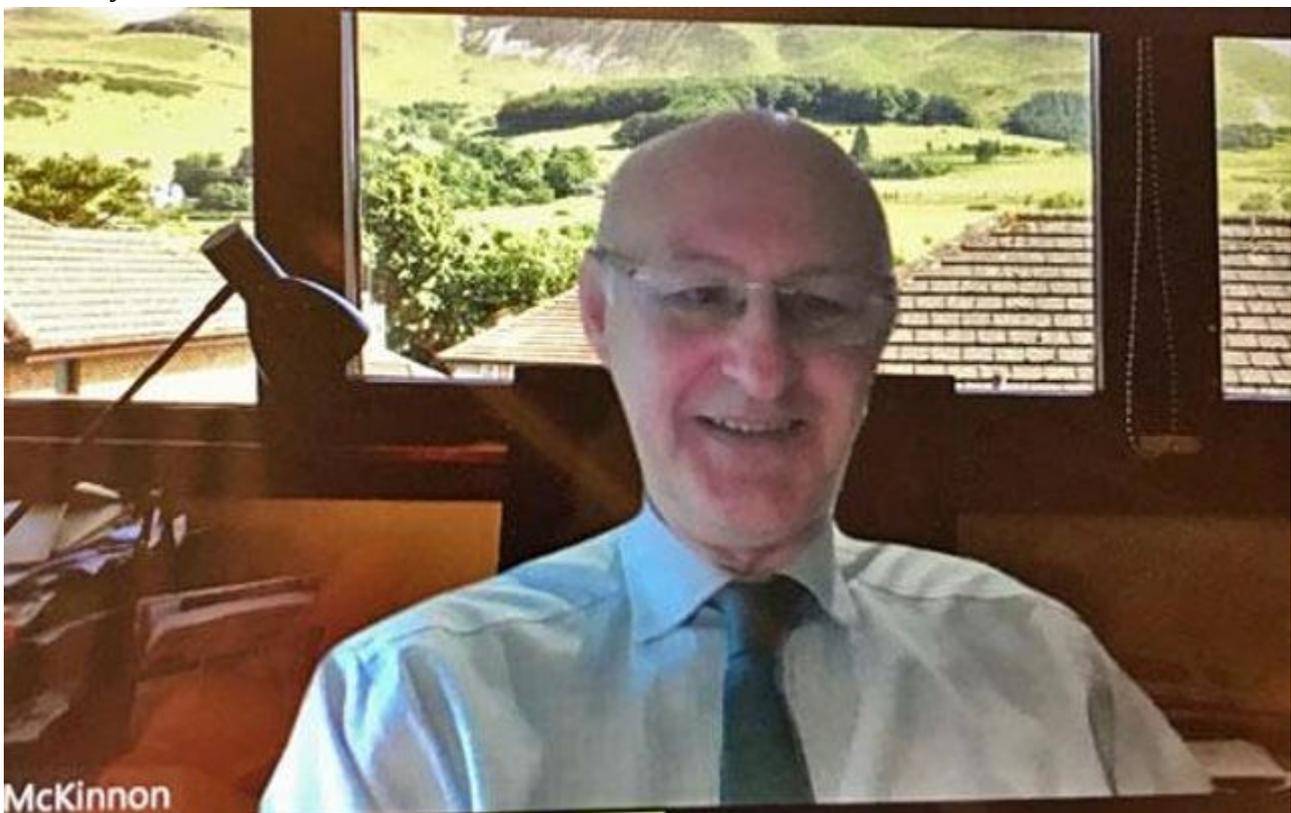


How big a role can road haulage play in the drive for a zero-carbon economy? - Prof Alan McKinnon

All the measures of climate change – global mean temperature, sea level, glacier volumes, ocean temperatures, the arctic icecap, carbon dioxide – are trending in the wrong direction, with tipping-points that are interconnected.

[By Prof Alan McKinnon](#)

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Professor Alan McKinnon, Professor of Logistics, Kuehne Logistics University, Hamburg and Professor Emeritus Heriot-Watt University, Edinburgh, for CILT.

The latest development is that scientists have found evidence that frozen methane deposits in the Arctic Ocean – known as the "sleeping giants of the carbon cycle" – have started to be released over a large area of the continental slope off the East Siberian coast.

The impact of Covid has been to deliver 15 years of projected carbon savings in just three months, but no-one is suggesting that its other costs are a price worth paying. Many countries have now made impressive commitments to move to zero-carbon economies, but how are they going to deliver: and what part is to be played by the road haulage sector, which is responsible for 3.8 per

cent of greenhouse gas emissions but is problematical owing to its reliance on fossil fuels and its projected growth?

Wider options could be to reduce the absolute amount of movement, substitute lower-carbon modes, optimise vehicle utilisation, increase energy efficiency or reduce the carbon content of the energy consumed.

Alternatives to reliance on fossil fuels include battery-power, hydrogen, catenary electrification and switching to biofuels and synthetic fuels, with various permutations of hybrid powertrain. These are only as good as their energy sources: how fast will electricity generation switch be decarbonised, and what energy is consumed in producing biofuels, for example the cutting down of forests?

Batteries may simply be too heavy for lorries to hump around, while a network of recharging points may be harder to achieve elsewhere than in a compact country like Britain. Electric catenary might work where the motorway network accounts for the great majority of road movements, with batteries to take the lorry on trips along local roads, but there would have to be coordination between electrification programmes and the availability of electric trucks. Hydrogen is at present much the most expensive option, awaiting refinement from grey through blue to green sources.

So the new technologies are evolving, but none may deliver the required urgency at our present rates of reinvestment. With no one-size-fits-all solution on offer, better possibilities for improving efficiency could include improved vehicle maintenance, more environmentally-conscious driving techniques and platooning, as well as modal shift to rail or water transport.

These will have to achieve big gains if road freight's carbon footprint is not to increase owing to the projected rise in total vehicle movements: and while payloads are rising, so is empty running. Introduction of the double-deck trailers made possible by our generous motorway clearances has probably made the greatest contribution to decarbonisation.

However, hopes that recognition of the need for greater resilience might lead to a move away from just in time delivery may prove forlorn since this has become a business paradigm, and only with enforcement of deep decarbonisation could one envisage the sort of collective synchronisation needed to force distributors to share assets.

The best hope for progress is for the market to respond to price signals, but if awareness of best practice is to reach down into the fragmented structure of our industry, we must engage with small hauliers, many of whom will be unaware of their emissions until these can be monetised and captured in a digital fashion. There may also be little point in achieving virtue only here in the UK if emissions continue to increase in the developing world.

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