be simple and integrated**, such as being able to buy a ticket valid for a set time period and across the whole mass transport system. Apps and contactless card payments could aid simplification. Many suggested that **high ticket cost** is a significant barrier to bus use.
- Attendees felt that **public transport operators do not put the user's needs first** and that this approach would be important to improve public transport services.
- A few spoke of the **difficulty of making the business case for public transport** and the need for **funding and policy interventions** for new, cleaner technologies to be adopted at scale. For instance, the Government could order low carbon buses to sell on, providing manufacturers with certainty of demand and bringing the cost down.
- It was felt that one of the biggest barriers to electric buses was the cost of **upgrading power supplies** at depots, with one attendee quoting this be around £1-2 million. Attendees said that costs were unknown until planning applications were submitted, working with Distribution Network Operators is difficult and there is be no guarantee that the additional power invested in is exclusively for the use of that depot. One attendee suggested that the Government could identify areas where energy system upgrades are necessary and that upgrade costs should be shared.
- A couple advocated the role of **hydrogen for longer bus routes and some of the railway network** that are challenging to electrify. Local authorities could use collective buying power to reduce the price of hydrogen and share the cost of refuelling infrastructure.

- Attendees discussed the benefits of **reallocating road space** away from cars and giving priority to buses and urban rail to improve the reliability, punctuality and speed of public transport.
- The rollout of **broadband across rural areas** would support the transition to new low-carbon technology and improve services, such as rural bus stops being able to display live digital information.
- **Gender bias in transport design** was highlighted. One attendee pointed out that London's transport network was designed to go into the city centre to cater for men making one trip into work and back, while women often make multiple trips in a chain, such as after taking children to school.
- It was expressed that **people with disabilities should be considered**, with one attendee suggesting that level boarding should be made standard.

What are the barriers and enablers for active travel, thinking about both infrastructure and behaviour change?

- A strong enabler for cycling is **improved cycling infrastructure**. This included wider cycle lanes, better junctions and cycle routes being better joined up in a network, including off-road routes. A couple of attendees suggested building cycle superhighways similar to those in Copenhagen, which are continuous with no junctions or traffic lights.
- Attendees felt that a major **barrier to cycling is that people feel unsafe**, with several suggesting that roads should be designed for cyclists and that cyclists should be given priority over other traffic to reduce the dangers.
- **Car drivers' behaviour and attitude** towards cyclists contributes to cyclists feeling unsafe, although drivers may not be aware that behaviours such as close overtaking are hostile towards cyclists. A revision of the Highways Code to raise drivers' awareness on these issues was suggested, along with good traffic law enforcement.
- Many felt that **trains are poorly designed to accommodate bikes** and that rules around taking bikes on trains needs to be revised.
- Suggested ways to better **integrate cycling with public transport** included**:**
    - Secure bike parking storage with the reassurance that bike theft will be appropriately dealt with
    - Improved cyclist access to and from stations and facilities
    - The opportunity to hire a bike when not travelling from a home station
    - Space to carry bikes on to public transport
    - Signage to inform people what they can do with a bike, such as where to stand on the platform
    - More information and flexibility around booking a bike space on trains
- **Active travel hubs at stations** would help to make cycling and walking more visible. These hubs could provide advice on routes, maps, hire bikes and bike repairs.
- Several thought that planning departments in local authorities and government put too much emphasis on cars and that **active travel should be considered first in the planning system**.
- Concerns were raised that **new housing does not consider sustainable travel** and prevented active travel by not providing pavements or cycle lanes, for instance.
- Attendees suggested that the transport industry and government's **lack of speed** to implement changes was a significant barrier. For instance, time delays between national government announcements and local government being allocated funding limits behaviour change opportunity.

- Many identified a **cultural barrier** with cycling being perceived as a higher-income white male activity and that particularly women and Black, Asian, and minority ethnic groups perceive it as “not for them”. It was suggested that **cycling should be normalised** for example through schemes where people can ‘try before they buy’ and to help people from disadvantaged backgrounds access cycling training. It was noted that the DfT Fix your Bike Voucher Scheme referred to “keen cyclists” but more inclusive language should be used to attract people who do not consider themselves “keen cyclists”.
- The UK’s **car culture and adverts selling cars as a lifestyle** is a barrier to active travel. One attendee suggested that encouraging the switch to electric vehicles could prevent a modal shift to active travel.
- It was suggested that the **UK weather**, particularly during winter, can be a barrier to active travel. One attendee suggested that a grant for e-bikes should be extended to cover equipment and clothing to suit poorer weather.
- Several mentioned **disability access** to active travel and that **tricycles** could improve this. The availability of tricycles on the market and tricycle parking spaces is limited.

What role do you see for bike sharing services, e-bikes, e-scooters, e-cargo bikes?

- Most attendees were **in favour of bike sharing services and e-bikes**. However, views on the extent to their usefulness were mixed. For instance, one attendee felt sharing services would only be filling in service gaps, would not be dependable for regular journeys and that e-bikes are cheap enough for an ownership model. Another attendee opposed this saying that these services would be useful for commuters and travellers who can’t take their own bike for end-to-end journeys.
- Many expressed concerns that **bike sharing services could lead to a lot of street clutter** from abandoned bikes and stressed the importance of **docking solutions**.
- There were **mixed views on the area’s best suited to e-bikes and sharing services**. One attendee thought these would work for urban areas but not rural, another saw great potential in rural areas and another thought they were best suited to the outskirts of towns and cities or smaller towns.
- It was suggested that the **distances people cycle will increase due to the use of e-bikes** and that the UK should **plan infrastructure based on this assumption**.
- **Secure storage and addressing theft** are particularly important as e-bikes are expensive. One attendee mentioned that storage should be large enough to accommodate e-cargo bikes.
- Several attendees saw **e-cargo bikes as important in last mile deliveries** but would like to see more **investment and trials**. One attendee wanted businesses to be educated on where e-cargo bikes could be more effective than vans. Another suggested a hierarchy of incentives be offered to businesses so that an incentive for e-cargo bikes is offered before an incentive for an electric vehicle.
- Some expressed concerns that quiet but fast **e-scooters could pose a danger to pedestrians** and therefore limit modal shift to walking.
- One attendee felt that evidence from e-scooter trials in the UK so far did not show that e-scooters resulted in street clutter or reduced other forms of active travel. However, they expressed caution with using the current evidence and the desire to **wait until the 12-month e-scooter trials have been delivered** to form an opinion, which others agreed with.

How do we build a cohesive, zero carbon public transport network to support end-to-end sustainable journeys? What do you consider the role of industry v government is in this mission?

- Many attendees called for a UK **national transport strategy**, which sets out a clear vision of what transport should look like. This would give planners, engineers and industry a forward commitment of policy and allows them to make decisions that deliver this. One attendee felt a national approach was necessary so as not to disadvantage some regions and displace movement elsewhere.
- It was requested that **bus services be regulated nationally**, similar to how they operate in Switzerland. This would define the service frequency for different area sizes guaranteed by law.
- Attendees advocated for **interoperable open data policies** on ticketing and fares, real-time information, onboard facilities, station wayfinding etc. across all modes to enable people to plan multi-modal journeys on apps. One attendee suggested a national access point for uploading local transport data that technology companies could format for easy use by the public. Another attendee expressed a preference for avoiding separate apps for different regions as this can be complicated for the user.
- It was felt that the **road-building programme** contradicted the Government's desired shift towards public and active travel. It was suggested that this **fund should be reconsidered**, particularly in light of the reduction in traffic due to C-19, and active and public travel funds should be awarded some of this money.
- Several attendees spoke of the **need for better communication** to work at a faster pace with the likes of Highways England and Network Rail. A couple of attendees suggested a shared mobility taskforce that enabled conversations between different transport modes. One attendee requested that the DfT gave further guidance to regions with transport funding, sharing best practice to avoid the duplication of efforts.
- **Local authorities need to better understand demand** and travel patterns. It was felt that local authorities and transport operators have not kept pace with public need. For example, the Newcastle Metro closes at 11 pm despite pubs still being open. Attendees suggested local authorities and transport operators should work together to become more responsive and identify regions where new services might be successful.
- The concept of a '**15-minute city**' was popular amongst attendees. Several spoke of changing people's destinations to be more local, such as remote working hubs, which could be easily reached by walking or cycling. Many stressed the importance of having this in planning policy and several suggested that remote working hubs would require investment in superfast broadband.
- The **need for inclusive transport design** was highlighted. This included considering both physical and mental illness, women and minority groups. Examples given included that people with anxiety might avoid public transport and women are more likely to be concerned about the safety of leaving a station at night.

What do you see as the role of emerging modes and innovation including ride sharing, on demand services, MaaS. And how do we support the uptake of innovation?

- There were **mixed views on emerging modes of transport**:
    - Many saw these services as an enabler in reducing private car dependency and as a support to traditional public transport.
    - One attendee thought that MaaS has potential, but only if transport is operated by the Government, not the private sector. They suggested it would otherwise be challenging to offer seamless fares due to competition laws.

    - A few were less supportive of these modes. They felt that demand responsive travel still presented issues with the cost to passenger ratio, encouraged low-occupancy vehicles, that attempts to run these services have failed and regular services are easier for the public to engage with in terms of behaviour change and modal shift.
- A few saw a role for demand responsive transport to **airports and hospitals**, although it was raised that this may conflict with the Taxi Private Hire trade.
- **Investment in fast digital infrastructure** would be needed to support back office systems.
- **Connected autonomous vehicles** were mentioned as having potential to be part of a sustainable transport system.

How do we adapt solutions for different settings? For example, how might solutions for rural communities vary from urban or suburban settings?

- Most felt **different solutions are required for rural settings**, although one attendee who lived in a very rural area thought there is a false dichotomy and that rural areas needed the same solutions as urban areas.
- There were **mixed views on what the solution should be for rural areas**:
    - Buses but some suggested park and ride facilities for areas where this is not possible.
    - A couple felt that large modes of mass transport suited urban areas as larger populations have more predictable demand movements, whereas the economic case is weak for suburban/rural areas. They felt that smaller, individual modes and demand responsive transport would be more appropriate.
    - One attendee mentioned community electric vehicles in rural areas.
- The **importance of rural broadband** was highlighted as important in identifying transport needs, linking vehicles and displaying digital information at rural bus stops.
- The lack of **cycle routes on country roads** was linked to cycling feeling more dangerous than cycling on urban roads. Off-road cycle routes were suggested, but it was acknowledged that this would require using farmers' land. Schemes to incentivise private landowners to promote rural cycling were also suggested.
- Several thought that the **national speed limit is too high** and prevented walking and cycling on rural roads.
- Attendee's felt that **public transport in rural areas is too expensive**. One attendee suggested that if the public transport were better, more people would use it and costs per head would lower.

How do we influence individual behaviour change to move away from high carbon to lower carbon transport?

- Almost all thought that **high carbon transport needs to be made more expensive** than low carbon transport. Several methods for making the use of cars more expensive were mentioned, including introducing road charging, increasing fuel duty, introducing a workplace parking levy, increasing the cost of parking, removing cheap resident car parking permits and introducing a carbon tax. A few coupled these methods with using the revenue generated to subsidise public transport.
- It was suggested that behaviour change would only occur if travelling by **car is made less convenient**.
- Many pointed out the **cultural influence of adverts** that sell cars as a lifestyle choice. The Government should consider how to promote the alternatives. One attendee

highlighted the Northern Ireland campaign for walking: https://www.sharetheroadtozero.com/video-campaign/great-things-happen/.

- Several thought that the **health benefits** of using public and active travel as opposed to driving would be a **significant tangible incentive** for many people and should be strongly communicated. This message could be linked to the anti-obesity campaign, a need for cleaner air for those recovering from C-19 and reducing strain and cost for the NHS.
- The public needs to be **educated on the carbon impact** of travel. A tool to compare transport modes in terms of carbon emissions was suggested as was 'choice architecture', for example, having travel planning apps set to show public or active travel routes first as default.
- Only a **consultative approach** would be effective, and the public should be involved in in discussions to give them a sense of ownership.
- A couple suggested incentivising people away from single occupancy cars with **multiple-occupancy lanes** or only allowing multiple-occupancy vehicles at peak times.
- The concept of **mobility credits** was raised in two sessions. One attendee suggested that when someone scraps an older polluting vehicle, they would get £3,000 of credit to be used on a range of other modes of transport. This idea gained support from other attendees. The other attendee suggested the abolition of the English National Concessionary Travel Scheme and to divert that funding into mobility credits.

What is the role of government, local areas, business and the public in accelerating modal shift to public and active transport?

Government

- Many called for the Government to produce a clear and consistent long-term **transport strategy**.
- The Government needs to have more **integrated working between departments**, including those in planning, energy, housing, local government and health and social care.
- The Government needs to provide **strong leadership** as the changes that will be required to decarbonise transport will be unpopular and difficult. A couple felt that decarbonising transport shouldn't be treated as a political issue but as a necessity.
- Several felt the Government needs to have good **modelling capability** to make reasonable predictions about the impacts of public and active travel innovations and different extents of behaviour change or technology change.

Local areas

- It was felt that local areas should continue implementing **Clean Air Zones**.
- A couple felt it would be important to develop **transport planning skills** as there has been a decrease in these skills across local authorities. One attendee suggested a centralised educational platform for planners.

Businesses

- Businesses should offer **flexible working conditions**, such as working from home.
- Several would like businesses to see workers' commutes as part of their responsibility and **incentivise the use of public transport**. One attendee felt there should also be reassurance that employees will not be dismissed for arriving late due to public transport.

- It was suggested that businesses should be measured on emissions from fleets and employee commutes in their **carbon reporting** to incentivise behaviour change driven by employers.

Public

- Attendees pointed out that some members of the community, such as elderly people, will need to be shown how to use new technology as it develops. There would be a role for the public in **disseminating information** to these people.

Decarbonising Road Transport – August 2020

Overview

Energy Saving Trust (EST) supported Department for Transport (DfT) with the delivery of 11 online workshops with 118 stakeholders on the 4th August 2020. The workshops gathered views on decarbonising road transport. This was part of the DfT's planned engagement to understand stakeholders' views on how they and central government can support the six strategic priorities set out in *Decarbonising Transport: Setting the challenge*, and to gain a better understanding of the barriers, enablers and opportunities involved in the decarbonisation of the transport network.

DfT colleagues facilitated the workshops around a set of standardised questions. These questions were designed to stimulate ideas and encourage conversation. To tailor the session to the interests and experience of the attendees, every question was not necessarily asked in each session. Each workshop lasted approximately 1.5 hours.

Below is an executive summary of the major discussion points across all 11 workshops, followed by key themes and common responses for each question, grouped under three broad themes. The themes are: opportunities for decarbonisation; current and future barriers; and the proposed role of government and of others (LAs, industry, the public etc).

Attendees were evenly split across several sectors; these included industry, local government, sub-national transport bodies and the third sector. Industry representatives comprised stakeholders from both the private and public transport sector, these included rail and bus operators as well as motor manufacturers and traders. Other industry stakeholders represented the energy sector, these included distribution network operators and chargepoint providers. Freight operators were also present at several workshops. Representatives from local authorities attended several of the workshops – these representatives were usually transport planners. Additionally, related stakeholders from the third sector, such as charities and think-tanks, also attended.

Executive summary

When discussing the **recovery from the COVID-19 pandemic**, many highlighted the positive developments that the lockdown had led to, such as decreases in congestion and air pollution. There is ambition to maintain these advancements and embed long term behaviour change. Conversely, it was thought the economic impact of the pandemic has slowed the uptake of electric vehicles and reduced the numbers of people using public transport. As such, there is a need for messaging to from the government to encourage the safe use of public transport.

The electrification of **motorbikes and other powered two-wheeler and three-wheeler vehicles** represents a key opportunity to facilitate the decarbonisation of road transport. As such, there is appetite to include motorbikes within the government phase out of petrol and diesel vehicles. Low-emission micro-mobility could be instrumental in providing last mile deliveries, many of which are currently made by polluting vehicles, such as vans. Additionally, these vehicles could support people with mobility issues within pedestrianised areas.

Financial incentives are a key part of **stimulating demand** for low-emission vehicles in order to support the decarbonisation transition. Currently there is a focus on tactical incentives involving grants for the purchase of electric vehicles. Going forwards, many believe that there needs to be a more strategic, long-term approach to financial incentives involving the movement of people away from petrol and diesel vehicles alongside the stimulation of electric vehicle uptake. Suggestions for these financial incentives included measures such as taxation and salary sacrifice schemes.

Heavy vehicles are difficult to decarbonise due to their high-power requirements. As a result of these technological constraints, there are currently **supply issues** for low emission vans, buses and heavy vehicles. Potential technologies for the decarbonisation of these vehicles include electrification, hydrogen fuel cell technology and the use of biofuels. Further funding and regulation are needed to stimulate further development of these technologies. Additionally, there is support for a strengthening of UK electric vehicle and battery manufacturing capabilities.

When asked to suggest **further measures to improve greenhouse gas performance to support the transition to net zero**, many highlighted the need to consider embedded emissions within low-carbon technologies and to take into account well to wheel emission not just tailpipe one when considering the best technologies. Additionally, attendees highlighted the need for the transition to net-zero to be equitable and include all groups.

There is a clear desire for the **role of central government** to be in providing leadership and guidance on the decarbonisation of transport through the providing of a regulatory framework. Many expressed that **the role of local government** was to facilitate on-the-ground changes within local areas. In order to do this, local authorities would need to be granted greater powers. Additionally, there is a strong desire for greater collaboration between the Department of Transport and other government departments to ensure that road transport decarbonisation is not isolated from related policy issues, such as energy and public health.

Opportunities for decarbonisation

What does the transport restart and green recovery from C-19 mean for this strategic priority?

- The COVID-19 pandemic lead to increased levels of active travel, greater air quality and reduced levels of traffic and congestion. However, there is concern that the **easing of the lockdown** has begun to **mitigate** these positive developments.
- The aforementioned positive developments were attributed to **behaviour change** in regard to reduced levels of travel and increased levels of home working. There is a significant opportunity for long term **embedding** of this **behaviour change**, as surveys had shown that many people wished to explore **long-term working from home** arrangements.
- The pandemic has severely impacted the numbers of people using **public transport**. Particular attendees highlighted the need for **nuanced messaging** from the government to encourage the public to **use public transport in a safe manner**. There was some concern that messaging from the government had encouraged the public **to avoid public transport** and use private cars instead.
- Due to the decrease in traffic and increase in home working, many attendees believed that the government needed to **repurpose funding** allocated to **road building** under

the **Road Investment Strategy 2 (RIS2)**. Suggestions for where this funding should be allocated to included: broadband infrastructure, cycle lanes and chargepoint infrastructure.
- Stakeholders representing the motor industry were concerned that the **economic impact** of the COVID pandemic has slowed the transition to **electric vehicles**. These attendees stressed the need for the government to **incentivise the uptake of electric vehicles** through financial incentives.
- **Shared mobility initiatives,** such as car rental and car clubs, had been adversely impacted by the pandemic. Certain individuals stressed that these initiatives needed to be included as part of the green COVID recovery.

How do we best decarbonise motorbikes? Could other powered two or three wheelers, quadricycles and micro-cars play a bigger role?

- Many believed that **motorbikes** represented a key opportunity for decarbonisation through **electrification**, particularly as they are **faster to charge and require smaller batteries**.
- Some attendees believed that motorbikes needed to be included in the government **phase out** of the sale of petrol and diesel cars.
- **Low emission micro-mobility** options, such as eCargo bikes, represent a key opportunity to facilitate the decarbonisation of the **last-mile delivery network**.
- Some attendees indicated that they had **safety concerns** in relation to the use of **e-scooters** as a micro mobility solution due to a lack of adequate road infrastructure. The same attendees stressed that there was a need for **segregated road space** to ensure they could be utilised safely.
- Smaller, low-emission vehicles can help people with mobility difficulties to navigate **pedestrianised areas**.
- One individual highlighted that designing **low traffic neighbourhoods,** involving blocked-off streets, would facilitate a shift towards smaller, low emission vehicles.

Current and future barriers

What are the key demand side measures still needed to support a transition for cars and vans, as well as HGVs and buses?

- There is a need for **financial incentives** for the public to facilitate the decarbonisation of road transport. Current financial incentives focus on **facilitating the purchase of electric vehicles**, many highlighted the **Plug-In Car Grant** as an example of this. Several stakeholders highlighted that these were not sustainable and that there is need for a **holistic and strategic, long-term approach** to these incentives. Suggestions for a new approach to incentives involved moving away from single grants towards long-term measures such as **taxation** and **salary sacrifice**.
- Several highlighted that financial incentives need to help facilitate a **modal shift to public and active travel** alongside or instead of incentivising the **purchase of electric vehicles**. One suggested scheme was the use of **mobility credits** for areas with **Clean Air Zones** to encourage a move away from private car ownership.
- Alongside financial incentives, many highlighted the need for **financial disincentives** for the purchase of **internal combustion engine (ICE) vehicles**. Suggestions for disincentives included: a **carbon tax structure** for ICE vehicle ownership, an **increase on fuel duty** and **road pricing**. Several suggested that revenue generated from these schemes should be **invested** into further road transport decarbonisation schemes, such as cycle infrastructure or grants for electric vehicles.

- Many supported an **acceleration of the ban on petrol and diesel vehicle sales to 2030** to disincentivise the production of these cars**.** Some attendees linked this to the green recovery from the COVID-19 pandemic.
- The **second-hand market** provides a cost-effective way for people (particularly those in low-income groups) and SMEs to access to **electric vehicles.** Some stakeholders believed that there needed to be **financial incentives** to support this market.
- Several believed that the government had placed too much emphasis on **electric vehicles**. They highlighted that there was a **move away from private car ownership** through **modal shift to public and active travel** and the provision of **mobility as a service**. Emphasis was placed on the notion that electric vehicles would not resolve issues related to **congestion**. Stakeholders representing the motor and chargepoint industries did not share this view and highlighted that there were journeys that could only be made in private vehicles.

What are the key supply side measures still needed to support a transition for cars and vans, as well as HGVs and buses?

- There is currently a limited supply of **low-emissions options for heavy vehicles**, this includes vans and heavy goods vehicles (HGVs).
- **Current technology limitations**, as well as the need for high power requirements, mean that options for **low-emission HGVs are limited**. Many commented on the need for **demonstrator programmes**, **funding and regulation** to encourage the development of these options.
- Stakeholders representing freight operators commented that **electrification options for HGVs** are not viable. There was debate over whether the development of battery and opportunity charging technologies could lead to the development of viable electric HGVs in the future. One attendee representing a freight operator highlighted that their organisation used **hydrogen** as a fuel for HGVs. Others suggested that hydrogen was not currently a viable option for HGVs.
- Many highlighted the effectiveness of **biofuels** as a low-emission option for HGVs. One stakeholder raised concerns over the impact of biofuels on **land-use** and **deforestation**.
- There was debate over whether **electrification** or **hydrogen fuel technology** represented the best route for **decarbonising bus fleets**. Many stakeholders highlighted that there is limited commercial market for electric buses. These individuals suggested that **hydrogen** represents a viable option for **decarbonising bus fleets** and called for greater investment in this technology. Proponents of electrification highlighted how **opportunity charging** could allow buses to charge at bus stops and raised concerns over emissions generated from hydrogen production. Some individuals called for a mix of both technologies.
- Some highlighted the need for the government to **mandate** vehicle manufactures to **produce a set number of zero-emission vehicles**. This view was not shared by stakeholders representing vehicle manufacturers and traders.
- Several stressed the importance of ensuring that the UK had a strong **manufacturing capacity** for electric vehicles and batteries. This would allow the UK to be **competitive** on the global electric vehicle and battery market, particularly in light of any potential volatility arising from Brexit and the COVID-19 pandemic. This would also ensure a UK-based supply chain and provide **supply chain resilience**.

What further measures are needed to ensure adequate and appropriate infrastructure for cars and vans, as well as HGVs and buses?

- There is a need for a **unified, standardised plan** from the government **and co-ordinated approach** to chargepoint and **electric vehicle infrastructure**. Current approaches have resulted in **multiple actors** engaging in a **piecemeal approach** to electric vehicle infrastructure leading to substantial geographical variation.
- The current public electric vehicle charging network is **confusing** and **difficult to use** for consumers. There is a need for electric vehicle charging to be **standardised** to improve the consumer experience.
- Many people (particularly those in flats and social housing) do not have access to **off-street parking** and therefore are reliant on **off-street chargepoints** for electric vehicles.
- Some stakeholders highlighted the need for **place-based solutions** which focussed on having infrastructure fulfil the needs of local customers.

What further measures may be required to ensure we continuously improve GHG performance of the different options as part of the transition to net zero?

- Many attendees stressed the need for an **equitable and fair transition** for road transport decarbonisation. High prices mean that many individuals cannot access electric vehicles. As such, stakeholders highlighted that there was a potential for certain groups to be left out of the decarbonisation transition.
- Several highlighted the need to consider **wheel-to-well emissions**, as opposed to **tailpipe emissions** for low carbon technologies. There was concern that a focus on tailpipe emissions would prevent fail to detect **embodied carbon** emissions. Many attendees highlighted the need for **life-cycle analysis** to be conducted on low emissions technologies to avoid the production of embodied emissions.
- Some stressed that the sale of **hybrid cars** needed to end, as these vehicles still consumed fossil fuels.

The proposed role of government and of others (LAs, industry, the public etc)

What are the roles of government, local areas, businesses and the public in decarbonising road transport? Who needs to lead?

- Several highlighted that **leadership** and **guidance** needed to come from **central government**. Many highlighted the need for a **common regulatory and policy framework** to guide the decarbonisation of road transport.
- Whilst there was a desire for the government to lead from the top, many stressed that **local authorities** needed to be provided with **greater funding and powers** to ensure that changes could be made at the local level.
- The majority of attendees highlighted that there was a need for the government to adopt a **holistic, cross-departmental approach** to decarbonising road transport. There was concern that the decarbonisation of road transport was becoming isolated from related policy issues such as **public health**, **planning** and **energy**.
- There is a desire for the Department for Transport to **work alongside other departments**. In particular, several suggested that there was a need for greater collaboration with the **Department for Business, Energy and Industrial Strategy** and **Ofgem** to provide alignment with energy policy and infrastructure.
- Some highlighted a need for **greater funding and investment** from the government for **low carbon technologies**.

Decarbonising how we get our goods – July 2020

Overview

Energy Saving Trust (EST) supported the Department for Transport (DfT) with the delivery of 9 online workshops on this subject which were attended by 102 stakeholders on 31 July 2020. The workshops gathered views on decarbonising freight transport. This was part of the DfT's planned engagement to understand stakeholders' views on how they and central government can support the six strategic priorities set out in *Decarbonising Transport: Setting the challenge*, and to gain a better understanding of the barriers, enablers and opportunities for decarbonisation within the transportation of goods.

DfT colleagues facilitated the workshops based on a set of standardised questions. These questions were designed to stimulate ideas and encourage conversation. To tailor the session to the interests and experience of the attendees, every question was not asked in each session. Each workshop lasted approximately 1.5 hours.

Below is an executive summary of the major discussion points across all nine workshops, followed by key themes and common responses for each question.

Attendees were drawn from a broad cross section of organisations, including local authorities, vehicle manufacturers, freight operators, industry and modal representatives, freight projects, transport and freight interest groups and other innovators.

Executive summary

There were many suggestions on ways in which the carbon emissions associated with how we get our goods could be reduced. Some excellent schemes, plans and ideas were outlined within the workshops. Freight is a complex area which requires a broad approach that addresses everything from large scale logistics, down to the behaviour of individual consumers, whilst still considering the varied nature of our urban and rural environments. One size will not fit all, but some policies will yield huge strategic carbon reduction opportunities nationally, while smaller opportunities can be very effective at a local level and may need additional regulation to be delivered. It is evident that financial investment could yield rapid benefits, but some of the larger gains will take time to construct and develop.

The experiences of lockdown have enabled more freight to be carried on the railways and the legacy of this will provide more opportunities for this to increase. **Less demand for passenger services provides a platform for rapid growth in rail freight** that could be secured in the long term with the right investment in electrification, longer trains and greater flexibility in both train use and increased railway time slot allocation for freight. With a train capable of carrying the load of 60-76 HGVs and industry experts identifying a realistic potential total of 30-40% of all HGV mileage as transferrable to rail, **investment in electric rail** will have a huge positive impact on decarbonisation, although more rail terminals would be needed alongside this.

The move to pre-booked rail passenger journeys provides an opportunity for fewer, but longer trains to deliver passenger movements, which could make more room for freight. Opportunities to carry certain kinds of freight on adapted passenger trains, taking advantage of increasing redundant space in stations for interchange could also offer small but significant "quick wins".

There was consensus that **electric propulsion** is the future for road freight, although this may take a long time to deliver for long distance vehicles. Many saw a role for **gas and hydrogen fuel cell**, although there were equally strong voices highlighting the continued emissions of gas and inefficiency of hydrogen and inability to scale it in a green manner. **Catenary power** (overhead cables on strategic routes) was suggested as an affordable and viable option for long distance road freight by many within the workshops.

Combining small measures could also add up to significant emissions savings. Vehicle weight derogations for electric HGVs, better use of data, applying available innovations (e.g. tyres) and financial help to launch new technology that makes what is left on the roads as green as possible were all highlighted.

Consumer demand for home delivery has been growing for many years and this growth intensified during lockdown. This has led to more duplication of van traffic during the day and an increasingly inefficient last mile. Delivery services are undervalued by the consumer, as it is often packaged as "free" and wrapped up in the cost of the product. Opportunities exist to improve this process, key to which is **consumers understanding the real cost and emissions of delivery**. Clearer information and costing alongside efforts to **better consolidate and organise last mile freight** will yield real carbon and air quality benefits. Government support is needed to allocate the land within the planning system and to implement policies to drive this kind of change. It was not felt that consolidation would happen effectively without this leadership. Opportunities to **reduce emissions amongst delivery vehicles** could also be achieved through electrification and consumer incentives could be offered to reduce delivery mileage, using local delivery hubs and lockers.

Consumer behaviour, understanding of emissions and costs structured to favour low emissions is all part of the strong low emission leadership that is required by government to deliver change much faster than the market will be able to. **Actions to influence consumer behaviour,** their understanding of emissions and to structure consumer costs to favour low emissions (e.g. removing free delivery) are all part of policy decisions will make a big difference where some things that aren't currently economically viable need to be called upon to deliver emissions savings.

Clear policy signals are needed to persuade long term private investment both in terms of electric rail and electric fleet charging. Urgent action was also needed to address the issues associated with electrifying large fleets and depots with current confused processes around obtaining power and unfair and inconsistent costing structures requiring urgent reform to help fleet operators move forward in a fair and predictable manner.

Questions and Responses

What does the transport restart and green recovery from Covid-19 mean for decarbonising how we get our goods?

- Covid-19 has proven that **alternative actions are possible** and other choices are available. It has also created an opening for rapid regulatory change. The reduction in congestion has led to **greater productivity for freight operators**, with less planes wasting fuel circling and less congestion on roads. One HGV manufacturer quoted a figure of 9% better fuel efficiency during lockdown with better delivery timings.

- Taking advantage of reduced passenger numbers to sharply **increase timings and services allocated to freight on the railways** could see a very large and rapid drop in CO_2. More and larger freight trains have been run in lock-down with the principle working well. Some suggested that the closure of retail units and disused space within stations could be re-purposed for freight.
- **Home delivery has increased**. It was broadly felt that this is **not efficient** with so many different companies delivering to the same addresses on the same days. There is **a need to move away from free delivery** and treat delivery as a separate cost to prevent this continuing.
- The increase in deliveries shows an urgent need for an increase in supply of low emission vehicles and a system that allows consumers to understand the emissions of the deliveries and provide incentives for these to be low emission.
- Alongside this the importance of long-term signals on future pricing and tax plans for various fuel types is emphasised so that the right investments can be made now.
- **A greater focus on local goods and deliveries** has occurred in many places. **This should be encouraged**. Some felt that things will just go back to normal in due course, and others expressed concern that long-term thinking has been reduced in some operations, with survival the priority.
- With reductions in public transport use, it was suggested that some land in park and ride sites could be ideal for being re-purposed for freight consolidation.
- There were concerns raised that reduced passenger flights may increase the amount of dedicated freight planes and increase costs.

What is the role of modal shift within freight to maximise CO2 savings, and what is the best and/or quickest way to achieve it?

- There was a strong emphasis on the **large potential of rail in maximising emissions reduction** in all sessions. Whilst much more is possible, 30-40% of all HGV tonne miles was suggested as a realistic expectation to transfer to rail by several different delegates. **Electric rail will deliver substantial CO_2 savings and also non-environmental benefits.**
- **Electrification of rail was specifically seen as key to modal shift**, as a tried and tested solution that would represent “no regrets investment”:
    - Better for ascending hills with heavy freight loads and not slowing everything down, thus maximising capacity.
    - 1 train load = 60-76 HGVs
    - **Electrifying 620 miles of railway would mean more than 90% of rail freight would be moved electrically** (320 miles would cover 75%). Importance of electrifying ports routes for international freight (Felixstowe and Southampton).
    - With main routes all electrified, battery and/ or hydrogen fuel cell could address the branch lines and terminal work
- **Re-allocation of rail capacity to freight from passenger trains is essential to realising the modal shift potential of rail.** There was some expectation that this would be achievable:
    - Because most people no longer expect to turn up and go on trains (pre-book instead), we could use less but longer passenger trains, freeing up capacity for more freight. Better modelling of consumer choice could help here, too.

    - Freight should be put on adapted passenger trains, especially as passenger numbers are reduced. This ties in with the use of space in stations for freight.
    - A fixed rail schedule for off-peak freight would be helpful.
- There were further rail related discussions that relate to modal shift, highlighting:
    - The **urgent need for investment in rail terminals and infrastructure for loading/offloading**.
    - The need for greater capacity in general (some would be released by HS2) and ensuring this capacity is made available for freight.
    - Risk of double handling with rail freight (a caveat)
    - A risk that reduced flying will increase train passenger demand.
- **Longer, heavier trucks** were suggested by a small number as a quick win. Using 60-65t trucks at night reduced CO_2 by 27% in Sweden. Less trucks doing the same work, although this will only be effective if they are filled up to capacity.
- There were some suggestions of a role for **coastal shipping and inland water ways**. Port infrastructure is still in place and often under-utilised. Most of the population is within 70 miles of the coast. In particular, water-based freight **could be used for heavy items and aggregates**. However, there were significant counter questions raised relating to the carbon emissions and potentially low air quality standards of this method.
- An alternative view felt that net zero would come from better efficiency and changing the energy type used by road vehicles, possibly assisted by road pricing for lorries that assists decarbonisation.

How is consumer demand for goods and services changing freight, and how do we best ensure it changes in a sustainable manner?

- An obvious change is **an increase in vans undertaking home deliveries**, **often duplicating** routes throughout the day. This is exacerbated by the attraction of free and rapid delivery which is absorbed into the product cost and is very popular with consumers.
- Some suggested that measures to **accelerate the transition to electric vans** would help through directly stimulating increased production and availability. The Plug-In Van Grant could be further enhanced to accelerate this. The downside is that low emission vans still contribute to congestion and cause other vehicles caught in the queue to emit more.
- Consumer behaviour needs to be influenced to understand that **delivery is not actually free** and that there is a carbon emission premium to more rapid delivery. Currently delivery is undervalued by the consumer and **the cost needs to be felt by them for sustainability to become part of the decision-making process**. Good information for the consumer is essential.
- Several thought that Central Government could **set minimum costs for delivery** as it is not helpful to sustainable choices for it to be wrapped in the cost of an item. **Visibility of delivery costs** will enable better decisions to be made. This could also take the form of a tax. Some felt that price was the main driver in terms of delivery costs.
- **Pick up hubs and lockers in key locations** and incentives to use these would also help improve sustainability. Some went as far to suggest the use of these should be mandated over home delivery in some circumstances.
- Some suggested that policies to **encourage consumption of more local products** will contribute to a more sustainable system. However, this would need labelling to correctly inform consumers.
- The importance of having larger freight hubs attached to rail, through the planning process was emphasised.

How do we best transform the "last mile" into an integrated, clean and sustainable delivery system?

- The **planning system needs to be reviewed to ensure land can be allocated for freight consolidation** within local plans. This is also an important issue with water-based freight. **Efforts are needed to create space for freight hubs, transfers and consolidation**. Joined up thinking needed from Government for cities and towns – consolidation will simply not happen alone. Different solutions and opportunities will be apparent in different locations.
- Regulation is needed to make consolidation work. Ideas included
    - Neighbourhood delivery centres and lockers
    - Shift away from home deliveries – policies to reduce expectations of convenience of the last mile
    - Vehicles integrated into a freight system – reduced duplication
    - Potential for buses to be used in distribution
- Managed consolidation has been a proven success at Heathrow T5 with much support. **Many thought that the market could not deliver this kind of effective consolidation without public support**.
- **Edge of city consolidation hubs** with regulation to secure their use were proposed, with potential for pricing to be cost into point to point deliveries. **Some delegates pointed to the efficiency of the old systems of postage** and questioned if deliveries to a specific area could be franchised (albeit with care taken not to damage small businesses).
- Park and ride sites were mentioned for consolidation sites and other **parking assets could be adapted for micro-consolidation** in densely populated areas (also potentially linking to e-cargo bikes).
- Further discussion highlighted **some areas where this may not work**, for example, Sainsbury's food delivery vans should not be expected to deliver Tesco's food. As such, **consolidation actions and regulation would need to be carefully thought out**.
- The **removal of overnight delivery restrictions** in London and elsewhere was suggested several times. This would maximise productivity of vehicles, meaning less congestion, more work done per vehicle and a real carbon saving impact. With quiet electric vehicles, overnight deliveries would be less disruptive than in the past and greater freedom for these vehicles could act as an incentive for ULEV operation.
- One delegate suggested that using bigger vehicles in cities is helpful because it means fewer LCVs, and thus less congestion and lower emissions overall. This approach could fit with consolidation.

Thinking about both extremes, what do think about the future role for e-cargo bikes and long-haul trucks? What about vehicles in between? And rail freight?

- Views on e-Cargo bikes varied. There was a general sense that they were **a small but valid part of the solution** and would only work in very specific circumstances. However, it was widely acknowledged that they are very fuel efficient and very good for city centres.
- A small number stated that they felt e-cargo bikes had **been misunderstood and under-estimated** and that they had a much larger role in modal shift than they had been given credit for. One delegate pointed to a billion pounds investment in Germany.
- The future of long haul attracted some comments, with a small number advocating a move to hydrogen, but an equal voice suggesting hydrogen is inefficient (using 70% more energy than a battery) and not possible to be green at scale. If hydrogen had a role it would only be effective in the long-haul HGV arena, albeit possibly not efficient.

- A small number suggested **gaseous fuels, including biomethane.** Other biofuels were also mentioned, although to a lesser extent. **Opinion was divided** with some urging caution on how clean these fuels really are. There was some debate, but a sense that at alternative fuels **may have a role while electrification develops for large HGVs**, but important issues such as indirect land use change needed to be considered carefully with biofuels.
- The "in between" and "rail freight", part of the question did not draw a response, with only the first parts of the question typically attracting the answers. However, these subjects had also been covered in depth in answer to other questions in most of the workshops.

How do we best encourage or incentivise improvements to the efficiency of logistics and digital measures to support decarbonisation?

- Some attendees suggested that **carbon emissions need to be priced** (or carry a cost) in a way that will influence investment decisions. Visibility of information on carbon emissions of consumer products and their shipping will also help decisions at an individual level.
- **Behaviour change is needed to get net zero**…so instead of just meeting consumer demand, consider what limitations are needed on the consumer for an efficient green freight system (e.g. no more free delivery). This may also include incentives to behave in a sustainable manner when making purchases.
- Some suggested the need to **mandate the sale of zero emission vans to ensure supply**. Supply is a big issue at present.
- Re-tread tyres were suggested by a delegate as a way to save on carbon emissions, as they involve recycling old tyres. However, **low rolling resistance tyres, were also suggested because they save significantly on fuel.** It was not clear from discussions which approach has the best whole life benefits, but it was clear that good tyre management has significant carbon reduction potential and the industry could make a lot of potential carbon savings within this area.
- Adopting a **2t derogation for electric HGVs** to allow for extra battery weight (as per the EU) would enhance market take up of these vehicles by allowing payloads that are comparable to diesel equivalents.
- **Grants for trials** and to drive progress would be helpful – such as the Freight Facilities Grant that is in Scotland and Wales.

Can we draw upon trends in innovation in the wider transport sector (e.g. automation) to decarbonise the freight sector?

- **Battery powered trains** are operating that already have an 80-mile range with a 10-minute recharge. If this exists in trains, could the technology be rapidly **adapted to HGVs**?
- **Better data sharing for freight** will be key to enhancing the efficiency of operations and making current systems work together, better. Due to competition there is **very little of this at present**, although most operators will hold significant data. Government intervention is needed.
- A suggestion was made that **local authority Urban Traffic Management Control (UTMC) data**, which has been historically hard to access could be very valuable in **assisting with delivery planning** if it could be made more widely available.
- Several delegates in different sessions highlighted their perceived **need to prevent empty running** and the potential use of data to reduce this across companies and

across sectors. Others felt this was only a minimal opportunity because much empty running is unavoidable (tankers, sealed containers). An industry representative placed the avoidable figure at only 8%, highlighting the tight profit margins of the industry already encourage operators to exploit a lot more of the empty space than people realise.

- **Catenary EV** was mentioned several times. It was expected to be cost efficient. Only **strategic places would need to be electrified with batteries or range extenders covering the rest.** A sense that Catenary is a "quick and easy" system, with proven trials came across strongly. There were no strong opposing views given to this kind of system although one delegate questioned how much maintenance and repair would be needed (and subsequent congestion as a result).
- **Truck Platooning was raised as a possibility** in a couple of sessions. It was also questioned as how viable this really is and how much carbon it would save. An opponent proposed that is was seen by some operators as a way of getting around the driving hours rules.
- **Full automation of vehicles was widely questioned** and benefits not really understood in the decarbonisation context. Workers may still be needed to unload and represent freight operators, so there was even scepticism about labour saving potential and general functionality.
- The only comments made on **3D printing and drones** suggested that their application was niche and will only have an **insignificant effect on freight emissions**.
- One delegate raised the possibility of a network of underground tubes being developed to perform deliveries in urban centres, though there did not seem to be any knowledge of how viable a prospect this was.

Of the issues discussed above, what is the role of Government and what is the role of others?

- **The need for long term policies was emphasised**. Specifically, **early commitment to invest in rail electrification is needed** to convince investors to buy electric locomotives rather than more diesel locomotives that would remain on fleets for decades.
- The grid upgrade process for electric vehicle depots is currently inconsistent and unfair. **Action is needed to address this and to clearly understand who is building electric vehicle infrastructure to enable large scale vehicle electrification,** with clear pricing plans. This needs to be understood by government and planned for so that it can cope with demand. **Investment in anticipation of demand** rather than reacting when demand is there, moving away from a bid system for charging infrastructure is important.
- A theme of **moving away from a market driven approach to long term low emission leadership** is essential, with accelerated legislation to support the transition. Providing a clear pathway to rapid battery electric expansion is essential to help with de-risking investment. Clear signals on the direction of travel to industry are needed so people do not invest in "cliff edges" and rapidly obsolete technologies.
- Government should fund large trials of vehicles (50-100) to accelerate their development and uptake. Incentives to logistics industry are needed due to low profit margins.
- A general **carbon tax that changes behaviour** was seen as important by several delegates. This would include freight but is broader than freight and involves

understanding of lifetime carbon emissions of decisions (e.g. concrete buildings). Alongside this, **helping consumers understand the sustainability of the products they are buying/using and how delivery feeds into this** is essential to de-carbonisation.

- There was debate over a delivery tax with lower rates for zero emission delivery vehicles, with opposing views strongly expressed. However, **minimum charges for delivery** were a more popular concept, not specifically in the form of taxation**. Policies that enable the consumer to accurately value deliveries** and freight are an important step towards de-carbonising consumer behaviour in this area.
- A small number suggested national policies focused on keeping HGVs moving to maximise efficiency. This would include the use of bus lanes and the broader re-allocation of road-space.
- A programme to use universities and finance R&D and academic thinking on this subject was felt by some to be an effective action.

Place-based solutions - August 2020

Overview

Energy Saving Trust (EST) supported the Department for Transport (DfT) with the delivery of eight online workshops with 95 stakeholders on 7th August 2020. The workshops gathered views on decarbonising transport. This was part of the DfT's planned engagement to understand various stakeholders' views on how they and central government can support the six strategic priorities set out in '*Decarbonising Transport: Setting the challenge'*. Therefore, the workshop sought to gain a better understanding of the challenges, enablers and opportunities for decarbonisation and the role both the public and private sector can play.

DfT colleagues facilitated the workshops based on a set of standardised questions. These questions were designed to stimulate ideas and encourage conversation. To tailor the session to the interests and experience of the attendees, not every question was asked in each session. Each workshop lasted approximately 1.5 hours.

Section 2 provides a summary of the major discussion points and attendees comments, consolidated from all eight workshops. These comments were in response to a series of subject-questions grouped under five broad themes, which were:

1. The role of key stakeholders in delivering transport decarbonisation
2. Challenges, enablers, and opportunities
3. The different roles of supporting places to decarbonise
4. Technology, innovation, and data
5. The impact of COVID-19 on place-based solutions and the green recovery.

Trade body members made up a large portion of attendees, with representatives from road, rail and aviation. A number of public sector officers were also in attendance, including local authorities and sub-national transport planning authorities. There was a good number of transport consultants from various organisations and several academics. The charity sector was well represented with attendees from active travel and public transport campaigns with both an urban and rural focus.

Executive summary

A consistent message was **the need for modal shift in all areas of transport**, combined with more active travel (e.g. walking and cycling) to reduce traffic and reliance on cars.
Mobility hubs, where there is an opportunity to change the mode of transport will support this. However, they must be combined with timetable data and up to date travel information. Such hubs were proposed by both rural and urban stakeholders, but their precise requirements would differ.

Mobility hubs led to discussions about **mobility as a service (MaaS)** which saw **demand responsive transport** (e.g. buses, taxis etc.) as positive but held back by IT and data issues. Information on travel demand and the ability to connect locations and modes was considered difficult outside of London, which is seen as an ideal example. However, London's unique infrastructure and demand for transport cannot be wholly replicated elsewhere.

Transport franchises are reluctant to share their data, as it is business critical information. This makes it **difficult for local authorities (LAs) to plan and organise alternatives**. Departments within LAs, such as Planning and Transport need to work more closely together. This will enable more considered transport decisions and avoid ones which are at cross purposes. Ensuring there are mechanisms in place to coordinate departmental views on transport strategy and planning decisions would enable **new urban developments to be designed to achieve low car use**, with integrated alternatives in place. This will encourage and enable people to adopt a different approach to travel from the outset. Such an approach needs to make it easy for people to choose the low carbon option from their home.

Communication and an agreed approach between the DfT, the Ministry of Housing, Communities & Local Government (MHCLG), the department for Business, Energy and Industrial Strategy (BEIS), and the Office of Gas and Electricity Markets (Ofgem) was also regularly mentioned as necessary, as was ensuring organisations are **communicating with energy suppliers and regional Distribution Network Operators (DNOs)** to ensure supply capacity is available where it will be needed. Organisations must share their experiences and what they have learnt from them.

The lack of a transport infrastructure in rural areas was highlighted as a particular problem and would require funding to enable change to take place. Any approach to **funding should be viewed as 'long-term' so that it provides consistency and stability**. Some rural areas, where visitor numbers can be high but the population itself is small and widely dispersed, looked for possible seasonal options of travel hubs on the perimeter of their areas. This would encourage the use of lower carbon modes of transport, whilst providing more demand responsive and alternative transport options for residents.

The need for **government to provide clear guidance** on the preferred approaches, and the capital and revenue funding to support them, was mentioned in several discussions. At the same time local decision makers advocate having the ability to make their own bold decisions.

Contributors wanted the **recent increases in active travel during the pandemic to be maintained**. They felt it showed that the public can adapt their behaviour if necessary and given the correct messaging they could do the same to support decarbonisation.

Concern was expressed about the future of bus and train travel where travel volumes have reduced, and the need to reassess how it should operate and be supported if necessary, in future.

Role of stakeholders in delivering transport decarbonisation

Different places are building their own net-zero visions which we welcome, and we have a shared ambition to deliver transport decarbonisation. What do you see as your role in delivering sustainable transport solutions in different places?

- Encouraging modal shift to active travel was discussed, specifically encouraging people out of cars and reducing traffic. Mobility hubs were often outlined as a way to do this.
- Attendees felt there should be more emphasis on the role of planning in the transport system, including the need for more joined up thinking between departments, i.e. energy and transport. Ensuring consistency across schemes and early communication is important.
- The need to share learnings between departments and between local and national government was cited by a few attendees.
- Attendees felt there was a role for companies and their internal processes to encourage working from home.
- There was occasional mention of the use of technology / data and encouraging working together between (energy) utility companies and transport.

How can we build on the understanding and ambition in different places to take on this challenge?

- Many attendees discussed the need to share best practice and provide examples that people can follow. Positive marketing was mentioned as a method of influencing behavioural change. Positive action should also be incentivised.
- In addition to the above, attendees felt the need to share experiences that have not worked. The example of 'Dieselgate' was given.
- Stakeholders repeated the importance of joined up thinking. London councils were offered as an example that may work elsewhere, making the best use of funding and sharing learnings. More collaboration within government was strongly recommended, particularly between DfT and MHCLG.
- Attendees discussed utilising big data from DfT and Ofgem to help with decision making. There is an opportunity to make greater use of the digital world. For example, the integration of timetables.
- Nottingham was mentioned as an example of an effective way to work on joint interests across districts and the City of Nottingham. The City of Nottingham is using a science-based pathway in an attempt to be the fastest to net zero, by 2028.
- Stakeholders discussed integrating initiatives with local businesses and the importance of getting them on board. It was thought that Local Enterprise Partnerships[1] have a role here, to encourage collaboration and set a strategic direction for decarbonisation.

How do you influence behaviour change towards more sustainable modes in different places?

- Several attendees talked about the need for appropriate (alternative) transport facilities to enable/encourage a change in public behaviour. They gave examples of bus routes and cycle paths. Chargeable transport services need to be competitively priced to encourage people out of cars. If demand is to be optimised, it should be made as easy as possible for people to access and use these.
- Stakeholders discussed the benefits of temporary schemes and services to initially entice people out of cars. For example, the bike scheme in Southampton and an electric vehicle (EV) rental taxi scheme in Nottingham.
- There were a number of references to the need to use data to better connect transport nodes[2]. The use of data should be increased, such as railway data in Mobility as a Service (MaaS). Data for services like buses should be improved.
- Stakeholders discussed how public transport works better when the nodes are connected. To achieve this, there is a need for coordination across LA boundaries.

- The concept of 20-minute towns and cities[3] was frequently discussed in the session. Building a transport infrastructure into the planning stage of new developments should ensure people do not have to rely on a car.
- Attendees noted the lack of behavioural science in the transport industry and suggested that this skills shortage should be reviewed/addressed.

Effective spatial planning influences the emission of greenhouse gases from transport. What is the role of planning in place-making to enable sustainable transport use?

- Attendees were vocal about the need for DfT and MHCLG to work together. Decarbonisation needs to be a joint agenda. Attendees felt there is a need for increased clarity and collaboration between departments, for example the number of parking spaces that should be reserved for EV chargepoints in a community should be agreed. Joint targets between departments can (and are more likely to) result in action being taken.
- Stakeholders again reiterated that the method for appraising schemes needs to change. They felt there is far too much emphasis placed on the use of cars.
- The importance of 'place' was talked about, particularly in relation to where new developments are located. The proximity to facilities, amenities and transport hubs[4] should all be considered. The point links with the earlier concept of the 20-minute town.
- Attendees communicated the need to properly resource planning teams. There is a lack of transport planners involved in planning processes. Further issues were highlighted with the split of planning teams between 2 tier authorities (e.g. count, city district or borough councils), which needs to be addressed.
- Attendees highlighted the difference between urban and rural planning, and how appropriate nodes are required for each.

Challenges, enablers, and opportunities

What are the different challenges, enablers and opportunities for transport decarbonisation in rural, urban and suburban/mixed locations in the short and longer term?

- **Rural**
    - A common challenge discussed was inadequate grid capacity and how some areas may not be able to benefit from developing technology as a result of this. Additional issues were mentioned such as buses not being able to go electric in rural areas due to longer journeys and limited infrastructure.
    - Attendees discussed how young people could be an enabler to promote sustainable travel in rural areas, so they don't become so car focussed.
    - Heavy car use in rural areas was discussed, and how this could be an enabler to encourage EV growth. However, limited charging infrastructure combined with limited public transport could hold back decarbonisation in these areas.
    - Stakeholders discussed the need for subsidising public transport in rural areas and stated that not everything can run for profit. Utilities were given as an example of where some regions fund others. Public transport is poor in many rural areas and will continue to be unless more funding is provided.
    - Attendees mentioned how community transport[5] could be used as an enabler. This would require more engagement with communities.
    - Stakeholders discussed how LAs in the north struggle to understand their role in decarbonisation. It can be difficult to know how to shift modes of transport in these areas.

- Transport hubs and micro mobility were cited as not being feasible in rural areas where people are typically travelling larger distances.
- The opportunity to use park and ride or mobility hubs in rural areas, to help reduce car journeys and shift people to public transport, was frequently mentioned.

- **Urban**
  - Opportunities to use cars intelligently in cities were discussed.
  - Attendees noted the opportunity to get more freight moved by train in urban areas.
  - Stakeholders also discussed the availability of biofuels in urban areas, and its ability to partially reduce carbon emissions.

- **Suburban / mixed**
  - Stakeholders discussed how LAs could act as enablers by introducing car clubs.
  - The siting of logistic centres and business parks on the edge of towns was mentioned by attendees. Their location made it more difficult to serve these sites with public transport.
  - The opportunity of low traffic neighbourhoods was raised. Attendees discussed how they had seen great examples of market towns introducing more pedestrian only streets and the various benefits this had brought to an area; cleaner air, quieter streets and more footfall to the high street.
  - Attendees frequently mentioned how market towns can move people to active travel. They also felt that there was an opportunity to change commuting habits, as we come out of COVID.
  - Stakeholders discussed how a culture change is needed in certain areas. It was thought that some people don't want to walk or cycle as a car is associated with higher status.

Thinking about different places, which mode of transport is the biggest challenge to decarbonise and why? [e.g. private cars, goods delivery vehicles, your own fleet, aviation/maritime ports etc.]

- Attendees mentioned the challenges of grid capacity in both rural and urban areas.
- Stakeholders discussed how rail only works if there are terminals at either end, for the onward movement of people and goods. Otherwise road haulage will often be more attractive.
- Attendees highlighted the concern that offshore shipping will be harder to decarbonise due to the large amount of power needed in an unreliable environment. Inland shipping was thought easier to decarbonise due to the lower weight of vessels.
- Stakeholders acknowledged the difficulty of decarbonising long-haul freight but thought that biofuels could be a way forward.
- Attendees noted how electric buses do not have the range needed for many bus routes.

Thinking about different places, what are the challenges in terms of accelerating modal shift to public and active travel?

- Attendees noted how fewer people are likely to undertake active travel, such as cycling and walking, during the winter. Therefore, any overarching travel strategy needs to include seasonal planning strategies.
- Stakeholders reiterated the need for connected/comprehensive infrastructure, including public transport services as well as green spaces. Planners should look into how these spaces connect with each other and plan for active / public transport.
- Attendees suggested that a subsidy from the Government is required, either revenue or capital based. It needs to be made available to encourage people to change their behaviour. Attendees reiterated that not everything can be run for profit.
- Attendees highlighted the need for clear government strategy and communication. This will help guide and justify local leaders' decisions, whilst promoting public transport and active transport. Attendees brought up how accurate statistics on accidents will help to ensure people feel safer when walking or cycling.
- Stakeholders discussed how rural and deep rural[6] places have developed around the use of the car. For example, people will happily commute 25-30 miles, by car, to their place of work. Attendees highlighted the need for a public transport infrastructure in these areas, particularly as these places are so spread out.
- Another challenge was the length of time bus travel can take. For example, a car journey of 10 minutes, may take an hour on a bus. Scattered residential areas were highlighted as a barrier to demand responsive transport.
- Attendees highlighted how incentives, such as the fuel duty freeze, have encouraged people to choose the car over other forms of transport. A road-user charge or other such measures were suggested as a method of encouraging people away from private vehicle ownership.

Different roles in supporting places to decarbonise:

What do you see as the role of the UK Government in supporting place-based solutions to transport decarbonisation?

- Attendees discussed how a joined up and clear message needs to be provided by UK Government. There is a need to work across departments and set ambitious but realistic targets. This will enable sub-national transport bodies[7] and local authorities to follow by setting their own targets and implementing change in their local area.
- The need for stable, long term funding was frequently mentioned. Attendees said the Government needs to make a decision about which technology it is going to back and provide the resources for it to develop.
- The need for a more coherent planning system was also highlighted.

What do you see as the role of local government?

- Attendees discussed how LAs can act as facilitators between industries. Best practice should be shared, and examples given.
- LAs were mentioned as having a responsibility for delivering the schemes needed to decarbonise. Attendees felt there is too much weight given to local authorities declaring climate emergencies and not enough on action.
- Attendees noted the huge amounts of data LAs can hold on travel patterns. There is an opportunity here to work together with academia, whilst also delivering other decarbonisation projects.

- Stakeholders discussed the need for LAs to get their own house in order. There are improvements that can be made to their own fleets and operations in terms of decarbonising.
- Attendees wanted to encourage LAs to be brave and be a local leader for the area, leading by example.

What do you see as the role of business?

- Stakeholders encouraged the private sector to innovate in this space, with local and national governments allowing and supporting them to do so. Rural settings were mentioned as MaaS could be a potential solution to improving the profitability of transport services in these areas.
- Attendees stated that businesses have a role to decarbonise their own fleets. There are lots of 'low hanging fruit' in this regard. It is up to the Government to ensure businesses are doing all they can.
- Stakeholders discussed how businesses will only ever operate where it is profitable. Metropolitan areas will naturally benefit from the private sector flooding these spaces whereas rural areas won't. Attendees cited the role of BEIS in this regard, stating that BEIS should support smaller businesses in rural areas with their decarbonisation.

Technology, innovation, and data:

What do you think is the role of technology and data in enabling place-based solutions? Are there any areas where the UK Government could enable better data sharing and use to support you to make informed policy choices in different places?

- Attendees frequently discussed the need for the Government to facilitate good, open data sources to help with planning. Good decisions are based on good data. Attendees suggested that government should share its data and require/regulate others to do the same, in a similar way that London already does.
- The need/use of travel data to help plan housing developments was raised.
- Attendees discussed the use of data to facilitate shifts between modes. The availability of this data can increase the use of Applications (Apps) and MaaS to encourage people out of cars.
- The issue of having too many transport franchises in the UK (outside of London) was raised. It was felt that this contributed to the struggle of having all the data open source. (NB another point raised was the reluctance of franchises to share information, due to the commercial nature of this). Attendees noted the Government's role in regulating this.
- Stakeholders mentioned the existence of regulatory blockers for new technologies, such as the use of e-scooters. Bus operators will only move to low carbon buses if they can afford them. Attendees cited the role regulation can also play here.

What do you see as the role of emerging transport technologies and business models, including ride sharing or on demand services?

- Attendees frequently discussed the opportunities associated with demand responsive transport. There are improvements that need to be made on the links and the data sharing between nodes. Attendees mentioned that having a joined-up approach that took into account and linked up travel times would encourage greater usage.
- Stakeholders discussed how models for car sharing could be viable in rural areas. There was frequent mention of rural hubs and the need to shift patterns to bring services to people. Attendees questioned how local authorities could encourage this, and if funding would be needed.

- Attendees reiterated the potential for MaaS and new platforms. There is the opportunity to integrate several application programming interfaces (APIs) to manage the planning, booking and payment for different transport operators. Stakeholders discussed how network rail already encourages this research and development (R&D) through their 'Train Hack' sessions.
- The opportunity for new developments to integrate/incorporate MaaS and apps right from the start was also mentioned. It was important that the future needs of residents were carefully considered.
- Attendees mentioned current use of technology on retrofitting current spaces, for example the 'fix my pothole' app.

What does the transport restart and green recovery from COVID-19 mean for place-based solutions to transport decarbonisation?

- Stakeholders discussed how government should be funding public transport throughout the green recovery, especially as there has been a loss in revenue for many franchises.
- There was frequent mention of the need to promote how safe public transport is, and the need to encourage people back onto trains and buses. The associated spending/investment should also be used to link up these different forms of transport.
- Attendees mentioned the need to shift the way we think about places and the need to create more local places. They suggested this could be achieved by providing more digital services in these areas. Many services, including doctors (GP) services, could be provided online, resulting in fewer people travelling.
- Attendees mentioned how COVID demonstrated that people will change their behaviour if they clearly understand and accept the reasons for change.
- Stakeholders were clear that investment in roads needs to continue. Electric vehicles still need roads, and investment in roads and cycle lanes will also support the strategy for decarbonisation.
- Attendees mentioned that as a result of COVID, demand responsive travel in Sevenoaks was deployed. It's going well and could be a permanent solution going forward.
- Stakeholders stated that they expected a profound shift in office working after COVID, with more people working at home, which will naturally help decarbonisation.
- Attendees thought that people will be travelling less distance and less regularly. Therefore, train operators need to think about smarter ticketing and pricing to encourage more people back onto public transport.

Reducing carbon in a global economy – August 2020

Overview

Energy Saving Trust (EST) supported the Department for Transport (DfT) with the delivery of six online workshops with 48 stakeholders on 7th August 2020. The workshops gathered views on decarbonising transport. This was part of the DfT's planned engagement to understand related stakeholders' views on how they and central government can support the six strategic priorities set out in *Decarbonising Transport: Setting the challenge*, and to gain a better understanding of the barriers, enablers and opportunities to reducing carbon in a global economy.

DfT colleagues facilitated the workshops based on a set of questions covering a range of themes specifically for the aviation and maritime sectors. The questions were designed to stimulate ideas and encourage conversation. The sessions were tailored to the interests and experience of the attendees so not every question was fully explored in each session. Each workshop lasted approximately 1.5 hours.

Below is an executive summary of the major discussion points across all six workshops, followed by key themes and common responses for each question.

The workshops were attended by a variety of stakeholders including trade associations, airport and seaport operators, government agencies such as the Maritime & Coastguard Agency, fuel and energy suppliers and transport service and technology providers. In addition, other related stakeholders such as regional development bodies, local transport authorities, academic institutions and research bodies also attended.

Executive summary

There was wide agreement that **the aviation and maritime sectors are some of the hardest sectors to decarbonise** and their international nature means that actions in the UK alone will not achieve the decarbonisation targets required. Many felt that **international co-operation and collaboration is a key requirement** for both these sectors and that the UK can take an international lead and play an influencing role on transport decarbonisation. The international community made up of the United Nations International Civil Aviation Organisation (ICAO) and International Maritime Organisation (IMO) agencies, national governments, industry and research bodies will need to collaborate in order to **provide the regulatory framework that assists decarbonisation of these sectors.** The UK Government needs to use its position to influence the ambition and set the roadmaps in order to meet the 2050 climate goals.

The global **Covid-19 pandemic has severely affected the aviation sector** with a steep decline in activity and revenue; many consider that if state assistance is given then it should have sustainability criteria included in any agreements. Many within the aviation sector feel that due to lost revenue, investment in decarbonisation will be reduced. **Government support will be needed to implement measures and to de-risk investments in new technology**. The reduction in air passenger services due to Covid-19 has highlighted the link with belly freight movements and the effect on commercial viability of services. The international maritime sector has seen a lower but still significant effect from the global pandemic and a degree of modal shift has resulted.

There was **a clear call for the UK Government to invest in research and development activities** in both the aviation and maritime sectors with a view to international collaboration programmes and more focused UK domestic projects. The call for R&D funding was coupled with requests for **clear and aligned policy setting, and strategic roadmaps for decarbonising aviation and shipping.** While there are potential solution such as battery electric technology for short haul flights and short sea shipping, there is a more confused picture for long haul operations where immediate solutions are not available and development times are longer. It was considered that **battery technology would not be available for long haul aviation** prior to 2050 so there is a focus **sustainable aviation fuel**. As with all alternative fuel and energy vectors there needs to be assurances that the alternatives are truly sustainable with a full fuel life cycle approach being used. A comprehensive R&D and support package for sustainable liquid fuels would benefit local economies, create jobs and help in levelling up the regions of the UK. The expertise and know-how gained could be exported globally and may have applicability in other sectors such as road transport.

Considering UK transport hubs in relation to smarter energy integration between modes is a key aspect. Looking beyond the ships and planes but also the infrastructure needed within the hubs to help create the business case for new technologies. Airports and seaports are seen as situated at the end of the **energy supply chain** and perhaps rethinking ports as the start may bring benefits. The issue of **demand management and consumer behaviour change** is also a key aspect with many stakeholders highlighting the importance of clear communication and trusted information of their travel choices and impact on carbon emissions. The ability to influence modal shift in areas such as domestic and short haul flights towards less carbon intensive modes, such as high-speed rail, will rely on pricing and availability of services. **Carbon pricing is a key aspect** in moving both people and goods and the true cost that includes environmental impact needs to be considered.

Questions and responses

What does the restart and recovery from C-19 mean for this strategic priority?

- A large number of participants highlighted **the need for international cooperation** with the global pandemic drastically affecting international air, sea passenger travel and goods movement. This was especially felt when passenger and goods services are combined demonstrating the close relation between passenger and goods movement on a commercial aspect, such as belly freight in passenger aircraft.
- **Behaviour change** – many highlighted the crisis can be used **as an opportunity to push forward for a change** and to build on lower demand from the transport sector by establishing sustainable behaviour change. A number of attendees thought it is the right time to introduce major changes in decarbonisation because people are more receptive to changing their behaviour.
- Several attendees **urged the UK to take an international lead on transport decarbonisation** providing consistency, certainty and grasping the opportunity to build a recovery based on sustainability.
- **Future funding** – several stressed the importance of funding from the government on new technologies. There have been many redundancies due to the pandemic and many

attendees asked questions on funding opportunities to help retain or retrain the workforce.

Some attendees made the comment that any Government funding should be linked to emission reductions and savings, allowing the two objectives of economic recovery and decarbonisation to align.

- A few attendees also highlighted that this is an **opportunity to invest in UK based research & development** on short route trials, alternative fuels and battery technology.
- Moving goods by air within "belly cargo" was severely impacted by the global pandemic with less passenger services running however, it was expressed that goods movement by maritime shipping was less affected and there was a degree of modal shift. The issues of cruise ships were well reported.
- Attendees called for clarity on sustainable fuels and fuel pathways across modes and will depend on how we decarbonise other sectors such as domestic heating. Clear road maps for these alternative fuels are needed.
- National Grid are **modelling future energy scenarios** and it was re-iterated that energy demand and availability will depend on other parts of the economy, for example, decarbonisation of heating. Due to the pandemic with increased home working and changes in travel behaviour and increased online shopping will mean **pre-pandemic demand modelling may no longer be relevant**.

For decarbonising international travel and international goods in the aviation sector, what are the barrier, enablers & opportunities?

- Many attendees stressed the **international nature of the aviation sector will require international cooperation and collaboration** from governments, industry and wider stakeholders such as international agencies (e.g. ICAO), academia and research bodies.
- Aviation, due to its international nature, has been omitted from national GHG reporting and emission reduction targets. Some attendees indicated that **the Government should be encouraged to consider taxing travel** or introduce personal tax allowances to keep travel demand lower.
- A number of attendees agreed that the aviation sector has benefitted from taxation regimes and exclusion from GHG agreements and stated that the UK Government should have a policy in place to tackle aviation emissions. It was highlighted that taxing UK purchased fuel may not have too much of an effect due to the international nature of aviation. Fuel would be purchased where it is cheapest, so an international collaborative approach is needed for aviation fuel taxation.
- Several attendees also stressed on the timeline for new technologies to consider research & development timelines. New technologies and solutions need to give absolute reductions and a portfolio of solutions is needed with an emphasis on which technologies are available for the short and long term.
- The majority agreed that the **power density of batteries could be a barrier for international long haul aviation that might not be solved before 2050.** Therefore, **more investment in the research & development of sustainable alternative aviation fuels is needed**, while confidence and experience in technologies, such as battery or hydrogen fuel cell propulsion is gained. Reducing demand and improving efficiency could also be solutions.

- A few attendees felt that price points need to be considered to encourage the right choice being made and **that Government support is needed to encourage the modal shift.** Another attendee felt that price is only one part of the issue, and consumers do not know or understand the carbon impact of their travel choice. The concept of **carbon as a currency was suggested.** I**nformation, data and awareness are required** to inform people generally of the carbon intensity of their travel choices.
- Many attendees also mentioned **the need for an energy strategy** and stressed that this needs to be **a collaborative approach that combines DfT, BEIS, OFGEM and the Treasury** to solve the issues, as they believe decarbonisation is not possible for companies alone.
- Attendees agreed the importance and need for strategies that include fuelling infrastructure around airports. There need to be clear business models required that give **a degree of certainty and would need to be combined with a range of incentives** to stimulate the uptake of sustainable aviation fuels.
- An attendee offered an example of a company called Clean Planet Energy that is making aviation grade fuel from waste plastic. They also advised about a new plant for aviation fuel being built, which has led to a requirement for rail infrastructure which should be planned for in similar projects.
- Generally, it was suggested that we should endeavour to **reduce demand for imported food and consider home grown or closer substitutes to reduce air miles**. A mention of clearer 'labels of origin' for food to show where supermarket food is coming from would help educate the public on purchase choices being made.
- Most attendees agreed that aviation (and maritime) are the most challenging sector with different barriers and it was agreed that there needs to be a multi-pronged approach to decarbonise these sectors. Some suggestions were to avoid emissions by optimising routes, improving new aircraft efficiency and efficiency of ground equipment. There is an important role for offsetting any remaining carbon.

For decarbonising domestic travel in the aviation sector, what are the barriers, enablers & opportunities?

- **Improving air traffic and control of air space** such as lower altitude flying has the ability to improve aviation efficiency in the short term.
- Attendees encouraged continuing the work on solar power flight but focus on smaller aircrafts on short haul operations instead of large commercial aircraft.
- **Addressing the domestic aviation market** by placing a domestic tax to encourage companies to look at alternatives rather than domestic flights for their staffs. The use of price points that encourage the use of lower carbon intensity modes was also suggested. Many agreed **there is an opportunity in shifting more domestic trips towards rail and coach services.** This would require investment in alternative modes such as high-speed electrified rail services.
- An example was given of a partnership between an airline and technology company to produce a fully electric 100+seater aircraft by 2030. This type of aircraft would cover a very high percentage of the domestic and short haul market. This would not address the long-haul market but with more funding put into research and development progress would be faster.

- Attendees were concerned that due to the increase in electrification across transport, that there will be constraints on battery technology availability. Some suggested that some level of battery prioritisation would be required.
- While other attendees agreed that electrification is very important for decarbonising the transport sector, they do not feel there is 'silver bullet' and that all solutions have pros and cons. For example, with biofuel, there is the issue of whether land is used to produce food or fuel and the indirect effects need to be considered.
- A large number of attendees highlighted the fact that a life-cycle assessment approach needs to be taking into account. Examples of the sustainability battery materials and disposal and biofuel production were given along with decarbonising the electricity grid.

What are the key research and development requirements needed to facilitate the transition to low carbon aviation industries?

- Aviation experts are needed to come up with the solutions. However, companies may not have the funds or "brainpower to do this – the UK should take the lead, safeguard jobs, as well as create new ones. An attendee added that the UK has a good track record in aviation engineering and that it needs to be a priority to invest and lead development in this area.
- Finding areas of **cross sector** collaboration on alternative technologies was strongly suggested. A question was raised of whether technology used in passenger vehicles could be transferrable to other sectors.
- **Policy continuity was suggested as being key**. It was suggested that if the government does not create the right environment then the private companies will not invest.
- Some pointed out that there is embedded carbon in the development and construction of aircraft and that significant investment in research & development is required to come up with new materials that can lower carbon footprint.

For decarbonising international travel and international goods in the maritime sector, what are the barriers, enablers & opportunities?

- **International collaboration** – due to the nature of the business, many see international collaboration as of big importance in reducing carbon on a global scale. An example made was if a port in the UK is electrified but there is no electrification at the destination, then the business case is not there. Both ends of a journey need to be electrified.
- Multiple **attendees highlighted hydrogen as a potential fuel technology**. Hydrogen refuelling at ports for handling equipment is being trialled and there needs to be a long-term strategy for ports with ammonia and methanol for longer distance shipping. It was suggested that using UK ports as test beds for pilot and demonstration projects.
- An attendee agreed hydrogen is viable but went on to say, *"In decarbonising, we must consider the developing world and allow them to become as prosperous as us. In addition, we need to lead the way. We need a global solution that allows all people on the planet to share our aspirations."*
- Many agreed **ports should be considered as energy hubs where multiple modes meet.** All modes require energy and as ports are linked to road, rail and potentially inland water a hub approach is needed. This is currently a domestic market opportunity with the ability to incorporate coastal shipping and inland waterways. There should be shore-side power opportunities with an integrated energy system. There is the possibility to de-

risk the investment in alternative fuels and energy by spreading the risk for low carbon fuels in port hubs.

- Several attendees stressed that having a regulatory regime that enables the uptake of new fuels and technologies is important and to make sure there is the ability to manage the risks associated with the new fuel and technologies.
- An attendee believed there should be better connectivity to our ports, enabling private ports to work strategically together.
- One barrier was said to be our grid system- ports can be a provider of energy and can be solar empowered but our grid system is not an enabler for it.
- An attendee pointed out, the advantage of international maritime is the clear ambitious goals. There are absolute emission reduction goals to reduce greenhouse gas emissions by at least 50% by 2050.
- An attendee stressed that, regarding the fishing community, it will not be good for the government to spend money on reducing carbon in the trial process for decarbonisation in fishing. People that are working in that industry are very focussed on earning as much as possible by catching as much as possible.
- Multiple attendees stressed that shipping is a global industry and governed by the UN's International Maritime Organisation (IMO). This body are calling for the implementation of global regulations. The UK government must ensure the global gateways for freight transport are appropriately incorporated within the UK's strategy.
- Several participants stressed funding is needed in research & development to determine the options available and that there is a need to ensure the asset life is long, so long investment periods are encountered.
- The UK government has been encouraged to involve the trade unions in initiatives, as the drivers/operators are key in implementing behaviours that help reduce emissions. Training and awareness programmes are essential to the success of initiatives.
- Some felt not enough is done in the UK investigating autonomous shipping.

For decarbonising domestic travel in maritime sector, what are the barriers, enablers & opportunities?

- A suggestion supported by a few people was for the government to provide more support in terms of grant funding for research and development. This could be in the form of demonstration and pilot projects and to build confidence in the long-term investment strategy within the sector. Participants remarked that the UK domestic marine sector should be used as a test bed for new technologies that could be scaled up for the global market and benefit the domestic economy by establishing the UK as a centre of excellence.
- The UK should look at what is working well for other countries and emulate. It was stressed "*that we just seem to get ourselves caught in red tape around things such as testing,"* which was viewed as a massive barrier by many attendees. Making grant applications and funding mechanisms as streamlined as possible was a common remark by attendees.
- An attendee highlighted that much effort is going into hydrogen, so they are convinced that investment will follow if the government commit to backing hydrogen. All attendees agreed that the government need to set expectations and be specific.

A short-term gain would be **to move goods from road to coastal shipping** (modal shift) that are more energy efficient or less carbon intensive.

- Another attendee went on to ask if we can get an inland operator to provide hydrogen in a way that supplies international shipping because there are cruise ships that are demanding hydrogen, and if so, can they trust the technology on their own vessels. The attendee stressed the importance of getting hydrogen technology into an environment where people can trust it.

What are some of the shorter term (in the next 10 or 20 years) solutions for decarbonisation of domestic maritime industries [Examples could be retrofitting, alternative fuels] and aviation [Examples for aviation could be electric flight, domestic SAF market etc.]

- The example of Singapore was given as a case study for innovation as they have a countrywide platform being built by IBM to help the city and ports to collaborate and coordinate ship movements with the ports and cargo flows. The attendee suggested that the UK emulate this as it will decrease loading times and avoid road congestion.
- Another attendee felt help from the government to work with SMEs would be advantageous. He gave an example that, the largest offshore wind operator is keen to move to using Hydrotreated Vegetable Oil (HVO) in their entire diesel engine assets but cannot make the move due to high tax on HVO.
- Several attendees stressed the importance of clear communication with the public as an important area for research. For example, mode of travel and cost and communicating that decarbonisation will generate economic opportunities. Other attendees also stressed the need to be engaged in the communication at an earlier stage.
- All attendees felt there are potential technologies available, such as battery, hydrogen, and ammonia, but many are unclear which one will prevail. All stressed the importance of research & development to prove that these new technologies are viable. One attendee felt that shore power is a key area for investment in research & development.
- Fuels and energy vectors **need a harmonised and robustly implemented certification scheme to enhance trust** in their adoption and claims being made on GHG savings. These must be on a “well to wheel” (full fuel life cycle) basis not just tailpipe.
- Many stressed the **importance of international collaboration to develop standards**, protocols, projects and demonstrations.
- Two attendees agreed that there would be fragmentation in fuel use over the transition period in maritime and those options will be faster where there is route consistency, such as ferries. There should also be trialling opportunities that need investment.

What are the key research and development requirements needed to facilitate the transition to low carbon aviation and maritime industries?

- **Research & development in different liquid fuels is needed** when other alternatives such as electrification, hydrogen or ammonia have much longer development lead times. The lifetime of the transport equipment in use within aviation (planes) and maritime (vessels) is long and is seen as a key issue when developing alternative energy and fuel systems. The example of maritime vessels being in operation for approximately 40 years

was given meaning even new vessels now need to be net zero carbon emission capable in order to reach targets in 2050.

- Consideration needs to be given **to both the technical and commercial viability**. For example, if load space (payload) is lost due to the alternative fuel then transport service is less commercially viable due to lower revenue.
- A number of attendees felt **currently there is a lack of accessible information** and details on economic costs to operators for alternatives to be considered. An attendee also felt **an analysis of alternative fuel "deployability" is needed**.
- **R&D into Carbon Capture and Storage (CCS) is needed**, this should include the capabilities of CCS within the UK in conjunction with a whole system approach. This can be achieved with investments in research & development.
- **Improved collaboration** with organisations such as National Grid is needed, these organisations have data available that will help guide policy and R&D. The UK Government is encouraged to take the lead to join up activities and help shape the landscape of decarbonisation of transport. Many attendees felt that there are solutions that have been developed but need a coherent strategy to utilise them, along with a collaborative approach internationally.

What do you see as the role of sustainable low carbon fuels? How can we ensure that these fuels are sustainable?

- Many attendees viewed **sustainable low carbon fuels as a transition solution** that would be used to decarbonise those modes and operations that are seen as harder to decarbonise sectors, such as long-haul aviation or international shipping where other technologies would not be sufficiently developed to implement in the shorter term.
- A number of participants expressed the **need to ensure that the whole fuel lifecycle is sustainable** with standards set at an international level. **Low carbon fuels certification schemes** could play a role in ensuring the sustainability of alternative fuels. This should include consideration of Indirect Land Use Change (ILUC).
- Attendees stressed the need to be careful on making decisions on what technology to back. For example, diesel could be better for maritime industry.
- **Enhanced communication across sectors and working collaboratively** to avoid creating new problems or unintended consequences was considered important by many attendees.

What is the role of government in supporting the maritime and aviation sectors to decarbonise (e.g. regulation, funding, hands-off and let industry decide)?

- Many attendees saw a role for the **UK Government to be a key influencer within the international organisations** that regulate and guide the aviation and maritime sectors. Using connections and role within the United Nations agencies of the IMO and ICAO was seen by many as **an opportunity to influence ambition levels**.
- A key role **to facilitate cross-sector collaboration and foster consortiums** to tackle the challenges by joining up the relevant government departments. Coordinating, stakeholders from academia, industry and governments to develop programmes and incentives to transition to a low carbon future.
- UK Government needs to be **a key funder of R&D in order to de-risk investment** by industry and lead on opportunities in partnership with industry where cost needs to be divided equitably.

- Decisions regarding alternative fuels within aviation and shipping need to be aligned with the 2050 targets and roadmaps need to align with decarbonisation in other sectors such as domestic heating. Energy system integration will be needed, and a number of participants mentioned the need for **the UK Government to demonstrate leadership and a collaborative approach with active dialogue with all stakeholders**.
- The **UK Government can assist in creating an environment that will help the UK become a leader in innovation** in a number of sectors. A number of participants gave examples where the **UK has a background in innovation and leadership** that can be used to help decarbonise the aviation and maritime sectors. The **UK has established expertise** in aeronautical engineering and the use short sea shipping as a test bed for new technology were given as examples that should be investigated.
- Many attendees mentioned **carbon value or pricing and taxation**. There needs to be established mechanisms developed that speed up the uptake of decarbonisation measures. Areas such as carbon taxation, the dynamics of fuel duty and how these will enhance decarbonisation at scale need to be investigated.
- The **UK Government should endeavour to avoid stalemate situations** where industry is asking for government leadership and government is waiting for industry to act. An example given was in the area of autonomous vehicles where both sides were waiting for the other to develop. The need for a collaborative and active dialogue approach was reiterated.
- Most participants stated the **UK Government should be backing and funding R&D initiatives,** programmes and the development of markets that enhance and support decarbonisation. This funding should be linked to **a robust long-term policy landscape** that is **supported by international standards and agreements**. The example of R&D into the availability of biofuels or fuels from waste was mentioned a number of times by workshop participants. Clarity from both the input feedstocks and the output products viewpoint would help support and develop the market for sustainable alternative fuels. This area of activity can have **added benefits of supporting local economies, creating jobs and levelling up opportunities** around the country.

UK as a hub for green technology and innovation – August 2020

Overview

Energy Saving Trust (EST) supported the Department for Transport (DfT) with the delivery of 11 online workshops with over 116 stakeholders on 3rd August 2020. The workshops gathered views on making the UK a hub for green transport technology and innovation. This was part of the DfT's planned engagement to understand stakeholders' views on how they and central government can support the six strategic priorities set out in *Decarbonising Transport: Setting the challenge*, and to gain a better understanding of the barriers, enablers and opportunities for innovative transport decarbonisation solutions.

DfT colleagues facilitated the workshops based on a set of standardised questions. These questions were designed to stimulate ideas and encourage conversation. To tailor the session to the interests and experience of the attendees, every question was not asked in each session. Each workshop lasted approximately 1.5 hours.

Below is an executive summary of the major discussion points across all 11 workshops, followed by key themes and common responses for each question, grouped under four broad themes. The themes were: barriers, enablers and opportunities; the role of government, local authorities and business in supporting this priority; transport and technology; and the green recovery.

Workshop attendees represented a variety of organisations, including engineering and built environment companies, consultancies, academic institutions, local authorities, charities, market disruptors, and community groups. Transport operators and industry associations from an array of sectors, including rail, buses, coaches, shipping and road haulage, were also well-represented.

Executive summary

The **barriers, opportunities and enablers** for green transport technologies varied across sectors and regions; however, sustainable fuels were the most commonly cited emerging technology in the workshops. While cost and infrastructure needs were highlighted as barriers, the UK has an opportunity to be a leader in this space and build resilience in UK manufacturing. Hydrogen was also a highly discussed technology, with the potential to help decarbonise the hardest to abate sectors. Concerns over the framing of new technologies as competing with one another were prevalent, with many preferring to view new technologies as each having their place as a solution for different sectors. Electric vehicles were also widely discussed, with charging infrastructure cost, availability, and overall complexity cited as the barriers to uptake.

The **role of central government** was seen as primarily one of leadership and paving the way for decarbonisation. Many see the 2050 net-zero target as too far away to conceptualise and want to see **a calendar of specific targets set for each sector** to guide who should be doing what and by when they need to do it. Government messaging and communications were another highly discussed topic. A coordinated communications campaign from Government was seen as having the potential to spur major behavioural changes from the public through **the promotion of alternatives to private vehicles** and combating misinformation around other travel modes. There was consensus in wanting Government to increase funding and investment in research and development for green transport innovation and scaling up available solutions,

and an eagerness to start trialling solutions and learning by experience. Although opinions were divided on the efficacy of penalties, many wanted to see a carrot and stick approach from **Government to incentivise low carbon transport**. Local government's role was primarily discussed as guiding local planning as they are best placed to decide what solutions and infrastructure will address local needs. Many saw business' role as taking responsibility and leading on decarbonisation from within, as well as being proactive in retraining the workforce to meet decarbonisation challenge head-on.

When discussing **transport and technology** solutions, sharing data across sectors and facilitating information sharing was commonly discussed for the short-term. While in the longer-term, the desire for planning to evolve and break out of its siloed nature to consider energy and transport infrastructure alongside one another was discussed. To see the UK become a leader in decarbonising transport, **greater dialogue between Government and industry is needed**. Many wanted to see Government be decisive and set the agenda, so industry can move forward. The importance of the education system and improvements in STEM uptake was deemed necessary to build UK expertise and help meet the workforce challenge in the move towards green technology. Retraining and upskilling the current workforce working on internal combustion engine technologies was also deemed critical.

When discussing the **green recovery from COVID-19**, many were of the view that the UK should build on the momentum built during lockdown and continue promoting modal shift. Green recovery spending should be directed at the right solutions to realise a lasting change in transport decarbonisation and should be done quickly.

Barriers, enablers and opportunities

What are the current/emerging innovative solutions in transport for decarbonisation and how does this differ across the UK?

- Most attendees highlighted **sustainable fuels** as an innovative solution for decarbonisation across sectors throughout the UK. The cost of sustainable fuels and infrastructure needed to scale up use were the major barriers identified. Enablers of the sustainable fuel technologies discussed were financial incentives to support scaling up and affordability, as well as integrating sustainable fuel infrastructure into future planning frameworks. Sustainable fuels were also seen as an enabler of decarbonisation in some sectors, bridging the gap in the short term while other zero-emission technology is being tested and scaled up, particularly for the maritime and aviation sectors.
- **Hydrogen** was also a highly discussed emerging technology and seen as an enabler of decarbonisation for the hardest to abate sectors such as heavy good vehicles. The biggest barrier noted was the infrastructure required for wide-scale use.
- Many attendees highlighted that often **zero-emission technologies** are **pitted against one another**, such as batteries and hydrogen. Several participants stressed that there is **no silver bullet** with technology. Attendees suggested that zero-emission technologies should be seen as complementary, with their own roles to play in different sectors. Several participants also stressed that in some cases where there are several possible technologies being developed, there is a need to start undertaking pilot projects and learning by experience.
- **Electric vehicles** were discussed by most participants, with barriers including the cost, complexity, and availability of **charging infrastructure**, as well as charging times and grid constraints. However, some participants argued the business case for chargepoint installation is lacking due to high costs and low demand. Innovations discussed included

dynamic charging and e-highways, where vehicles can charge on the move, and new charging software, developed in the UK, enabling drivers to connect to any charger.

- **Electrification** more broadly was mentioned several times for various sectors. The barriers to bus electrification included cost, range, and charging infrastructure. Some attendees mentioned the practicality and pricing of rail electrification were still unknown, with the franchising system identified as a barrier in moving forward with new technology.
- **Micromobility** was highlighted by many participants, with **e-scooters** described as having a major role to play in first and last-mile solutions. Several attendees raised concerns over their safety, especially in urban areas.
- **Incentives** were seen as necessary by many participants to facilitate the transition from internal combustion engine technologies to green technologies, particularly with sectors operating on low margins (e.g. road haulage).
- Several attendees sited both **shared mobility** and **mobility as a service** as innovations that, when integrated, have the potential to compete with the ease of owning a car.

In rural areas, what are the barriers, opportunities and enablers to decarbonising transport?

- Several attendees highlighted the disparity in **connectivity** across the country as a major barrier, with rural areas less connected in terms of transport and digital services (e.g. broadband). Participants suggested that greater digital connectivity can enable innovations to be rolled out on a larger scale, and more equitably. Similarly, greater connectivity of place can improve transport efficiency and convenience for the consumer.
- An opportunity discussed by several attendees was **personal rapid transit/autonomous transport**, which has potential across many sectors. Innovations discussed included autonomous vehicles as an on-demand service or as a bus replacement.
- A major enabler discussed by several attendees was improved **funding for charging infrastructure** roll-out, as the transition from internal combustion engines to electric vehicles requires large infrastructure improvements especially in rural areas.
- Some attendees sited vehicle **range** and **energy supply** among the biggest barriers to electric vehicle uptake in rural areas.

In urban areas, what are the barriers, opportunities and enablers to decarbonising transport?

- Many attendees highlighted the need for the UK to focus on zero-emission technologies for **existing fleets**, particularly in urban centres where air quality is a major concern. One of the biggest barriers mentioned was the cost of electricity infrastructure upgrades. A Government-managed and phased introduction of new technology, outlining key dates for the phase-out of old technology, was suggested to give OEMs and suppliers long-term visibility on demand and enable more competitive pricing.
- **Car sharing** was mentioned by some attendees as a possible solution to bridge the gap in transport (particularly with use rates considerably down on tube and bus) during COVID. Most car sharing businesses in London ceased operations pre-COVID, but participants highlighted this could be a good opportunity to bring the model back in a more sustainable way.
- **Electric vehicles** were mentioned by several attendees, with charging infrastructure regulation, cost, and charging times discussed as the major barriers. Enablers mentioned included managing regulation and incentivising investment in charging

infrastructure. On-street charging needs were also highlighted, with attendees recognising the lack of driveways as a barrier to charging electric vehicles.
- **Micromobility** and **autonomous vehicles** were mentioned by some attendees as opportunities in last-mile solutions.

In ports/coastal areas?

- Several attendees discussed opportunities in **renewables**. Offshore wind industry was discussed as an enabler of decarbonisation, particularly in powering batteries, hydrogen production, and other synthetic fuels for vessels. Barriers discussed were metering arrangements and commercial models between wind farm developers, network distribution companies, and other stakeholders. Other barriers were battery density and weight.
- Some attendees highlighted that in maritime, as with other sectors, there is **no one size fits all solution** and the viability of alternative fuels (e.g. hydrogen, ammonia, methanol, and biofuels) is still being investigated. Participants pointed to cost as a major barrier to alternative fuels and suggested that improving the supply chain in the UK could enable the financial viability of these fuels.

Role of government, local authorities, and business

What do you see as the role of Government in supporting this strategic priority?

- Most attendees wanted Government to **clarify frameworks and set targets** to achieve longer-term net-zero goals. Most participants wanted to see incremental targets set sector-by-sector to guide stakeholders towards the 2050 goal (e.g. one, five, ten-year targets). Many attendees suggested a national delivery plan from Government to provide a steer on and funding for what they want to achieve.
- **Policy interventions** from Government were suggested by most attendees to provide long-term certainty, particularly in support of zero-emission technologies through incentives and fiscal structures. Participants wanted to see clear policy established in sectors where there are less obvious alternatives for decarbonisation to help guide investment.
- Most participants believed Government has a role in the **messaging and communications** around decarbonising transport. Attendees wanted to see a large-scale communications campaign to tackle the reduction of car use, using messaging around “the right vehicle for the right journey”, and focusing on the availability of other types of transport. Many attendees also encouraged Government communications around the benefits of decarbonising transport, such as lifestyle and health benefits, as well as dispelling myths around various transport alternatives, particularly electric vehicles and micromobility.
- Facilitation of **cross-government working** throughout departments was highlighted by many attendees. Some attendees pointed out they would particularly like to see cross-working between DfT and BEIS on energy and industrial strategy.
- Many attendees supported the **scaling up of green technology** and bringing new solutions to market, suggesting Government has a huge role to play in funding and investing in innovative research and development, technologies, and start-ups.
- A desire for Government to step into an **international leadership role** was expressed by many participants. Several participants wanted to take advantage of the upcoming COP26 to present the UK as a leader on climate strategy and push ambitious legislation and funding initiatives, particularly in the more difficult sectors of aviation and maritime.

How might Government be able to support your capacity and capability to deliver on this strategic priority?

- **Funding for innovative projects** was mentioned by many attendees, with participants encouraging Government to be ambitious in funding solution-based projects and stepping in to help fund technologies into the longer term.
- Many attendees highlighted the need for government **clarity** on the direction of travel for every sector, to give stakeholders something to rally behind. Some attendees stressed they want to be kept informed about future rule changes and when they will take place, so they have the time to adjust.
- **International alignment** was discussed by several participants as a necessity if zero-emission targets are to be realised, particularly within aviation, which has international reach. Attendees suggested Government can support by taking the lead in securing international agreements with other nations to facilitate alignment on global aviation emission targets.

Are there additional powers or levers you would want to be able to support this strategic priority?

- Many attendees wanted to see **clear incentives and penalties** when it comes to promoting the use of zero-emission technologies across all sectors. Examples discussed include tax incentives to support the production at scale and affordability of sustainable fuels, particularly in sectors where liquid fuels are hard to replace in the short term, and incentives for fleet operators to switch to new, lower emission technologies. Also discussed were fuel duty increases and “feebates”, fees and rebates for vehicles dependent on their emissions (e.g. higher taxation on higher emitting vehicles). While most attendees agreed on the need for a carrot and stick approach, some disagreed over the use of penalties. Several attendees suggested that a review of the tax system is needed to better champion the benefits of clean technologies, in addition to penalties to make operating internal combustion vehicles more difficult.

What do you see as the role of local government?

- **Local planning** was mentioned by many attendees, highlighting that local authorities and cities are well placed to guide the solutions and infrastructure needed to address the problems in their areas and integrate them into local plans, as well as working with providers (e.g. grid, gas providers, etc.) to plan for future infrastructure.
- Several attendees suggested **different areas** will need **different solutions**, and thus local governments should work with supply chains to help develop those unique solutions.
- Some attendees encouraged local governments to ensure **sustainable development** is integrated into local plans, such as the prioritisation of zero-emission transport.

What do you see as the role of business?

- Many attendees saw the role of business as **taking responsibility** and **leading the way** in transport decarbonisation, as the UK has the potential to be a leader in green technology and expertise. Some attendees encouraged businesses to incorporate this in business communications and talent acquisition. Some also encouraged businesses to promote low carbon commutes and support home working.
- **Training the current workforce** was mentioned by many attendees to maintain workforce relevancy in the technology transition.

- **Lobbying** was discussed by several participants, as business associations have lobbying power and established communication channels. Some highlighted that through coordinated lobbying, business has the power to move the dial and influence public opinion.
- Several attendees highlighted that **businesses will be facing tough decisions** in the aftermath of COVID. While some businesses may want to hold off on expenditures that might be important to decarbonisation, participants expressed the importance of business' continued investment in progressing technologies.

Transport and technology

What are some of the shorter term (in the next 10 or 20 years) solutions for decarbonisation from green transport technology and innovation?

Road Transport Sector

Several attendees discussed how **hydrogen** has not been embraced in the same way electrification has for road transport. Attendees expressed the desire from industry to find a solution that allows existing infrastructure (petrol stations) to be used.

- **Future-proofing** to enable retrofits at a later date (e.g. laying plastic pipes during groundworks to enable electric cables later) was encouraged by some participants**.**

Rail Sector

- Several attendees highlighted the ambitious but necessary need for **electrification of rail**. The need for more power infrastructure was raised to support this; however, it was seen as an opportunity to be creative and take advantage of microgrids and local grid connections between rail and other electricity users.

Freight and Delivery Sector

- Some attendees discussed that **last-mile solutions** are going to be the focus for freight and delivery, with one attendee encouraging a move to electric vehicles to allow for quieter overnight deliveries and to alleviate daytime congestion.
- **Hydrogen** was described as a great opportunity by some attendees. Blue (fossil-fuel generated) hydrogen was cited as being the likely short-to-medium term solution, with one attendee stressing the need to scale up green hydrogen production.
- Some attendees discussed **moving smaller freight volumes off the road** and onto rail and ships.

Aviation Sector

- **Sustainable fuels** were mentioned by some attendees as a way to tackle short-term emissions, as hydrogen and electric planes will take longer to come to market. However, some attendees stated that sustainable fuels are still costly and there is a need to ensure the use of low carbon feedstocks.
- Due to aviation taking a significant hit during COVID, some attendees were concerned that **aviation** will have **fewer financial capabilities** when it comes to innovations in the short-term. However, attendees identified that help could be garnered from the UK capitalising on being a leader in sustainable fuels.
- Some attendees mentioned that **carbon offsetting** may be required to help aviation reach net-zero by 2050.

Maritime Sector

- **Sustainable fuels** were mentioned by some as a way to tackle short-term emissions, alongside concerns about ensuring the use of **low carbon feedstocks**.
- Opportunities around **liquified natural gas and ammonia** as a carrier for hydrogen were highlighted by several attendees.
- **Utilising offshore wind** was discussed by several attendees. One participant suggested repurposing old infrastructure from fossil fuel-based industry around coastal areas and ports for renewables, reinvigorating deprived communities.

What are some of the shorter term (in the next 10 or 20 years) cross-sector solutions for decarbonisation from green transport technology and innovation?

- The need to **bring together data across all sectors** to facilitate information sharing and help change behaviours was raised by several attendees, which some participants suggested could be facilitated by collaboration between government and industry.
- The need for support in **rolling out infrastructure for sustainable fuels** that are already available across sectors was mentioned by some attendees.
- Some attendees discussed investment in **gigafactories**, which would enable transformational change in **battery technology improvements**.

What are some of the cross-cutting longer term (in the next 50 years) solutions for decarbonisation from green transport technology and innovation in the transport sector as a whole?

- The need to **plan beyond parliamentary terms** to develop long term energy policy and put in place infrastructure was mentioned by many attendees. Similarly, many attendees called for an end to siloed thinking, highlighting that energy and transport policy are interrelated and need to be developed alongside one another.
- A similar need for **joined up thinking across different transport modes** was also highlighted by several attendees, suggesting transport network planning needs to be holistic to allow for different modes to facilitate one another.
- Several attendees mentioned a need for **longer-term policy shift** away from favouring motorists, suggesting there is bias built into laws (e.g. leniency for killing cyclists in motor accidents) that need to be reformed.

What are the key research and development requirements needed to facilitate the transition to zero carbon transport through technology and innovation and make the UK a leader in this area?

- A major development cited by some attendees was **greater dialogue between industry and Government**, recognising that there is hesitancy from both sides to take the first steps in investing and scaling up. Attendees suggested Government needs to set the agenda, take on the financial risk, and communicate with industry so that industry can move forward with solutions.
- The integration of **offshore wind** with **battery storage** and with **electro-fuel technology** was a key research area raised by some attendees, where the UK needs to catch up to other European players.
- Some attendees also highlighted **additional research needed in industrial areas** such as heavy goods vehicles and non-road mobile machinery (e.g. construction

equipment), as much of the research around electrification and battery technology has been focused on passenger vehicles.

How can we build on UK expertise and job growth in different places through supporting green transport and technology? Where are the gaps?

- Most attendees highlighted the importance of the **education system** and **STEM uptake**, as well as simply improving awareness of green transport amongst the public.
- **Retraining** and **upskilling** people previously working in the conventional motor vehicle engineering sector was encouraged by many attendees to prevent skill shortages that will hinder research and development efforts, and the implementation of necessary infrastructure. Several attendees suggested utilising the strong engineering base in the UK, where the workforce can move away from traditional industries to smart infrastructure and hydrogen.
- Building up the **battery manufacturing sector** was also cited by some attendees as an opportunity to replace jobs lost in conventional motor vehicle engineering, and to continue to develop and grow the sector.

How can data and digitalisation support green transport and technology? What data should be open, where should this be available and what standards should exist?

- Several attendees discussed the need for **data sharing** between all stakeholders to inform decision-making at both consumer and executive levels. Several attendees pointed out the need for a **common interface** for different systems to speak to one another and share information.
- **Data utilisation** and the **internet of things** were mentioned by some attendees as opportunities to improve efficiency of long-haul truck journeys.
- Some participants highlighted the need for standards in **interoperability** with electric vehicles to facilitate ease of use for end-users.

Green Recovery

What does the transport restart and recovery from Covid-19 mean for this strategic priority?

- Most attendees highlighted that green recovery is an opportunity for a **reset in business as usual**. Participants wanted to take advantage of the momentum seen during COVID in encouraging modal shift. Many attendees emphasised the need to focus green recovery spending on the right solutions and the need to act quickly, as vehicle usage is already increasing. Some attendees cited taxation of fossil fuels as a key measure.
- Several attendees referenced strategies employed by other countries to **shift away from planes to trains** for internal journeys, including France, where internal flights were discouraged and encouraged people to use the railway.
- **Incentivising investment** from consumers and businesses when financial uncertainty and financial hardships are at a high level was a key challenge identified by several participants.

Local Authority workshops – July 2020

Overview

Energy Saving Trust (EST) supported the Department for Transport (DfT) with the delivery of eight online workshops with 49 local authority stakeholders between 20th and 24th July 2020. The workshops gathered views on decarbonising transport. This was part of the DfT's planned engagement to understand local authority and related stakeholders' views on how they and central government can support the six strategic priorities set out in *Decarbonising Transport: Setting the challenge*, and to gain a better understanding of the barriers, enablers and opportunities for decarbonisation and the role local authorities can play.

DfT colleagues facilitated the workshops based on a set of standardised questions. These questions were designed to stimulate ideas and encourage conversation. To tailor the session to the interests and experience of the attendees, every question was not asked in each session. Each workshop lasted approximately 1.5 hours.

Below is an executive summary of the major discussion points across all eight workshops, followed by key themes and common responses for each question, grouped under five broad themes. The themes were: the role of local authorities in a national strategy; barriers, enablers and opportunities; the role of central Government in supporting local areas; technology, innovation and behaviour change; and the green recovery.

Transport planners made up a large proportion of the attendees, with councillors and some representatives from climate strategy, highways, behavioural change and planning teams. There was a balance of rural and urban authorities, and attendees from all tiers of local government, ranging from parishes to combined authorities. Related stakeholders, such as sub-national transport bodies and Local Enterprise Partnerships, also attended.

Executive summary

The **role of local authorities** is to enable local sustainable travel choices through a regional vision and delivering quality infrastructure. To enhance their impact on behavioural change, greater investment is needed in the marketing of sustainable modes and training initiatives, both locally and nationally. However, some warned that complementary, hard political decisions are inescapable and urgently needed given the scale of the challenge. Despite having good policies in place, many councils in their role as planning authorities experience widespread difficulties with engaging productively and innovatively with developers on sustainable travel measures. Stronger national policy frameworks and clearer guidance would improve the negotiating position of authorities and minimise duplication of effort.

The **barriers, enablers and opportunities** for more sustainable travel vary but across all localities, private cars were described as the most challenging mode to decarbonise. Ingrained habits, overreliance and local political reluctance to implement changes, for example to parking, are all factors. In rural areas, providing bus services remains an intractable problem for many authorities due to the commercial unviability of some routes and the conflicting needs of commuters and socially isolated groups; Covid-19 is exacerbating the situation.

Demand responsive transport is a solution for some areas but not a panacea. In urban areas, short journeys present opportunities for active travel and public transport but barriers to decarbonisation include public transport overcrowding and the growing challenges of increasing freight movement and installing on-street charging infrastructure.

In most workshops, when discussing **the role of central government in supporting local areas**, many requested more revenue funding, in addition to capital funding. This would maximise the benefits of investment in sustainable transport infrastructure. Workplace parking levies divided opinion but there was consensus that WebTAG and the Green Book need to give much greater weight to decarbonisation. The emphasis on journey time savings in business cases hinders many transport planners in delivering sustainable travel schemes. Competing for DfT funding also discourages officers as the process is highly resource intensive and perceived to favour city regions.

Local authorities are undertaking diverse **technology and innovation** projects, for example to improve the availability of journey time data, better monitor active travel routes and using AI to monitor the impacts of changing access within the city centre. Better data on walking and cycling and projections from central government on the expected changes in vehicle fuel types and charging infrastructure demand would support better decision-making.

In some cases, the **recovery from Covid-19** has grown the political appetite for change and there have been significant increases in walking and cycling. The ambition now is to sustain these habits. In contrast, bus and rail operators have been severely impacted by Covid-19. Positive national messaging on active travel and public transport would be highly welcomed by local authorities. This is needed to encourage users to return and secure public transport's place within a decarbonised transport network.

Role of local authorities within a national strategy

What do you see as your authority's role in delivering sustainable transport solutions?

- LAs are responsible for the **Major Road Network**. Some authorities focus mainly on statutory duties, including school travel, public transport and maintenance, due to capacity constraints.
- Many authorities seek **opportunities to improve the transport network**, including delivering road schemes and safe, convenient and attractive walking and cycling infrastructure, often captured in local transport plans and strategies.
- Authorities **coordinate different schemes**, such as multi-modal transport corridors or manage funding between project partners, community groups and businesses.
- Several attendees stressed the importance of **leadership and establishing a vision** to build confidence and mobilise communities and businesses, despite the technological uncertainties and difficulties reaching consensus.
- LAs also examine **strategic land use opportunities** and reallocation, which can put sustainable transport in conflict with growth and housing demand. For most planners, the overall aim to minimise travel needs and embed sustainability.

- Several mentioned the importance of **working in partnership** with other tiers of government (districts, boroughs, counties) and similar bodies such as Business Improvement Districts, Local Enterprise Partnerships, National Park Authorities, regional transport bodies, for example when developing bids and engaging locally.
- Several authorities noted they had set targets of **net zero by 2030**, ahead of the Government's 2050 target.

How do you influence behaviour change towards more sustainable modes in different places?

- Some attendees said they had traditionally focused on providing walking and cycling infrastructure, but **greater investment is needed in marketing and training** to let residents know the new infrastructure is available, build confidence and respect between groups of road users.
- Several councils have **longstanding behaviour change teams** working with schools and businesses and delivering excellent results but constrained by very small budgets.
- Some feel that **current marketing efforts are inadequate,** both locally and nationally. Suggestions included making a stronger emotional connection (possibly linked to health), focusing on savings, more incentives (possibly via apps), the implementation of 'nudge' techniques and getting help from the Behavioural Insights Team.
- Two attendees highlighted that **softer measures are easier politically** but that it will take strong and **brave political decision to introduce hard measures** or sticks, such as a parking levy, congestion charge or clean air zone, which is what they thought was really needed in their cities to change behaviour.

What is the role of planning authorities in shaping places to support and enable sustainable transport use?

- Several councils are **refreshing their local and transport plans** (with mixed views on the success of collaboration between planning, transport/highways and health teams, districts and counties) and developing masterplans incorporating sustainable travel measures and better connectivity. Several mentions of "15 mins cities" concept where facilities are within easy walking and cycling distance.
- Some felt they had **good planning policies on paper** (such as a clear travel hierarchy or focus on neighbourhood permeability), however they struggle to implement these policies in practice and they are **under pressure to deliver growth**.
- Many officers felt **developers are disconnected, difficult to influence and reluctant to think innovatively,** and the council lack tools to force change when necessary. There is often a strong focus by developers on 'viability' and issues with land banking.
- For example, one authority wanted a large development to be the catalyst for a demand responsive transport service, but developer would not engage. Another said that given high housing targets, some developers are trying to justify more lucrative urban extensions (i.e. 5 bed suburban homes) with minimal developer contributions, rather than high-density developments with sustainable transport connections. Another commented that the scale of housing growth in their region meant the council had little time for innovative or intensive negotiations with developers.
- The **National Planning Policy Framework** was repeatedly mentioned as causing difficulty for local councils who felt that it was too vague. They requested a much **stronger national position** to help LAs reallocate land, not just build homes. Others said more national guidance would reduce the amount of **duplicated effort** between local authorities to develop own parking standards, for example.

- Several wanted to know when the government will publish their **consultation response on including chargepoints in building regulations**, as they are keen to align local supplementary planning guidance with national policy as soon as possible.

Barriers, enablers and opportunities

In rural areas, what are the barriers, opportunities and enablers to decarbonising transport?

- Numerous challenges with the depletion of **rural bus services**, including services being not commercially viable, infrequent, too slow for commuters between towns, expensive for users, not connecting with train stations or running during the winter. It's difficult to find cost effective solutions or make solutions fulfil both social exclusion and commuting objectives. Many operators are struggling to invest in cleaner vehicles.
- There were some strong advocates of **demand responsive transport** as a solution, citing Liverpool as an example or app for young people in Essex). Others were unconvinced due to the uncertainties about financial viability and convenience.
- To give one example, Midlands Connect commissioned the University of Lincoln to undertake a future of rural mobility study to offer councils guidance and a toolkit of solutions. Also, Midlands Connect is examining the possibility of establishing rural hubs with demand responsive transport and part-time community services (GPs, physio, medication deliveries). They are currently looking at possible locations and developing the financial case (for example, considering if the hubs need to be subsidised or receive catalyst funding or if they could be community-run).
- It can be difficult to develop a **coherent, continuous cycling network** and connect villages. There's growing interest in ebikes but infrastructure is still required.
- Several authorities mentioned they were **dormitory areas** or commuter belts and the source of many peak time car commuter journeys into surrounding cities. There is potential for more **car sharing** (post-covid) for commuters for large employers.
- For **EV chargepoints**, several counties have experienced difficulties with very expensive grid connections in rural areas.
- National parks and other tourist destinations (e.g. World Heritage Sites) have **high numbers of car-based visitors**, and often little rail infrastructure. Protected landscape status makes it harder to develop solutions, e.g. park and ride.
- Rural areas and towns can **struggle to get funding** as benefit to cost ratio is lower than city regions. There was a request for additional national guidance to overcome the expertise, funding and capacity constraints of fragmented and small councils.
- Some authorities mentioned they had applied for the Restoring Your Railway Fund.

In urban areas, what are the barriers, opportunities and enablers to decarbonising transport?

- Cities have economies of scale and many short journeys so **public transport and active travel** are viable, especially using ebikes for hills. However, there can be **limited space** for infrastructure improvements therefore changes to pinch points become expensive and controversial. **Overcrowding** at peak times on public transport is also problematic and discouraging.
- Concerns were raised about **increasing freight movement** (last mile) within cities and towns and van traffic growth. Several councils are investigating or trailing ecargo bikes, but others are constrained by land availability for city centre distribution hubs and the

complexity of logistic operations. In densely populated areas, the impact of HGVs on local roads and air quality is problematic.

- Challenges were reported with demand for **on-street charging** for terraced houses and flats. Some authorities want more guidance, others had successfully installed chargepoints and engaged with residents. Some are looking at **electric car clubs.**
- Several attendees highlighted the potential greater role of **trams, light rail and rail** in cities, but some commented that these schemes took a long time to bring to fruition.
- Some experience **political challenges** where important employers (e.g. industrial port, warehouses) are major sources of pollution and traffic and are not connected to bus routes.

Which mode of transport presents the biggest challenge to decarbonise in your local area and why? What are the local challenges in terms of accelerating modal shift to public and active travel?

- **Short car journeys at peak times** and a general over-reliance on cars in both urban and rural areas were repeatedly highlighted as major challenges. Many felt the message is not getting through on active travel and decarbonising, locally or nationally.
- Some reported issues with **cheap parking** as it undermines the viability of park and rides and public transport, and conflicts of interest arise where car parking provides **important revenue stream** for councils. Parking is often very politicised locally.
- Concerns were raised about **car pick-up and drop-offs outside schools** generating congestion and air pollution, and fewer children going to their closest schools. Councillors can be **reluctant to take politically unpopular decisions**, such as restricting car parking or access, or shifting investment to active travel from congestion measures. Where there is a **strong national policy or mandatory requirements** (e.g. clean air zones), decisions become easier politically. Some felt there is a role for DfT to engage more with politicians and elected members to change mindsets.
- **Van mileage** is growing considerably in many areas. Long payback times on electric vehicles, difficulty influencing complex logistics processes, engaging with multiple sectors and wide range of operators, ranging from multinationals to sole traders present challenges. One attendee commented that decarbonising passenger transport was politically difficult, decarbonising freight was more about technical feasibility.
- Many **bus and taxi operators** want to reduce their emissions but cannot make the financial outlay, including match funding for grant applications.
- Several authorities wanted **more rail** but the long timescales involved are a challenge. Another authority thought they had a good well-used rail network but commented the electrification of diesel rolling stock had been paused (unclear if due to Covid).
- Some felt **Highways England** needed to be more involved with decarbonisation and cycling infrastructure, especially when redesigning junctions.

What are the barriers, if any, to decarbonising your local authority's fleet?

- Several councils highlighted that they already had a substantial number of EVs. However, further uptake is constrained by the **availability of electric or alternative fuelled minibuses and heavier vehicles,** such as refuse trucks, that can meet the performance standards (weight and payload) and are financially viable.
- Many council **services are outsourced** (e.g. waste, highways inspections) and so emission standards could only be added when the long-term contract is renewed.
- Lack of **charging infrastructure**, and the engineering expertise to deliver it. In Cornwall (CoMac), working on sharing rapid chargepoints with other local operators.

- Some fleets looking at reducing **grey fleet** and reported **successes** with electric car clubs, staff bike share, e-bikes and e-cargo bikes. Some are reviewing office parking.

The role of Government in supporting local areas

Are there any additional powers or levers you would want to be able to deliver transport decarbonisation locally?

- There were requests in most sessions, some passionately, for **more revenue funding** (currently capital heavy) for scheme development, promotion, education and training, in order to maximise impact and accelerate decarbonisation.
- Some would like **revenue-raising powers** to improve the financial sustainability of schemes, such as being able to run parking for profit, ringfenced for public transport.
- One attendee described the benefits of the **French funding model, the VT tax**, where companies contribute towards public transport based on their payroll and location, as this provides a stable and sustainable income to a centralised public body.
- One noted that it took over 10 years for Nottingham to put in the **workplace parking levy**. While was a brilliant example, they didn't feel the experience was transferable to other authorities for various reasons. Attendees in a different session advocated for a national roll-out of workplace parking levies and the nationalisation of public transport services to drive rapid improvements.

How might Government be able to support your capacity and capability to deliver local transport decarbonisation in the short and longer term?

- LAs struggle with **really short funding bid turnaround times** and a **lack of resource** to compile strong, fully researched applications, which are often a long shot. Several attendees highlighted the **resource-intensity of bidding** for competitively awarded funding and how this favoured city and larger authorities. Some welcomed the proportional allocation of emergency active travel funding.
- Attendees requested a **national strategy with sustainable funding for EV charging infrastructure,** accelerated strategies to ensure grid capacity, and more incentives to increase the affordability of electric cars.
- There were several requests for a **national campaign** promoting active travel, which could be integrated into Change 4 Life, for example.

How would you change Government appraisal processes including WebTAG and the Green Book to support you to deliver sustainable transport policies?

- Almost all felt, some very strongly, that the **pressing need to decarbonise must be given much greater weight in WebTAG and businesses cases**. The strategic case (health and environment) needs to be stronger than the economic case.
- Many said the importance in businesses cases of **car journey time delays** needed to be reduced as this can prevent road space reallocation. Many described the difficulties of making strong businesses cases in rural areas or for walking or cycling projects, in comparison to road schemes to ease congestion. There is also less data on cycling demand and existing reports do not have sufficient detail for transport planners.
- Some highlighted that **multi-modal corridors** were not well supported by existing funding streams or business case assessments, resulting in missed opportunities.

Technology, innovation and behaviour change

What do you think is the role of technology and data? What do you see as the role of things like ride sharing, on demand services and Mobility as a Service (MaaS)?

- **Examples given of innovation included:**
    - using phones to provide journey data, unlike traffic and camera counters
    - making traffic flow or air quality data open for app developers
    - using cameras to identify where walkers and cyclists are being delayed and identify solutions, and felt DfT should look at this more widely
    - using CCTV to monitor journey times and let people know the easiest way to complete their journey. Others suggested the options should be order by carbon intensity, not just speed.
    - a successful bike share scheme – not ground-breaking but innovative for residents and visitors
    - plans to segment the city (Salisbury) into zones to push drivers to use the ring road, and will use experimental TRO and AI to monitor impact
    - an Arriva Click trial (demand responsive transport) but this stopped in March.
- Several mentioned they were trying to **integrate ticketing between modes and public transport operators (MaaS)**, for example within the Transport for the North region. However, it is difficult to extend this beyond the authority boundary and multi-modal tickets tend to be more expensive, all-day tickets.
- Some commented that demand responsive transport, bike share, MaaS, micro mobility schemes were all concepts and still need funding support, then commercialisation.

Do you have the information you need to make informed policy choices in relation to reducing the greenhouse gases produced from different forms of transport in different places?

- One attendee recommended **England's Economic Heartland tool** to test the likely impact of infrastructure on first and last mile interventions.
- Several commented that they had excellent data on traffic flows but **much less on sustainable modes** and some public transport data is seen as commercially confidential by operators. Others said they had a large data team but still **lack granularity of data** and understanding of the effect of interventions.
- There were several requests for **government to provide projections** of vehicles by type, fuel and chargepoint demand, down to district level, as government sources give credibility and set the ambition. Several also mentioned the need for baseline data, real time data and data sharing. More information nationally would also reduce time spent locally on compiling research and spend on consultancy.

Green recovery

How does the restart and recovery from Covid-19 impact your ambition and ability to deliver sustainable transport locally?

- The response to Covid-19 has **shown residents and councillors what's possible**, for example children playing outside, working from home, shopping locally, savings on fuel. Several believed there was now **more political appetite** for change, and space for honest conversations about travel, health, lifestyles and climate change.
- There has been a welcome increased interest and **uptake in active travel**. However, there are concerns about the **significant risk of reversion to old habits**, especially

as traffic levels increase and it feels less safe, and the potential for increased car ownership (some anecdotal evidence of people buying older, second-hand cars).

- Covid will **negatively impact car sharing initiatives and the commercial viability of bus (and ferry) companies.** The very strong negative messaging on public transport use from government will be difficult to overcome and as pre-Covid users need to be encouraged back before convincing non-users to change modes. Changing school travel patterns also present timetabling difficulties for bus operators.
- In some places, **emergency measures have been controversial**, especially now restrictions ease, and in places, there's a local political disconnect with critical MPs.
- Some reported conflict within councils as the **focus shifts to reviving high streets** and encouraging people into town centres, regardless of how they travel, for example, by offering free parking.
- There is anecdotal evidence of more people looking for **suburban or rural homes** with gardens, not high-density urban developments with public transport links, and potentially businesses reducing their city centre office space.