

Pathways to Net Zero

a series of roundtable discussions

Pathways to Net Zero: Delivering Net Zero Road Transport Report on a Roundtable Discussion | June 2023

Transport is the biggest polluting sector of the UK economy. At 90% of all domestic transport emissions in the UK, road transport is a major contributor to the problem.

The roundtable discussion **Delivering Net Zero Road Transport** focused on the major policy and implementation challenges to be tackled if we are to successfully deliver net zero road transport. The discussion built on the findings of the previous [series](#) of Pathways to Net Zero reports and roundtables in 2022.

This paper sets out a detailed account of the discussion. Comments by participants are grouped under the following themes:

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The **Pathways to Net Zero** programme is developed by **Greener Vision** and overseen by the **Greener Transport Council**. More than 100 leading academics, local politicians, businesses, environmental groups, consumer groups and think tanks participated in the 2022 roundtable discussions. Further details can be found [here](#).

[Greener Vision](#) is a not-for-profit organisation dedicated to the switch to a greener future. It was set up by Claire Haigh, formerly CEO of sustainable transport group Greener Journeys. The **Foundation for Integrated Transport** provides grant funding to support the Pathways to Net Zero programme.

[Greener Transport Council](#) is an independent group of experts focused on accelerating the decarbonisation of transport and the transition to net zero in a fair and just way. Its primary purpose is to help ensure that emissions reductions are delivered at the scale and pace required to achieve net zero.



1 National ambition for transport decarbonisation policy

- **Ambition for transport has been downgraded**
 - **There is a need to reduce vehicle mileage**
 - **Implications of net zero for roads policy**
-

Ambition for transport has been downgraded

Discussion began with a summary of the key conclusions from analysis of UK government's net zero strategy recently published by CREDS ([Reverse Gear](#)).

The Carbon Budget Delivery Plan (March 2023) represents a significant downgrade of the ambition set out in the Transport Decarbonisation Plan (July 2021). Instead of planning for traffic reduction, which was part of the TDP, DfT is now planning for traffic growth.

The range of outcomes included in the TDP was so broad it would be impossible not to meet some representation of what TDP contained. The most ambitious edge had super-rapid electrification and traffic reduction. The least ambitious edge had significant traffic growth 150 billion vehicle miles by 2040 and slower electrification. However, only outcomes at the most ambitious edge are consistent with the Sixth Carbon Budget.

The Carbon Budget Delivery Plan shows government going much slower on transport, operating in the least ambitious 25% range of outcomes. Around three quarters of the ambition for transport is no longer deemed necessary. Government says the gap on transport will be met elsewhere in the economy. However, it was noted that it is hard to see where the slack will be met.

The second consultation on Zero Emissions Vehicle (ZEV) mandate published March 2023 sets the pathway for the uptake of cars and light goods vehicles for as fast as is considered possible, which is slower than was originally planned. On traffic growth, Government is planning to adopt the National Road Traffic Projection core scenario assumptions as a basis. In all scenarios there will be traffic growth.

There isn't an electrification pathway combined with traffic growth that is consistent with the Sixth Carbon Budget. Government's response is to downgrade the ambition for transport. Are we okay with that?

There is a need to reduce car mileage

It was noted that there are very different approaches to traffic reduction across the four nations. Wales has set the target of a 10% reduction in per capita car kms travelled by 2030. Scotland is pursuing a 20% reduction in car kms by 2030, Northern Ireland is pursuing a similar target. However, there is no such target in England.

The recently published National Networks National Policy Statement would indicate that across all the latest national road traffic projections from DfT, road traffic will grow. Induced demand does not appear to be recognised as a concern for strategic roads and the appraisal



of sustainability gives NNNPS a clean bill of climate health. As one participant commented: ***Is government acting like a gambler or a steward when it comes to the question of future levels of road traffic?***

There was discussion about the recent RAC Foundation report: [Is it necessary to reduce car mileage to meet our carbon emissions goals?](#) The report sets out the rate at which EVs would need to be introduced and old polluting vehicles removed. It concludes that whilst there are scenarios where reduction in car mileage is not required, there are (many more) scenarios where it is needed.

The RAC work was felt to be a very timely piece of analysis. A particularly useful message is that it is just as important to achieve a reduction in the use of inefficient fossil fuel vehicles as it is to achieve an increase in EVs. Concern was expressed however that one could interpret all model runs and scenarios as equally plausible, when many of them were not plausible – especially those that include far steeper roll out of electrification, which as the report notes “would be like climbing Mount Everest on a bad day!”

There are many technological solutions, any one of which at an extreme example might get us there, but examination reveals those extremes to be unachievable and undeliverable. The key point is that these scenarios shouldn’t carry the same weight and plausibility.

Importantly, as one participant concluded, the scenarios that would have enabled us to be on track for net zero road transport without a reduction in car mileage are not going to happen anyway because it is not possible to go any faster in terms of the roll out of EVs, as that has already been ruled out. ***So why are we still talking about it?***

Implications of net zero for roads policy

The Roads Review Panel, set up by the Welsh Government, recommended that road schemes should only be for four purposes, including: shifting trips to sustainable transport to reduce carbon emissions; and, adapting roads to the impact of climate change. The majority of the 50 schemes reviewed were not recommended to proceed (or not in their current form).

The Roads Review Panel also put forward some guidelines: Roads should minimise carbon emissions in construction; should not lead to higher vehicle speeds; should not increase road capacity for cars; and should not adversely affect ecologically valuable sites.

The Road Investment Scrutiny Panel (RISP) which comprised eight professors concerned over road investment addressed some key questions, including the following: “What would make us feel confident that decisions on future road investment at both the scheme and aggregate level are consistent with the legal obligations to deliver a credible pathway to the decarbonisation of the UK economy by 2050?” They recommended that:

1. However challenging, government should firstly publish a projection of the change in vehicle miles by carbon emitting vehicles necessary or prudent to stay within an acceptable carbon reduction trajectory.
2. Indicate with sufficient confidence how such change could be achieved in practice in the required timescale.
3. Make this analysis available.



2 Progress on clean technologies and fuels

- **Progress so far on the EV roll-out**
 - **Policy direction on the future technology for trucks**
 - **Maximising renewables and second-generation biofuels**
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Progress so far on the EV roll-out

Whilst significant implementation challenges remain, we should celebrate the success of the EV roll-out so far. As one participant noted it is very important to acknowledge where we are now in terms of new car sales for EVs. Since 2019 there has been massive growth. We are continually surpassing what last year's prediction was.

This is a success story, and we should celebrate that!

Momentum has been gathering over the last 18 months, which is encouraging. Customers have got used to EVs and charging, the proximity to electricity can be easier than driving to a petrol station. Businesses are more convinced that this is a good financial thing for them to do. There is more to do, but consumer education is happening. Increasingly car companies and energy providers are coming out with smarter education.

To maintain this momentum, it is important to focus on successes and positive stories, instead of the ongoing narrative about lack of charging infrastructure. If you measured all the firm plans to invest in public charging you way surpass what is needed. There are 10 times as many private charging points as public charging points and growth has been driven by that. To get to the next level we need to get that public charging infrastructure in place.

The key challenges are at the interfaces of complex systems. The integration of transport and energy sectors is critical. Energy and transport planning needs to be properly aligned. Connectivity to the grid and the cost of the electricity are fundamental, as are planning permission, access to land, access to sites in city centres etc.

Bringing all the key parties together is critical. Where the DNOs need to invest in the grid to provide energy infrastructure, working with local authorities is key. There needs to be greater co-ordination of all the parties. We need to build on the success of the Electric Vehicle Energy Taskforce. Albeit that it only covered light duty vehicles, cars and vans.

A key lesson from the EV roll out is that clarity of the technology end state at the beginning was really important for businesses. Ending the sale of ICE vehicles has also been critical. Fundamentally there is an investment case and people and businesses are investing.

Policy direction on the future technology for trucks

In stark contrast there is lack of clear policy direction on the future technology for trucks. Nobody is going to buy zero emission trucks until the infrastructure is in place. However, the solution is not obvious. As one participant noted. ***Experimental work currently under way. We need to get behind it, support it, accelerate it and get to conclusions quickly.***



It is not good when politicians try to “pick winners”. Industry is best placed to work out the best technology solutions are going to work in the future if they are given the right goals for what they are aiming for.

In the meantime, we need bridging solutions for the existing fleet. As one participant commented, even if we have 50% EV sales on a global level by 2030, we will still have 90% of the rolling fleet with ICE engine, potentially not running on a biofuel or even a % of a biofuel because the right policy and the right levers are not in place for that to happen.

The rolling fleet implications are massive and are going to come and hit us like a steam train in 2030!

In manufacturing terms, we have advanced truck options quicker than the infrastructure to support them and while there is confusion people will keep on buying diesel. ZEV mandate for cars is causing some concern in the freight sector because it is unclear when will there be some clarity for trucks. Meanwhile, ***Business is booming – we are selling more and more product!***

The example was given of one leading HGV manufacturer focused on trying to get the right technology in place to meet a short-term target in 2025. To have a chance of meeting this target there is an urgent need to use more renewable fuels. ***We won't succeed on any of our carbon reduction plans if we don't start using a percentage of renewable fuels.***

Crucially, the carbon outcome is the sum of all of the vehicles. It is vital that we do more to decarbonise the volume of ICE vehicles which will still be on the road for some time.

Maximising renewables and second-generation biofuels

The UK should be doing more to maximise use renewables and second-generation biofuels as part of the transition. The Renewable Transport Fuel Obligation (RTFO) saw progress but the ambition for the RTFO going forward is pretty low.

There is a lot of potential in the use of renewable fuels and biogases and biofuels. The Zemo Partnership did some very good work getting support for higher blends B30 B100. Technically they are all available. It was suggested that we could do a lot on that front very quickly and achieve significant savings. ***RTFO has had a bigger impact on carbon savings in the transport sector than even the progress on EVs.***

We could push for biogas biomethane in trucks as well. There are plenty of opportunities. There has been huge growth in anaerobic digestion (AD) 2015-2020. Production has doubled. Much of it is going into home heating and electricity generation but should that be more targeted to road transport, especially HGVs which are so hard to decarbonise and where we don't have obvious options at the current time?

The UK has done well on driving the use of wastes not only biodiesel. It was noted that the SAF mandate will move a huge amount of waste-based biodiesel to aviation, which will make it even more challenging for HGV sector.

It was stressed that government must push back on proposed changes to the GHG Protocol that would prevent recognition of the carbon benefits of biomethane over fossil gas.



3 The need for an ambitious industrial strategy

- Long-term commitment
 - Influencing international decisions
 - Local industrial strategies
-

Long-term commitment

Whilst the UK historically has a strong track record on net zero, hugely consequential decisions are being made by the US, EU and China, which pose challenges for UK global competitiveness. It was agreed that the UK needs an ambitious industrial strategy to act as catalyst for new technologies and innovation and to bring manufacturing and jobs to the UK.

Where businesses choose to locate their operations and manufacturing facilities depends on the cost, quality and competitiveness of the growth that they can achieve. Access to a high skill labour market is key. The risk is that facilities won't be built in time. Challenges around geopolitical instability is also affecting how businesses are making their decisions.

The key to a successful industrial strategy is a long-term funding commitment. Whether it be investment in R&D or infrastructure, we need a sustained long-term vision, not chopping and changing. Consistency of policy is essential if businesses are to invest. Innovation is driven by regulation, so clear guidance on what is required and what we need to do is also key.

Embedded emissions are coming increasingly to the fore, as is material provenance and the way batteries are being produced. As one participant noted ***We know that from a lifecycle perspective EVs have more embedded carbon than ICE vehicles. We need to address this now, not just move the challenge down the road.***

Circular economy and systems thinking of operations is a key aspect. APC funded a New Holland tractor running on biomethane working with a SME in Cornwall. The acceleration to market was by 2.5 years due to the recognition that farmers can work using a waste product that they have to power their own vehicles. An example of a sustainable, circular approach.

Ultimately nothing will happen without the business case. We need the tax/subsidy regime to be in favour of tipping the balance in favour of adoption of zero emissions vehicles. The level of support needed will vary depending on how energy prices change over time. The tax/subsidy regime needs to ensure that for each segment of the market the zero tailpipe solution is lower TCO than diesel BAU. As one participant noted in relation to HGV:

One thing is super clear though: even with private money funding the infrastructure, the heavier the truck the greater the tax or subsidy will need to be, and it'll be huge.

Influencing international decisions

Big decisions are being made internationally of which the UK is only a small player. There are challenges around trade tariffs, changes in rules of origin in terms of the materials used in batteries and energy competitiveness. The UK boasts of having the highest growth of



offshore wind and green energy, but making it cost competitive is a key aspect. As one participant commented:

We need to get on the front foot to influence those international regulations, so that our indigenous industries can benefit from them. We need to go to the UN, take part in those discussions, go with the evidence, proper R&D!

An industrial strategy needs to reflect what we can do now, but also where we will get the benefits in the next decade e.g. Connected and Autonomous Vehicles (CAVs). We need to ensure future technologies are better environmentally and from a safety perspective. CAVs have a way to go before they can make a reduction in carbon. This won't happen by 2030.

The benefits of CAVs will be longer term: greater safety features, more efficient use of resource, better road usage and traffic management, more efficient fuel consumption etc.

Local industrial strategies

To complement an industrial strategy, we also need local industrial strategies of the sort that were produced by Local Enterprise Partnerships (LEPs) in 2019 to enable strategy to be implemented locally.

What an industrial strategy does is provide roadmap for government to identify and prioritise key sectors and technologies and promote investment in those. Acting as a catalyst for new technologies, identifying and supporting emerging industries, providing targeted funding, tax incentives, regulations.

We need to look for where there are clusters of interesting capabilities in the UK. How can we build on these, and encourage more cross sector alliances? Government can make a difference by creating the right environment for investing in new technologies, encouraging SMEs to work with universities for example, a key part of the work by LEPs.



4 The balance of technologies and behaviour change

- **Rethinking the balance**
 - **The role of pricing**
 - **A holistic approach**
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Rethinking the balance

Based on an honest assessment of where we are on the roll out of clean technologies, the window is closed for BAU planning. As one contributor surmised:

When I do the net zero maths and consider AV, connectivity (platooning), powertrain efficiency, fuels, and other technologies, and journey efficiency gains (car sharing, logistics, mobility hubs etc.), and behavioural changes (especially increasing active travel), and simulate future fleet composition and associated journeys, I have not found a way, yet, to make net zero transport sum add up without some truly radical thinking and modal transformations.

We need more radical approaches. As part of this we need to rethink the combination of technologies and behaviour change. Without a step change in local transport plan funding, it is not easy to scale up alternatives to the car. For example, tram schemes take long time to construct. As one participant noted, despite all efforts on promoting “better choices” we’ve only succeeded in slowing pace at which things have got worse:

We are part of the problem if we persist in thinking we can reach a ‘better choice nirvana’ if we don’t radically change the funding powers and pace of delivery... BAU won’t do it. We are planning to overshoot if we carry on as we are.

There was discussion about what else could be done. Could we capitalise on innovations in the powered light electric vehicle market for example? Electrification should be considered behaviour change, not just a re-writing of what went before, i.e. swapping fossil fuel cars for electric cars. 97% of journeys are less than 35 miles in length. We could switch many car journeys to powered light electric vehicles, if we opened the market up changed legislative restrictions, and implemented more 20 mile per hour zones to promote the shift.

Above all we need things we can do quickly at scale, and which are affordable to deliver and for the consumer. This includes public transport fares subsidy, and new bus service models. We must double down on the efficiency of remaining fossil fuel vehicles and promote retrofit. We need to address pricing or at least begin to bend the curve. Perhaps by taxing heavier, wider vehicles first, as is already happening in Norway and Lyon. A voluntary road pricing scheme was introduced in Oregon. We need at least to establish the principle of change.

The role of pricing

Unless we do something about the cost of running an EV, we are baking in lower running costs, rising traffic growth and congestion. The Greener Transport Council (GTC) has consistently argued for more rational pricing as part of net zero strategy. If we just keep



electrifying the fleet, and don't do anything about the cost structures, i.e. bigger upfront cost, lower usage cost, what outcome can we expect? A more congested, less safe environment. We are currently baking in even less rational pricing.

We need to use pricing and changes to the tax structure to incentivise businesses and consumers, to accelerate the take up of zero emissions and encourage behaviour change. If we are to make things happen at the required scale and quickly enough, pricing must be at the heart the strategy. As one participant put it: **Carbon is the problem, so we must attack carbon directly. Telling people to use less carbon, trying to promote modal switch won't affect change on the timescale needed.**

We could ration carbon, which may or may not be feasible. The only other alternative is to price carbon properly, through taxation, and give consumers and companies the choice to pay more or less for the products and services they buy depending on the carbon content.

Carbon taxation will give us half a chance of getting the balance across different sectors correct. The only way to get the balance right is to price carbon correctly across the economy. Carbon taxation provides an enormous tax revenue that we desperately need. That gives the money to mitigate negative social impacts, and for politicians any "bad news".

A holistic approach

We need a whole-systems approach that reflects the shift to digital connectivity, and the integration of transport with planning, energy, green finance and all the trip generating sectors of the economy. Professor Peter Jones has produced important work on integration [See Annex 2: Transition Pathways and Cross-sector Links]. In addition to clean vehicles, we need to reduce the need for travel, or switch to cleaner modes: "avoid – shift – improve".

One example cited in discussion was shifting products from trucks to lighter freight solutions, which could be accelerated if there were more urban logistics hubs. Problems arise when the cost of using land for these purposes is compared with other uses e.g. car parking. It is often not commercially viable. By contrast in Germany the value of urban logistics hub is recognised as central to the future for our cities and decarbonising transport.

A recent piece of analysis by the LGA [The future of last-mile deliveries: Understanding the local perspective](#) reveals that local authorities lack the people, skills/knowledge and capacity to tackle these issues. **The will might be there, but it is a long haul for local authorities.**

It was noted that in assessing freight options it is also very important to look at the transport system as a whole. Some customers may be moving away from air onto ground shipments partly to reduce emissions and partly because it is cheaper. **Modal shift from air to road is better overall, even if this increases road emissions.**

A key part of integration is how we configure transport, land use and telecommunications: 'triple access planning'. Travel is a derived demand, it's all about access to people, places, goods and services, employment and opportunities. Access can be achieved by transport/physical motorised mobility; through the land-use system with spatial proximity; through the telecommunications using digital connectivity. The pandemic gave us an experience of triple access system. It was a source of resilience and adaptive capacity.



5 Strengthening local delivery of net zero transport

- **How can we maximise the benefits of devolution?**
 - **Is it possible to deliver traffic reduction at scale?**
 - **What can we realistically achieve?**
-

How can we maximise the benefits of devolution?

Local decision makers will make many of the critical transport infrastructure, planning and investment decisions. Moreover, decarbonisation requires the overcoming of government silos, and coordination is much easier at the regional or local level. Government should enable local areas to plan and invest on an integrated long-term basis. We need to reform governance, funding and appraisal and support collaboration across wider regional areas.

The current strategy, however, seems to involve at least as much centralisation as devolution. Inviting Local Authorities (LAs) to bid for different pots of money is resource intensive and militates against the very joined up strategic thinking and planning needed. As one participant noted, the current picture is one of:

Short term funding cycles, competitively based, taking away from active travel to pay for potholes. It's a messy landscape!

It is also important to think about interface with the Strategic Road Network (SRN) which is run by National Highways. It is the SRN not local roads that is causing most carbon emissions from road vehicles. LAs need to work closely with National Highways which is challenging for LAs because most of the time a vehicle is going through an authority.

There was discussion about how greater devolution could be of benefit and of the scope to develop Devolution Deals further. The location of developments for example, is fundamental to achieving decarbonisation. As one participant commented, the National Planning Policy Framework (NPPF) has been a little bit sharpened up, but we've got to keep strengthening the framework for where we locate developments:

In the planning world, we feel there is no point in waiting for government, we need to be proactive locally, and devolution is the key. The Devolution Deals that are currently being sold out aren't really proper devolution deals, it's a scatter gun approach. We need proper fiscal devolution.

The reason cities in the US are able to get on and do stuff is because they control their tax. In the UK cities have just business rates and housing but so much more could be achieved if it was devolved down. An example of success is the Olympic Park in London, which shows how density and having a master plan can really change habits. It is a case study of how to develop vibrant communities, reduce traffic and generate lots of walking and cycling.

Give it to the elected mayors – then they can take the flack politically!

It was noted that Mayors and (County) Combined Authorities (CAs) may be the right level for change to happen locally. The local politics are critically important. Councils with no overall control or who do elections by thirds are hamstrung from making long-term decisions.



Is it possible to deliver traffic reduction at scale?

There was discussion about the practical and political challenges involved in delivering traffic reduction on the scale required to meet the carbon reduction targets for transport. We don't yet know how to make it happen. On a practical level, as one participant cautioned, we must not fall into the trap of assuming that 20% reduction in vehicle mileage is plausible:

Do we know that all the tools we in the toolbox, if we used them all, would really add up? We still don't have great evidence that we can achieve traffic reduction at that scale needed.

The view was that there is arguably enough in the toolbox, especially at a local level. There are levers such as parking charges, congestion charging, LTNs, use of bus lane powers, WPL, moving traffic offence powers and clean air zones. We need to look at why these aren't being used much more significantly. It is also important to consider different locations. Rural areas need completely different solution to urban areas for example.

To deliver any kind of behaviour change there needs to be consistency on funding, policy and messaging. Currently there is too much instability. One participant asked why £200 million was suddenly cut from the Active Travel budget? Bus funding is equally inconsistent. £3 billion was promised, which was reduced to £1.1 billion, then a bit more was found. A scatter gun approach is unhelpful when LAs need to be able to plan and invest longer term.

It is hugely challenging for LAs to be going against grain of the national stance. The TDP didn't even mention WPL or congestion zones for example. The tools might be there but LAs need incentives and political support. As one participant put it:

Do we see any prospect for any radical divergence in approaches to traffic levels locally if we have no commitment nationally? It doesn't even make sense to me even though I accept that less traffic is necessary.

By contrast, an example was cited of Zero Traffic Growth Deals that have been instigated in Norway. The national government asks local governments to say what funding is required to deliver growth for their cities with zero traffic growth. This is match funded through their toll rings locally. That is not what is happening in England with Local Transport Plans, with flat cash settlements or below inflation increases.

I think the national-local partnership part of Norway is very important - it stops one tier of government being hung out to dry.

It was noted that there are opportunities after the recent local elections, with lots of Liberal Democrats and greens who really want to do something to reduce carbon emissions. The challenge is the electoral cycle if you want to put in a long-term solution that might be hard to sell in the short term. Environmental issues become a nice to have but play second fiddle to statutory and more obviously pressing needs.

It is important that we recognise the challenge for local leaders. We as a sector also need to do more to provide them with the arguments and the evidence to sell solutions like WPL to their communities. They need to be briefed to put the points forward in such a way that will really sell the benefits. Solutions that reduce carbon emissions from road transport can also help with tackling cost of living, congestion, road safety and public health.



What can we realistically achieve?

There was discussion about what, given all the challenges, is achievable? The point was made that it might be better to achieve less than we want than to fail completely. If we can just do the best we can and work with the tools we have at our disposal, do we need to accept that is the best we can do?

It was suggested that what we are facing is a predicament, a truly wicked problem. We may need to start bracing ourselves for the reality that we have no chance of meeting the targets and we will fail on many fronts by 2050. Moreover, we will be managing the consequences of that wicked problem because we will be faced with ever more extreme climate change and trying to adapt to the consequences of that.

I'm just trying to be more positive in a realistic sense by saying what can we do, rather than admitting failure by saying we can't possibly achieve the goal we've set ourselves.

Is there space for a more radical and ambitious realistic prognosis for the future?

Several participants indicated – with some strength of feeling – that we need to start embracing more radical thinking and approaches to net zero policy making.

How do we stop the juggernaut that is selling more vehicles? No one wants to talk about that! Government policy is to encourage as many vehicles to be produced as possible, for jobs to be created, innovation to happen and more vehicles to be sold!

There was no suggestion that we should ban cars. Simply to think properly about long-term sustainable alternatives incorporating a much more shared approach to the use of vehicles and infrastructure.

I do not own a car. I have owned only one car for 3 years in the 35 years since I passed my test. However, I do not live without a car. I am a car user. I enjoy some driving and trips by car. I also enjoy having more disposable income for other things.

It was felt that the use of language is very important. A straight switch to EVs is not the right solution for many areas as congestion is a big issue blighting many places, and EVs also create a degree of pollution.

We need to move from treating people as customers to treating people as citizens.

We need new ideas. However, we are already witnessing seeds of change. The disconnect between 40- to 50-year-olds and 20-year-olds is massive. Generation Z predominantly don't want to own a car. They want access, ownership less key.

We need to bring in younger futurologists!



ANNEX 1 – Roundtable Attendees

- **Claire Haigh**, Founder & CEO Greener Vision (Chair/ GTC)
- **Professor Greg Marsden**, Professor of Transport Governance, Institute for Transport Studies, University of Leeds (GTC)
- **Professor Glenn Lyons**, Mott MacDonald Professor of Future Mobility, University of the West of England (GTC)
- **Professor Jillian Anable**, Chair in Transport and Energy, Institute for Transport Studies, University of Leeds (GTC)
- **Stephen Glaister CBE**, Emeritus Professor of Transport and Infrastructure at Imperial College London, Associate of the London School of Economics (GTC)
- **Victoria Hills**, CEO, Royal Town Planning Institute (GTC)
- **Hannah Bartram**, CEO Association of Directors of Environment, Economy, Planning & Transport (GTC)
- **Hilary Chipping**, CEO South East Midlands LEP (GTC)
- **Kamal Panchal**, Senior Advisor Transport & Local Growth Policy, Local Government Association (GTC)
- **Anna Rothnie**, Senior Transport Planner (GTC)
- **Paul Hirst**, Head of Transport Sector, Addleshaw Goddard (GTC)
- **Andy Eastlake**, CEO, Zemo Partnership (GTC)
- **Jonathan Murray**, Policy & Operations Director, Zemo Partnership
- **Neil Wallis**, Head of Communications, Zemo Partnership
- **Tim Anderson**, Head of UK Transport, Energy Savings Trust
- **Philippa Oldham**, Stakeholder Engagement Director, Advanced Propulsion Centre
- **Richard Cuerden**, Director TRL Academy, Transport Research Laboratory
- **Peter Harris** Vice President: International Sustainability UPS
- **Roger Hunter**, Vice President: Electric Mobility, Shell
- **Tanya Neech**, AIEMA, Head of Sustainability, Scania UK
- **Grant Pearson**, Chairman, Ensus

ANNEX 2

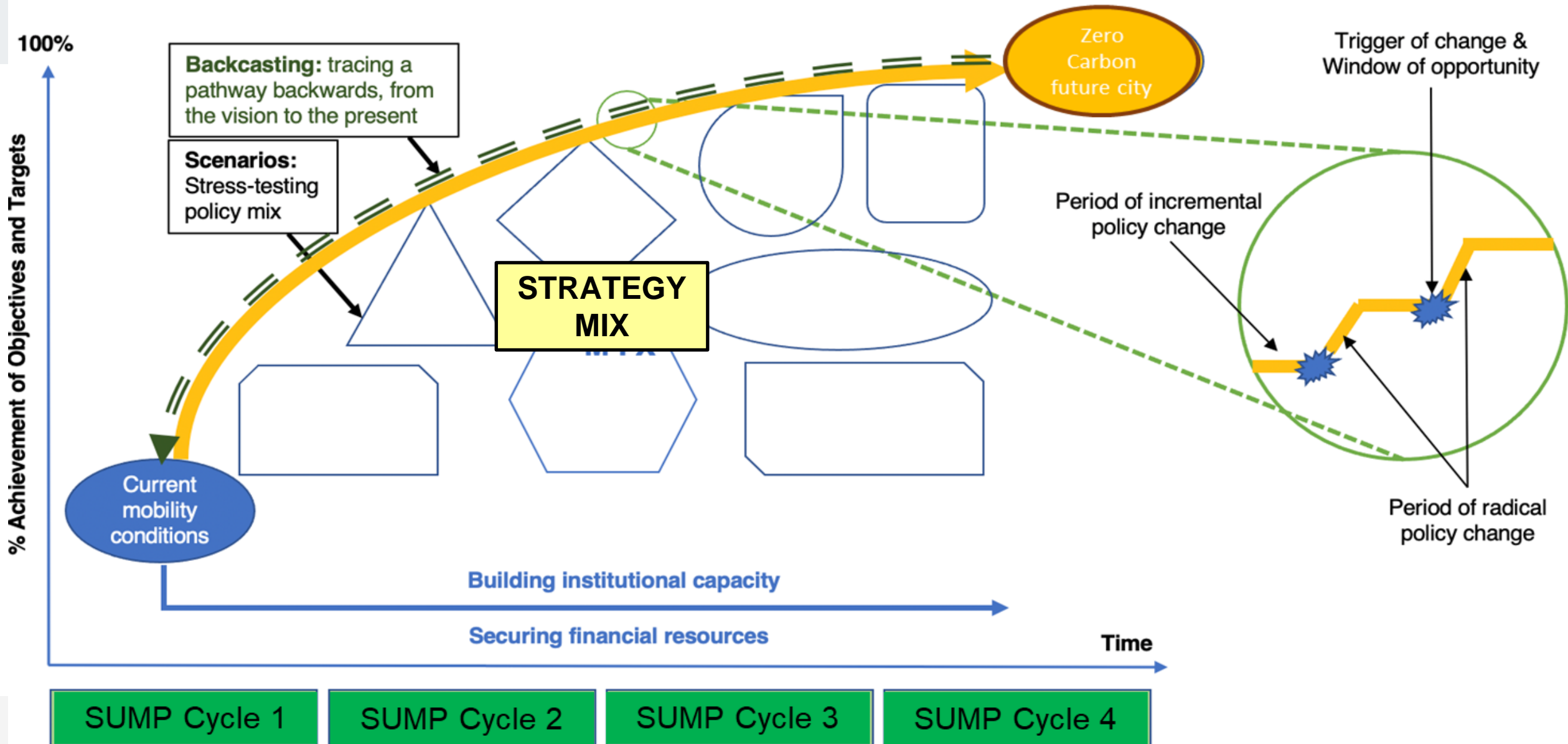
Transition Pathways and Cross-sector Links

Peter Jones

Centre for Transport Studies, UCL

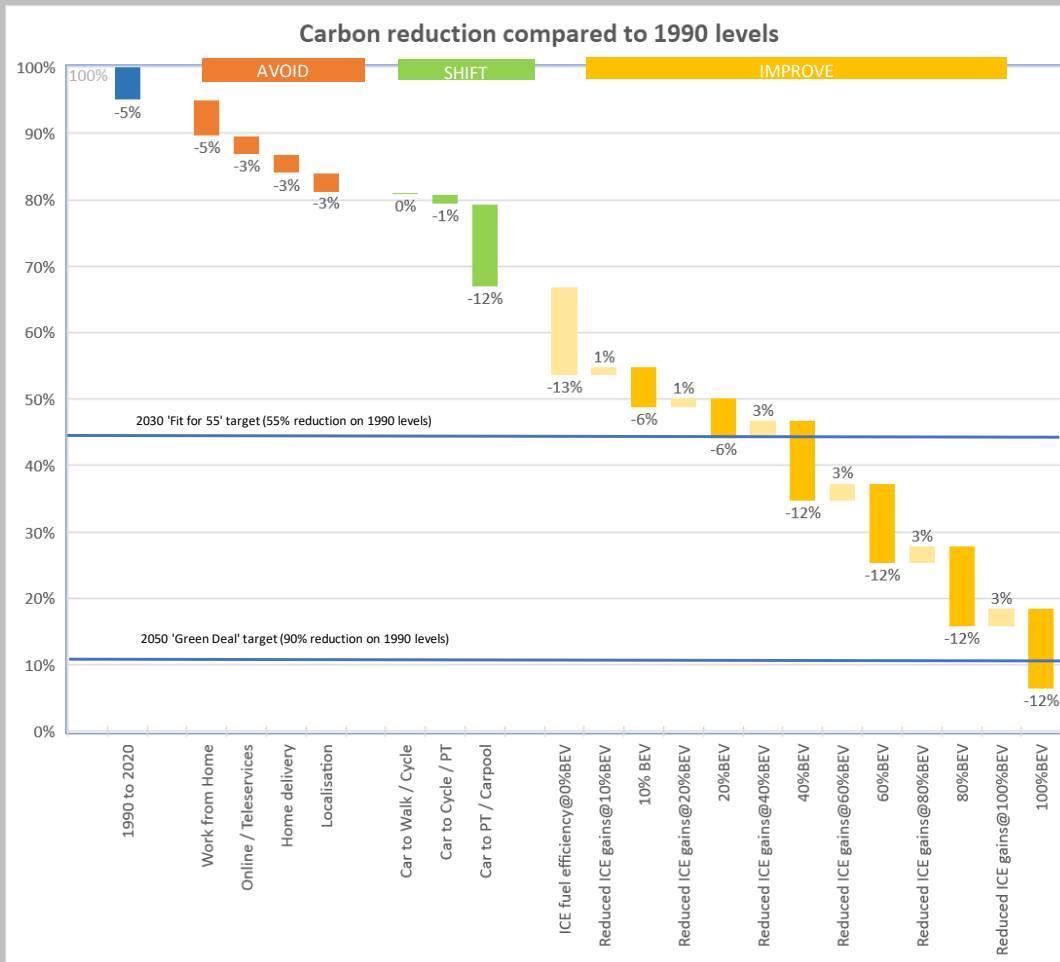
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Developing a full-length Transition Strategy



Carbon zero strategy scenario tool

2050 STRATEGY MIX Impacts



INPUT PARAMETERS

Background data

Enter % change in car surface transport carbon emission from 1990 to 2019

What type of area best describes your city

What is the % mode share for car driver trips (all trips)

What is the % mode share for car driver trips (commuter trips)

AVOID policy

Enter the % point increase in working from home by 2050 (from 2019 base case)

Enter the % point increase in personal business trips (e.g. banking, health) that are digitised or become telephone consultation by 2050 (from 2019 base)

Enter the % point increase in shopping delivered to the home by 2050 (from 2019 base)

Enter the % point increase of trips for shopping, leisure and education localised within a 15 minute walk from home, by 2050 (from 2019 base)

SHIFT policy

Enter the % point shift from car driver mode share to alternative modes by 2050 (from 2019 base case)

IMPROVE policy

Enter the % of electricity generated from renewables (including nuclear) by 2050

Enter the % improvement in ICE fuel efficiency of conventional cars on the road by 2050 (from 2019 base case) - [expected to be 30%]

Enter the % improvement in electric battery efficiency by 2050 (from 2019 base case) - [expected to be 40% by 2050]

Policy mix and stakeholder involvement

Type of Strategy:

AVOID:

- Substitute digital for physical meetings
- Provide equipment in-home
- Localise facility provision (shorter trips)

SHIFT:

- Support/encourage shift to sustainable modes
- Consolidation of freight

IMPROVE:

- Decarbonisation of vehicle fleet
- Increase energy efficiency

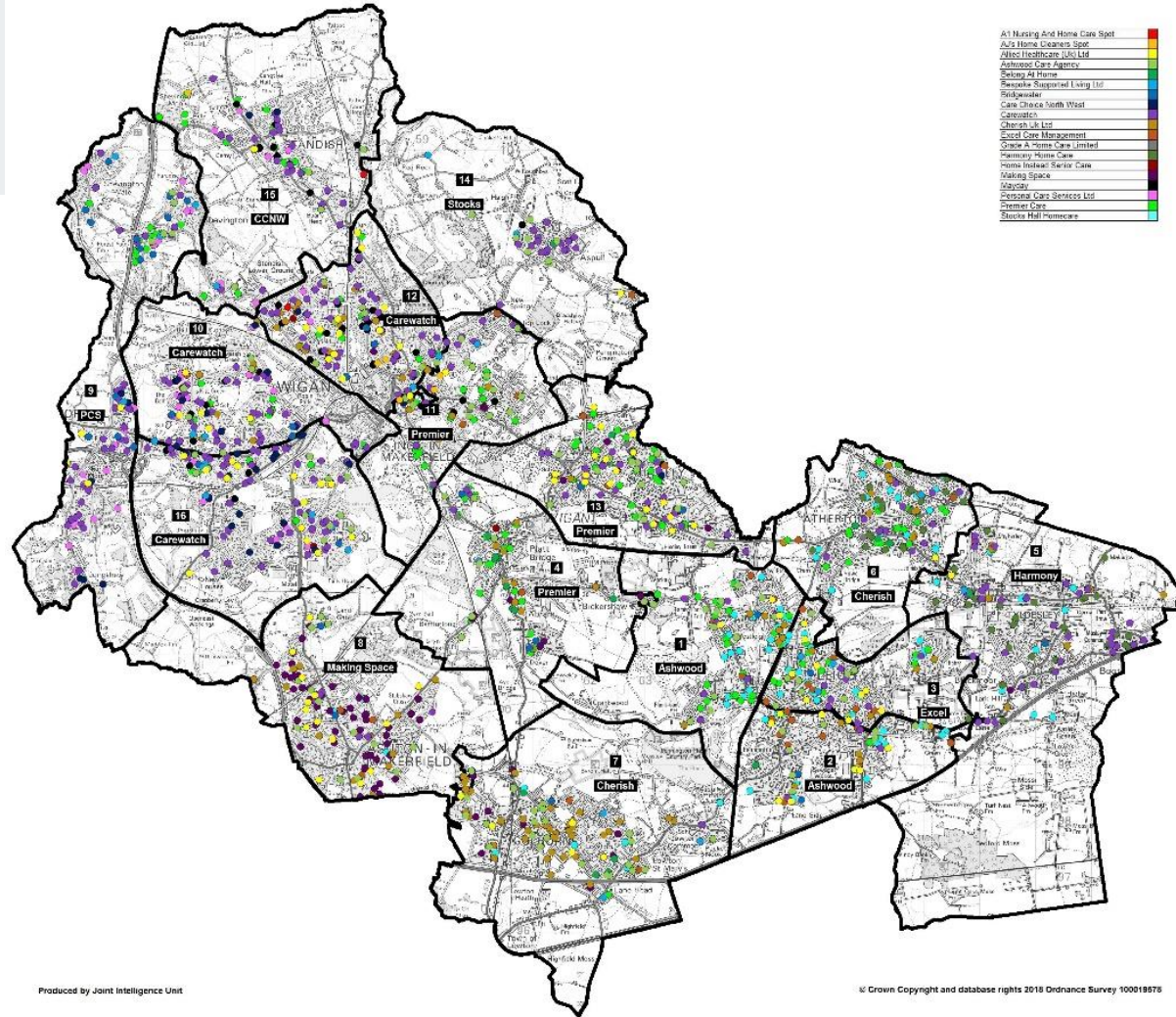
Main Collaborators:

Trip-generating sectors:
education, health, leisure, retail..

Governments, transport providers
and major trip attractors

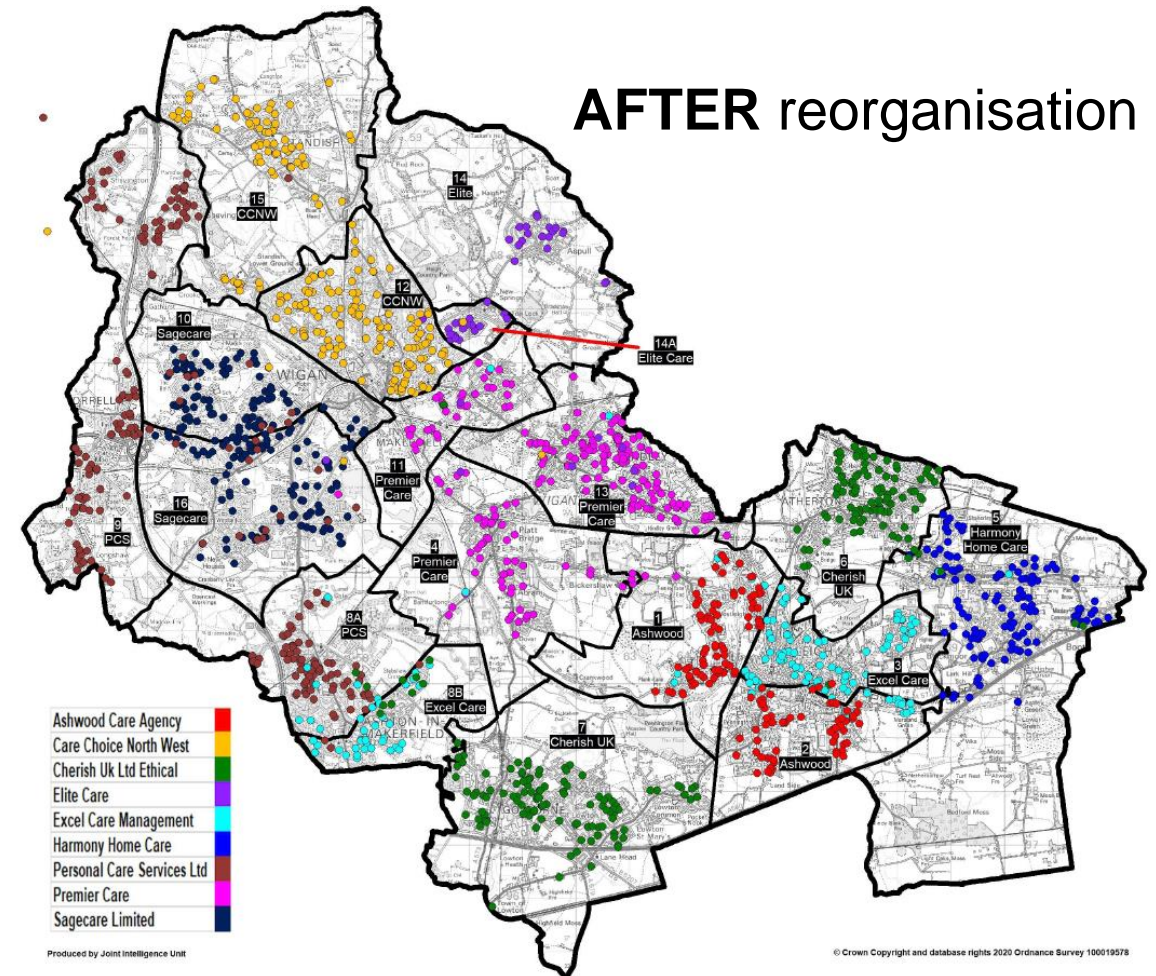
Industry, utilities and transport
providers

An Avoid measure: reducing trip lengths – a ‘win-win’



BEFORE reorganisation

Wigan Home care: customer locations served by different providers



Generic Service Delivery Options

Form of delivery	Details	Consequences
Fixed Physical Facilities	Trade-offs: Numbers vs Size	Varying size of catchment areas (trip lengths) and modal options
Mobile	Neighbourhood provision	Access on foot, but limited temporal availability
Provision to people's homes	Goods deliveries	Ordered by occupier or professional agency
	Personal services	Providing forms of care
Provision in-home	Physically	Purchase of equipment
	Digitally	Internet + receiver