SYSTRA

TRANSPORT DECARBONISATION

MAKING NECESSARY IMPACTS

How can we decarbonise the transport system fast enough to avoid further global harm?

That was the question put to four panellists in a recent SYSTRA webinar chaired by Sally MacNamara, SYSTRA Director in Social Market Research. It is a question that is becoming more urgent by the hour. The reality of the climate crisis is now impossible to ignore, with extreme weather events across the globe making the headlines almost daily. The parliamentary Committee on Climate Change has recently expressed concern at an apparent lack of urgency in reaching the net zero target of 2050 and highlighted the need for immediate prioritisation of action and policies for rapid delivery. The UK transport sector is one of the poorest performing sectors in addressing emissions and achieving Net Zero.

What should the priorities be for transport? Where should we focus our resources for the biggest impact?

The first part of the answer, according to David Connolly, Director of Low Carbon Mobility at SYSTRA, lies in more, and better demand management to both reduce the levels of movement and encourage any residual journeys to be undertaken by low carbon modes. Relying on voluntary uptake of battery electric vehicles (BEVs) will not be enough. BEVs are expensive and inconvenient for many people. Growth in BEV sales has been slowing recently. In the short term, therefore, we can't rely on simply making alternatives more attractive, we have to make car travel more expensive - not the price of car ownership (that hits the poorest hardest) but car use.

David offered three proposals. Firstly, making sure that parking is properly costed into the price of a journey. This means removing free parking at all points, including the introduction of mandatory workplace parking levies. Next, a carbon tax on petrol and diesel. This isn't politically easy but is the simplest way to cost the price of carbon into a car journey and could be mitigated with subsidies for those who can least afford the increase and cannot realistically avoid car travel. Finally, distance-based road user charging (RUC). This is most radical, but most likely to have significant behavioural effects while plugging the revenue gap. Ideally, charging would be done through telemetry but that technology needs further development. In the meantime, a vehicle excise duty that is based on miles travelled annually rather than a fixed price would achieve many of the same benefits.

David Connolly
Projects Director

Road-user charging and carbon fees

Jorgen Pedersen, an expert in specialist transport technologies for SYSTRA, also argued for the reduction of road use through a combination of road-user charging and carbon fees, but was more sceptical about the current emphasis on electric vehicles as the main solution to carbon emissions.

BEVs will be an important part of any solution, but they have significant disadvantages: they are expensive, heavy, cause more particulate pollution, and have a carbon footprint that we do not yet fully understand, especially when it comes to decommissioning batteries at the end of their lifespan. Instead, Jorgen proposed investment in the trialling of new technologies that could share in a much more complex energy ecosystem, making the UK an international testbed for innovation in low carbon motive power. This could involve hydrogen and hydrogen-hybrid technology – there are already around 70 hydrogen projects running in the UK – synthetic fuels, and carbon capture schemes, as well as electric road systems (where electricity is supplied to vehicles via an overhead cable, rail, or induction coil) as well as BEVs. A broader map of complimentary energy resources holds the potential for solving problems such as the waste of wind power produced at night when it cannot be used or efficiently stored, energy which might be used to generate green hydrogen, for example. But none of this is going to happen without clear a direction of travel set out and potentially incentive funding by government.

The need for much a clearer policy direction was taken up by Tristan Smith, Associate Professor at the UCL Energy Institute, specialising in freight transport, especially by sea. Tristan rejected the call for more experimentalism, he believes that the future of freight is electric, probably through some version of electric road system and BEVs. In his work on sea freight decarbonisation, Tristan has observed the power of a clear, top-down regulatory framework as a driver of rapid change. For Tristan, the obvious solution is a nationally determined plan for infrastructure and technology, to guarantee interoperability and offer clarity to investors. A clear regulatory framework invites investment whereas the current uncertainty makes investors reluctant to commit. The challenge will be creating that system, deploying a massive amount of electrification for freight, while continuing to allow more devolved, local solutions for cities and regions.

Neill Birch, Public Transport Business Unit Director

Neill was the final speaker, turning the focus towards the potential of investment in green public transport not only to reduce the number of vehicles on the road but to spur innovation in low carbon technology, help promote social inclusion and stimulate local economies. But public transport cannot be viewed simply as an add-on. It must be combined with transit-oriented development that ensures the density of development to support the network and to make public transport an attractive and practical option.

The success of cities such as Copenhagen shows what can work, with its heavy investment in a range of green transport such as cycling while also creating a high-quality public transport network, carefully targeting the right mode for the right type of travel. Elsewhere, things have not gone so well. Despite huge investment in public transport in Los Angeles in the USA for example, behaviours have not significantly changed. It is clear that cultural barriers and urban design matter. UK policy needs to reflect that lesson. But we also have the opportunity to grab some lower-hanging fruit. The success of the 'new bus grant', 50 years ago, in securing a widespread transition to one-person operated buses shows what can be done with quick, targeted investment. A similar grant now could turbocharge the zero-emission bus sector, which in turn would increase demand and position the UK as a world-leader in the sector. It would be a quick, efficient, and relatively inexpensive means to effect rapid change that could be put into action almost immediately by any incoming administration.

The road to Net Zero will be complex and will require a combination of initiatives including some of those raised in this webinar. However, in order to limit the impacts that the Climate Emergency is already having on our planet we need to act fast and invest in policies and technologies that will have significant impacts in decarbonising our transport networks and reducing the need for travel. These strategies need to look beyond transport infrastructure and vehicle and fuel technologies and consider planning and social policies to encourage behavoiral change. This will require central government to take quick and potentially unpopular decisions on the best way forward to accelerate the road to Net Zero and provide access to the funding required to implement these strategies.

Neill Birch
Business Director

SYSTRA

Find out how SYSTRA can assist you in Bus Operations:

DAVID CONNOLLY
Director of Low Carbon Mobility
e: dconnolly@systra.com

WWW.SYSTRA.COM/UK/