WORKING
SUSTAINABLY
AND TACKLING THE
CLIMATE EMERGENCY

THE ROAD TO NET ZERO

DRIVING CARBON NEUTRALITY FORWARD

The transport policy gap is an imperative challenge to overcome on the road to a net zero carbon future. AECOM's **Kristina Shanidze** explores what the UK transportation sector can do to drive carbon neutrality forward and encourage positive behavioural change.

The UK Government has pledged to deliver its net zero vision by 2050. However, limited progress towards the UK's 2020 environmental targets serves as a good example of how climate change risks and the value of carbon reductions are not being adequately addressed.

Last November, the Financial Times — together with Unearthed, Greenpeace's journalism unit — published an in-depth analysis, reporting that Britain is set to miss many critical legally-binding targets, including those concerning greenhouse gas (GHG) emission levels and compliance with the carbon budget.

Among the air quality targets not met are the ammonia and particulate matter (PM2.5) goals. Particulate matter is a mix of solid particles in the air which penetrate lung tissue when breathed in. Emission projections for the latter, which is arguably the most dangerous pollutant to human health, substantially missed the target. PM2.5 has been projected at 98.21 gigagrams for 2020 instead of the desired 87.04.

While the Government's projection for carbon emission levels — which is also a legally-binding target — remains under budget in 2018–2022, levels are projected to exceed the two upcoming carbon budgets (2023–2027 and 2028–2032).

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AMONG THE AIR QUALITY TARGETS NOT MET ARE THE AMMONIA AND PARTICULATE MATTER (PM2.5) GOALS.
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In the article mentioned above, Dave Reay, a professor at University of Edinburgh — together with industry experts and policymakers — stated that budget cuts and inefficient policies have contributed to failing UK emission targets. This suggests the value of emission reduction policies has not yet been clearly communicated.

The transportation sector, responsible for nearly a quarter of total gas emissions of nitrogen oxides and particulate matter urban emissions, must transform in order to fulfill its sustainability promise. →

> " THE FAILURE TO SET OUT A CLEAR POLICY FOR ACHIEVING EMISSION REDUCTION TARGETS LEADS TO BUSINESS-AS-USUAL INFRASTRUCTURE PLANNING DEFINED BY THE PRINCIPLES WHICH ARE OBSOLETE OR FUNDAMENTALLY INADEQUATE IN THE CONTEXT OF CARBON NEUTRALITY COMMITMENT.

How can we bridge the transport policy gap?

The transport policy gap is an imperative challenge to overcome on the road to a net zero future. But will national or local policies help drive carbon neutrality forward?

The Commission on Travel Demand has the policy gap well documented. The assessment illustrates that approximately a third of the emission reduction policies face delivery risks with the remaining two-thirds lacking any policy at all.

The failure to set out a clear policy for achieving emission reduction targets leads to business-as-usual infrastructure planning defined by the principles which are obsolete or fundamentally inadequate in the context of carbon neutrality commitment.

UK Environmental Accounts' atmospheric emissions data indicate UK emission levels from road transport have increased 6 per cent over the 1990–2017 period — an alarming rise given the general negative trend of the UK's total GHG emissions, which decreased by 32 per cent.

What is carbon 'worth'?

Another major challenge of delivering net zero is that the value of carbon has neither been well-defined nor universally agreed. Sectors outside of

+6%

UK emission levels from road transport have increased 6 per cent over the 1990–2017 period

€25

A tonne of CO_2 is valued at €25 (£21.50) by the EU ETS

the EU Emission Trading System (EU ETS) — surface transport included — are almost free to emit. Even the EU ETS value of €25 (£21.50) per tonne of CO_2 is hardly a reasonable proxy. It is being contested on the fair grounds of costs of inaction: how much would it cost to extract a tonne of CO_2 released in the atmosphere with the current level of technology?

While a reasonable price tag on carbon is being derived to fully transfer carbon into a commodity, it is still helpful to have in mind the 'worth' of net zero. Net zero vision requires an appreciation of global consequences of local interventions and that we all have to pull together — at every decision-making level — to deliver ambitious carbon reduction targets.

The recent public health emergency is an example of an unprecedented collective effort. Not only did it enable scientific decision-making dialog at a level never seen before, but it created a meaningful sense of public ownership of a very complex universal issue. In the same vein, by acknowledging a carbon-neutral future as a number one priority, we would be committing to health, equality, safety, biodiversity and a legacy we are proud of for future generations. The compromise? We may no longer be able to satisfy our needs by unsustainable means in the name of convenience.

Top-down vs bottom-up

The top-down approach has failed to drive significant change to reach carbon neutrality. Existing international agreements haven't delivered material change or enforced emission reduction rates for different economies. The now-replaced Kyoto Protocol had many compliance challenges from the world's leading emitters of GHG — China and the US.

The varying 'price', nature and scale of carbon reductions across countries undermines the motivation to comply with targets, posing a challenge for ongoing consistent strategy at international policy level.

If the appropriate transport policy tools are implemented in the UK, we are more likely to see positive behavioural change and transformed attitudes, but a decisive action plan is required at national government level. →

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KEY CALLS TO ACTION

1/ ROAD USER CHARGING

A re-think on road user charging is needed to reflect imperative targets to deliver a carbon-neutral transport sector. This powerful tool, though unpopular, discourages long distance car-based travel.

It is one of the decisive policies we need more of. Recognising associated challenges — such as lack of public acceptance or the will of authorities — is important. However, successful examples (in the Netherlands among others) prove its effectiveness and pave the way for wider implementation strategies.

Caution may be needed, however. It is crucial that the user charging must remain just and fair: economically weak regions or certain population groups must not be put at a disadvantage. Furthermore, the system should be reviewed frequently enough to reflect dynamic changes such as: willingness to pay, demographic changes, land use, accessibility and network connectivity changes. There cannot be a hard and fast 'spot on' road user charging measure.

Travel Demand Reduction must become a primary vector.

2/ TRANSPORT APPRAISAL

The current application of the Department for Transport's Appraisal Guidance does not offer a well-defined carbon narrative for scheme appraisal. It is a necessity in a devolved input to demand future scenarios testing. There is limited use of appraising a scheme against the future baseline which does not reflect our carbon aspirations.

Future scenarios testing calls for a pluralistic set of baselines. Furthermore, carbon budget implications of different transport interventions under varying future demand conditions should be presented.

13%+

The Department for Transport estimates an increase of 13 per cent to 37 per cent in vehicle kilometres by 2040.

3/ DEMAND REDUCTION STRATEGIES

Travel Demand Reduction must become a primary vector. Under different scenarios, the Department for Transport estimates an increase of 13 per cent to 37 per cent in vehicle kilometres by 2040. The size of the car fleet also has a growing trajectory from 30 million vehicles in 2010 to 44 million in 2040. Without significant cuts in car kilometres travelled, a net zero future isn't realistic or deliverable.

However, the importance of carbon considerate local policies cannot be overrated.

4/ LOCAL SPATIAL PLANNING

To achieve a materialistic cut in travel demand, it is imperative to ensure a sufficient complementary land use mix, which would enable activities — working, shopping, education — to be accessible within a sustainable geographical extent.

5/ DEVELOPMENT PLANNING

Impacts of new developments should be considered far beyond the red line application boundary. It is crucial to understand how well the emergence of the proposed development serves the aspiration for sustainable travel. Does it complement the existing land use? Which activities does it enable?

Sustainability standards such as BREEAM, LEED and WELL — developed to provide a framework for sustainable development planning —may assist in setting out development impacts.

6/ SUSTAINABLE TRANSPORT LINKS

Priority of sustainable travel modes and connectivity of their networks needs to be clearly articulated in the local investment allocation. The solutions will vary dependent on the local challenges. The mobility market offers multiple alternatives ranging from shared mobility services to micro mobility vehicles, all showing potential in replacing unsustainable travel modes.

A competitive offer — a highly connected, inclusive network of sustainable transport that includes public transport, cycling, walking and travel by scooter — must be made available to users. Public spending allocated in sustainable travel infrastructure, marketing and public transport subsidies reflects a strategic vision of a local authority getting serious about emission targets.

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