



PATHWAYS TO NET ZERO

Building a framework for systemic change

Claire Haigh

10th March 2022



Dear Friends & Colleagues,

Climate change is no longer a distant threat. As we experience extreme weather events of increasing ferocity and frequency, we can hear its impacts knocking ever more loudly and insistently on our door.

Have we heard the wake-up call? COP26 was a partial success in that it kept the goal of 1.5 degrees Celsius alive. But the world needs to go much further.

The latest IPCC report¹ has been described as ‘an atlas of human suffering’. The report’s publication last week would have been top of the news agenda, had the unfolding tragedy in Ukraine not dominated media attention. However, the stranglehold that dependency on Russian gas holds over NATO member states only serves to underline the imperative that we reduce our dependency on fossil fuels.

We need a massive shift to clean technologies, but we must also reduce energy demand. The International Energy Agency describes demand reduction as “the first fuel”. Energy demand reduction supports the key goals of energy policy: security, affordability and sustainability². However, policy has been heavily skewed to technological solutions.

Transport is the fastest growing source of global greenhouse gas emissions and the biggest polluting sector of the UK economy. A technology led approach has delivered little progress since 1990. The key conclusion of our ***Manifesto for Decarbonising Transport***³ was that Government must turn its focus to behaviour change and demand reduction. The Foundation for Integrated Transport is providing grant funding to support Greener Transport Solutions in developing recommendations that will deliver the necessary traffic reduction.

The ***Pathways to Net Zero*** programme begins with a series of roundtable discussions this Spring sponsored by Trueform, followed by a consultation with the Transport Knowledge Hub community over the summer and a final report in the autumn. The programme is being overseen by the Greener Transport Council of leading academics and experts.

This report outlines the main conclusions from our research and sets out the key themes and questions for discussion. The central proposition is that we need a whole systems transition to net zero. This will require a paradigm shift in how we think about decarbonising transport.

We hope that you will be able to participate in our ***Pathways to Net Zero*** programme and would welcome any feedback at info@greenertransportsolutions.com

With kindest regards,

Claire Haigh
Founder & CEO, Greener Transport Solutions

10th March 2021



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Executive Summary

“It’s much worse than you think”. That is the inevitable conclusion of David Wallace-Wells’ best-selling book *The Uninhabitable Earth*.⁴

But it’s not too late.

Our times call for “stubborn optimism”, as Christiana Figueres and Tom Rivett-Carnac suggest in their book *The Future We Choose*.⁵

The world is not currently on track to keep levels of global greenhouse gas (GHG) emissions to within safe limits. COP26 kept the goal of 1.5 degrees Celsius (C) alive and has generated momentum for change, which the UK must build on throughout its presidency year. But there remains a stark gap. Countries must come to COP27 in Sharm El-Sheikh with more ambitious NDCs (Nationally Determined Contributions).

Global GHG emissions must halve by 2030 to stay within 1.5C. After the plunge caused by lockdowns GHG have bounced back and are set to rise strongly this year. In February, the IPCC issued its bleakest warning yet on climate impacts⁶ “Any further delay in concerted global action will miss a brief and rapidly closing window to secure a liveable future”. Droughts, floods, heatwaves and other extreme weather are accelerating. UN Secretary-General Antonio Guterres described the report as an “atlas of human suffering”.

The challenge for the world is to get on a sustainable consumption path – and fast. A key principle must be equitable access to sustainable development with wealthier countries decarbonising more quickly. A step change is needed in climate finance. We also need a strong, predictable and rising carbon price. The failure to price carbon properly runs through every sector of the world economy and continues to support unsustainable levels of consumption. The question of equity and policies to address such market failures must be the key priorities for COP27.

Domestically, the pledge to reduce greenhouse gas emissions by 78% by 2035 puts the UK at the forefront of international ambition. However, government has faced criticism for failing to develop plans to match targets, for lack of an integrated cross departmental strategy, and for insufficient engagement with the public. Siloed thinking exacerbates contradictions in policy. The £27.4 billion road investment programme undermines the goal of achieving net zero for example. It is notable that there was little reference to net zero in the government’s white paper *Levelling Up the United Kingdom*⁷.

Government must engage with the public

There is currently a disconnect between public support for tackling climate change, which is very high – and an understanding of the changes people need to make in their own lives, which is very low. The Committee on Climate Change estimates that 62% of future emissions reductions will rely on individual choices and behaviours⁸, such as adopting cleaner technologies, changing energy supplier or switching to more sustainable consumer



choices. The provision of transport, domestic heating and food choices must all swiftly change.

Linked to this is the critical area of demand reduction. There is an emerging consensus that achieving our 2030 target for transport will require a reduction in car kms of around a quarter. Green Alliance concludes that the government's anticipated roll-out of EVs will be insufficient to keep us on the 'balanced pathway' to its net zero target, and that a reduction in car-km of 20-27% by 2030 will be needed⁹. This is consistent with Transport for Quality of Life analysis¹⁰. The Mayor of London has pledged 27% reduction in car kms by 2030¹¹. The Scottish Government has pledged a 20% reduction¹².

The devolved administrations are demonstrating leadership on the issue of travel demand, but the Transport Decarbonisation Plan¹³ (TDP) continues the government's predominantly technology led approach that has delivered very little progress since 1990. Professor Greg Marsden draws attention to insufficient consideration in the TDP to the demand side of the equation. He notes that there are references to sometimes quite radical demand reduction futures including lower overall traffic levels, "But what will society look like in such a future? Who will be travelling less? What will they be travelling less for?"¹⁴

There is a clear policy gap. The Climate Change Committee has concluded that "demand measures" require immediate attention and that policies to reduce or reverse traffic growth are "underdeveloped". Whilst the TDP and Net Zero Strategy recognise the need for modal switch, the delivery of behaviour change has been delegated to local authorities. A toolkit has been promised, but much greater resource and political leadership is needed. Professor Glenn Lyons says, "It is simply not tenable to expect a patchwork of several hundred local authorities to take responsibility for such road traffic reduction, especially in this timeframe".

And it is above all the timeframe that has significantly narrowed our options. We are faced with the urgency of less than a decade. Fully 60% of fuel supply and half of surface transport decarbonisation required by 2050 needs to have happened in this decade if we are to remain on track for the net zero target¹⁵. Professor Anable concludes that: "Electric vehicles, indeed most technical solutions, are virtually irrelevant over this timescale... The only solutions open to us over this timescale involve reducing the need for travel"¹⁶.

We need a whole systems transition

The decarbonisation of transport requires changes in the wider economy. Professor Peter Jones demonstrates that since transport is a derived demand, fundamental changes in travel behaviour depend on business model decisions taken in other sectors¹⁷. Professor Lyons describes a 'triple access system', whereby one can combine transport with good land use planning and a very mature telecommunications system¹⁸. The challenge in delivering this is how to overcome the silos of government nationally and locally. The forthcoming Planning Bill should be used to create an assumption that any planning decision should further the goal of reaching net zero.

Technical solutions will be insufficient to get us to net zero. Vehicle efficiency gains have been eroded by the trend to larger vehicles and rising demand for car and van travel. We must reduce energy demand and avoid rebound effects. Moreover, in lowering the cost of



motoring, electrification will increase car use and congestion and make mode shift harder to deliver. If we electrify the fleet without sorting out how to transition away from fuel duty, road traffic could increase by an additional 30%¹⁹. The argument for road pricing has received welcome support from the Transport Select Committee. The final report following its inquiry into Zero Emissions Vehicles and Road Pricing highlights that if it fails to act the Treasury will be left with a £35 billion black hole as receipts from fuel duty and VED disappear²⁰.

The benefits to the public of any future change in how we pay for road use should be framed in terms of reducing carbon and congestion, cleaner air and more equitable access to transport. The pricing of the different transport modes should properly reflect external costs. Professor Stephen Glaister suggests that it might be time for a more direct approach. “If carbon were properly priced then people would quickly seek ways to use less of it and to find substitutes or simply consume less carbon-derived energy”. Whilst such policies can be hard to sell politically Glaister argues that “the immense advantage of carbon pricing is that it would generate new revenue which can be used to help redress unfairness”²¹.

The transition to net zero must be rooted in fairness, not only because the poorest in our society are least responsible for the climate crisis and invariably the worst affected, but because unless action is rooted in social and economic justice it won't succeed politically. Environmental taxes should be designed to ensure a fair distribution of cost and incentives, with mitigation measures where necessary to protect poorer households. Access to essential services, must be available for all. It should be noted that perceived tensions between achieving net zero and the levelling up agenda must not be used as an excuse for any backsliding on decarbonisation.

Greater devolution would accelerate the delivery of UK wide net zero targets, as evidenced by the net zero strategies of the devolved administrations. Decarbonisation requires the overcoming of government silos, and coordination of different aspects of policy is much easier at a regional or local level. The levelling up white paper promises a “devolution revolution” but inviting local authorities to bid for different pots of money is resource intensive and militates against the joined up strategic thinking and planning needed. We need to reform funding and governance so that local leaders can plan for housing, jobs and transport on an integrated long-term basis with net zero embedded at the heart of decision making.

Building a new framework

Our transport system reflects our economy. Our economy reflects our culture. Our culture reflects our values. Since the 1950s a car-based consumer culture has ensured that our transport system has been built on the assumption that the private car is the predominant mode of transport. This assumption continues to be reflected in transport budgets and planning decisions. Funding for road building programmes²² vastly exceeds funding for sustainable transport. Transport for New Homes regularly puts a spotlight on new housing developments that lock in car dependency.²³

The decarbonisation of transport will require a decisive shift away from our car-based culture. We must make sure that we build back better from the pandemic and avoid a car-led recovery. Congestion exceeds pre-pandemic levels in many areas as people continue to



avoid public transport. Public transport is struggling to sustain even 60-80% of 2019 patronage levels, and without additional government Covid support grants it is estimated that 30% of bus services would be lost²⁴.

Are we learning the right lessons from Covid? The pandemic demonstrated the world's unpreparedness for systemic shocks. We must ensure that one legacy of Covid is increased focus on risk and resilience in appraisal and investment decisions. We must put an end to economic short-termism and give greater emphasis to co-benefits such as improving health and well-being, enhancing bio-diversity, creating jobs, reducing poverty, increasing resilience and the ability to adapt to impacts of climate change.

We won't succeed if we persist with the illusion that we can just green business as usual. It is time to question some fundamental assumptions about our continuing fixation on GDP growth. Prioritising growth according to its contribution to the Sustainable Development Goals²⁵ would be a good place to start.

At a time of rising geopolitical uncertainty, volatility in energy markets, insecurity of supplies and escalating fuel and gas prices, it becomes more critical than ever to design policies in a way that avoids unintended consequences and ensures a fair and just transition to net zero. We can no longer take for granted the strong cross-party consensus in the UK which had seemed unshakeable until the recent emergence of the Net Zero Scrutiny Group.

This will be a battle for hearts and minds and will require a level of engagement currently missing. We need a more balanced and informed public discussion, and as Paul Campion CEO of TRL comments, what we critically need at this point are "new and better stories"²⁶.

What does life beyond fossil fuels look like? We must make the case for a better life, with cleaner air, more equitable access and convenient transport. No one wants their children's lungs to be damaged by air pollution, for the continuing corrosive impact of car dependency on society, and for hours of our lives and productivity to be lost in congestion. How can we begin to re-imagine our daily lives?

Our climate is heating up at great speed. We have less than a decade. Our response must be commensurate to the scale of the challenge.



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NOTE – This report is presented as a submission from Greener Transport Solutions to stimulate public debate. The arguments and the proposals made are of the author only. Greener Transport Council Members serve in an individual capacity, and the report should not be taken as representing the views of the organisations with which they are affiliated.



1 Current State of Play

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The world is not currently on track to keep global greenhouse gas emissions to within safe limits. A step change is needed if the world is to get onto a sustainable consumption path. The question of equity and policies to address market failures must be at the heart of climate discussions.

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Despite setting ambitious targets the UK Government has faced criticism for failing to develop plans to match these targets, for lack of an integrated cross departmental strategy, for failing to support local authorities and not engaging with the public. Policies to reduce traffic are underdeveloped.

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There are inherent challenges in achieving net zero transport emissions. Transport is a derived demand, so decarbonisation is contingent on action in other sectors. There are political tensions between achieving net zero and the levelling up agenda. Climate change is a democratic challenge.



1.1 Taking stock

The world is not currently on track to keep global GHG emissions to within safe limits. A step change is needed if the world is to get onto a sustainable consumption path. The question of equity and policies to address market failures must be at the heart of climate discussions.

COP26 generated momentum for change, and it should be acknowledged that there were some big wins. 1.5C is the new 2C. Coal was named and shamed for the first time. Another big win was the yearly ratchet: countries must come to COP27 in Sharm El-Sheikh with more ambitious NDCs (Nationally Determined Contributions). Whilst a price on carbon wasn't achieved there was good progress made on the rulebook for carbon accounting (Article 6).

However, the world is definitely not on track to limit the increase to 1.5C on the basis of plans submitted to date. In a scenario where all the climate pledges announced to date were met in full, and on time, then the International Energy Agency (IEA) estimates that global warming could be kept to 1.8C²⁷. According to Climate Action Tracker, lack of strong 2030 climate plans puts the world on course for 2.4C warming by 2100²⁸.

The US\$100 billion per year climate finance target due by 2020 was delayed to 2023. A step change is needed in Climate Finance. The question of equity must be central to international climate discussion and must be central to COP27. The key principle should be “equitable access to sustainable development”, with wealthier countries decarbonising more quickly²⁹ This is crucial for both moral and political reasons. The challenge for the world is to get onto a sustainable consumption path. Aggregate demand must go down.

A report for the RSA concluded that the root of the climate problem is that we are using too much energy to fulfil socially and culturally constructed needs and desires, and even more fundamentally “the price of fossil fuels that produce that energy, and political and economic structures that keep us addicted to them”³⁰. The failure to price carbon properly runs through every sector of the world economy and continues to support unsustainable levels of consumption and ongoing market failures, such as the \$400 billion in annual fossil fuel consumption subsidies worldwide³¹. We need a strong, predictable and rising carbon price.

Global GHG emissions must halve by 2030 to stay within 1.5C. After the plunge caused by lockdowns GHG have bounced back and are set to rise strongly this year. In February 2022, the IPCC issued its bleakest warning yet on climate impacts “Any further delay in concerted global action will miss a brief and rapidly closing window to secure a liveable future”. Droughts, floods, heatwaves and other extreme weather are accelerating. UN Secretary-General Antonio Guterres described it as an “atlas of human suffering”.

The report pays special attention to the risks global warming presents to urban populations. 70% of the world's population expected to live in cities by 2050. Growing urbanization and climate change create complex risks, but “cities also provide opportunities for climate action: green buildings, reliable supplies of clean water and renewable energy, and sustainable transport systems that connect urban and rural areas and can all lead to a more inclusive, fairer society.”³²



1.2 Progress report

Despite setting ambitious targets the UK government has faced criticism for failing to develop plans to match these targets, for lack of an integrated cross departmental strategy, for failing to support local authorities and not engaging with the public. Policies to reduce traffic are underdeveloped.

The pledge to reduce greenhouse gas emissions by 78% by 2035 puts the UK at the forefront of international ambition. However, in its 2021 Progress Report, the Climate Change Committee (CCC) criticized the Government for failing to match policies to rhetoric³³. It also warns that the UK is woefully unprepared for climate chaos. UK land temperatures have risen 1.2 degrees from pre-industrial levels and sea levels risen 16cm since 1990. The CCC warns of more severe heatwaves, especially in big cities, and more intense rainfall, with an increased flood risk across the whole of the UK³⁴.

A report published in March 2022 by the Public Accounts Committee (PAC)³⁵ highlights serious weaknesses, that government has unveiled a plan without answers to the key questions of how it will fund the transition to net zero. There is currently no plan for how it will replace income from taxes such as fuel duty “or even a general direction of travel on levies and taxation”. Government has no reliable estimate of what the process of implementing net zero will cost consumers, households, businesses and government itself. PAC warns that “a series of disconnected initiatives” won’t bring about the changes that are set out in law.

There is also much more work to do to understand the emissions impacts of international supply chains “including the risk of domestic emissions being only window dressing if these are merely shifting emissions offshore to other countries”. Leading expert Professor Dieter Helm has long argued that that we must move to a system of consumption-based reporting³⁶. Our focus on measuring territorial emissions masks our true carbon footprint, and conveniently places the burden of emissions reductions on those countries which produce energy-intensive goods rather than those which consume them.

There remains a worrying lack of integrated cross departmental strategy. The National Audit Office (NAO) reported in December 2020 that government still needs to put in place essential components for effective cross-government working³⁷. A subsequent inquiry by the Public Accounts Committee concluded that government has committed to publishing a “plethora of strategies”, but “no coordinated plan”³⁸. The CCC notes that the Net Zero Strategy begins to tackle some of these cross-cutting policies³⁹. However, it is notable that there was little reference to Net Zero in *Levelling Up the United Kingdom*⁴⁰.

In July 2021 the NAO highlighted serious weaknesses in central government’s approach to working with local authorities on decarbonisation, stemming from a lack of clarity over local authorities’ overall roles, piecemeal funding, and diffuse accountabilities. This hampers local authorities’ ability to plan effectively for the long-term, build skills and capacity, and prioritise effort. It creates significant risks to value for money as spending is likely to increase quickly⁴¹. The Institute for Government recommends that government should involve local authorities more actively in the design and delivery of green recovery policies.⁴²



Engagement with the public

The easy wins in terms of decarbonisation of the power sector have happened. Behaviour change across the whole economy and especially transport and heating will play a critical role going forward in reaching net zero. Consumers as well as producers will have to adjust significantly. The Environmental Audit Committee has drawn attention to a worrying lack of engagement with the public. “Government is not yet prepared for the honest debate with the public about the changes that we must all consider starting to make within the lifetime of this Parliament.”⁴³

The launch report for *The Economy 2030 Inquiry*⁴⁴ highlights that that the provision of transport, domestic heating and food choices must swiftly change, but we know far too little about the policy and political economy of doing so successfully. “The imperative of answering these questions, rather than merely announcing carbon targets is acute. Little thought has yet been given to how the tax and benefit system can support households to make the transition”. The consumption transition urgently needs more attention alongside the current focus on production.

Whilst plans have been announced to phase out new polluting road vehicles, there is no agreement on how to replace fuel duty revenues which will require tax rises equal to the very significant ones seen in the 2021 Budget. Fully 60% of fuel supply and half of surface transport decarbonisation required by 2050 needs to have happened in this decade if we are to remain on track for the 2050 net zero target. However, “the implications of net zero for fiscal, social and human capital policy are largely unresolved”.

The transition will require consideration of every aspect of our lives, and the challenging of unsustainable consumer practices and expectations. Speaking at a Greener Transport Solutions (GTS) webinar, Lord Deben highlighted the need for measures to curb the culture of using delivery vans to rapidly provide goods and services to people. We urgently need to address the culture of next day delivery⁴⁵.

Transport Decarbonisation Plan

Transport Decarbonisation Plan (TDP) is in many ways a landmark publication. The target to end the sale of all new polluting road vehicles by 2040 is genuinely world leading. However, TDP continues with a technology led approach that has delivered very little progress since 1990. The CCC has noted that “demand measures” require immediate attention and that policies to reduce or reverse traffic growth are “underdeveloped”⁴⁶. Whilst the TDP and Net Zero Strategy recognise the need for modal switch, the delivery of behaviour change has been delegated to local authorities. A toolkit has been promised, but greater resource and political leadership will be needed.

Professor Greg Marsden stresses the importance of making a whole systems transition. Whilst the scale of the supply transition is huge, Marsden draws attention to the insufficient consideration of the demand side of the equation. The focus on technologies also perpetuates the separation of technology and behaviour. “Travel behaviours co-evolve with the technologies and infrastructures which are in place. If, for example, an infrastructure is



developed which is built around shared access to cars in community hubs then we can anticipate that people will re-evaluate their relationship with the car.”⁴⁷

There are references in TDP to sometimes quite radical demand reduction futures including lower overall traffic levels, but “where are the people?” Marsden asks. “What will society look like in such a future? Who will be travelling less? What will they be travelling less for? How will that affect the industries which have built up around current car dependent growth patterns and how will they respond? There is much reference to greening the ‘last-mile’ of freight delivery but nothing about how the dash to same day or next day delivery is creating inefficient logistics patterns.”

Professor Jillian Anable, emphasizes the urgency of the situation we are in. “Climate change is not a forecast. It is here now”.⁴⁸ The IPCC report calculates that we only actually have 5.5 years at current emission rates before we have blown the odds of staying below 1.5 degrees. To achieve deep cuts in emissions within 5-10 years does not require forecasts, predictions or probability estimations. This is because as she outlined in her “Two Futures”⁴⁹ article with Professor Phil Goodwin, there are only two futures that meaningfully count: “we either constrain carbon to the required levels by the end of this decade or we fail to do that, and we are then in totally uncharted, unpredictable territory of runaway climate change”.

Anable emphasizes that: “Electric vehicles, indeed most technical solutions, are virtually irrelevant over this time scale”. “The only solutions open to us over this timescale involve reducing the need for travel”. She notes that the DfT still adopts “what Goodwin and I call the untenable future as the benchmark against which hard decisions are made – i.e. one where smooth economic growth without radical changes in weather, structural changes in employment, populations movements and horrendous drains on resources to accommodate those trends is used.”⁵⁰

Professor Glenn Lyons concludes: “The transport sector needs to rapidly decarbonise which unavoidably means a reduction in total vehicle distance travelled (in the order of 20%) on UK roads by the end of this decade (i.e. in the next eight years). It is simply not tenable to expect a patchwork of several hundred local authorities to take responsibility for such road traffic reduction, especially in this timeframe.

“Therefore, while we applaud the TDP for its efforts to chart a course for reducing direct CO2 emissions from vehicles over the years and decades ahead, we cannot support the lack of sufficient national ownership over behaviour change associated with road traffic reduction. National measures are urgently needed to set the stage for what might subsequently also be achieved in a more targeted way locally.”



1.3 Policy challenges

There are inherent challenges in achieving net zero transport emissions. Transport is a derived demand, so decarbonisation is contingent on action in other sectors. There are political tensions between achieving net zero and the leveling up agenda. Climate change is a democratic challenge.

Transport is a derived demand so the decarbonisation of transport must be planned in the context of the wider economy. Digitalisation increasingly drives large parts of the economy, and therefore the choices that we make about whether we even need to travel. However, our current system of regulation is not designed to address the integration of transport into our digital world and the wider economy in a decarbonisation context. The siloed nature of government militates against the joined-up approach needed (Section 2.1)

There are inherent contradictions in government policy. Net zero requires higher utilisation of a smaller vehicle fleet but expanding UK's car manufacturing sector is a key part of government's strategy to 'level up' the country. The ongoing freeze in fuel duty has increased traffic and carbon emissions but has been of benefit to the significant number of low-income households without adequate public transport provision and reliant on their (often older and more polluting) cars.

Speaking at a GTS webinar Lord Deben highlighted contradictions between achieving the goal of net zero and delivering the £27.4 billion road investment programme⁵¹. Transport for Quality of Life (TfQL) has estimated that the total additional emissions from now to 2032 from the Road Investment Strategy 2 (RIS2) £27.4 billion major roads programme will be 20 MtCO₂, at a time when emissions from the Strategic Road Network need to go down by 167 MtCO₂. TfQL conclude that this will negate 80% of potential carbon savings from electric vehicle on the Strategic Road Network between now and 2032⁵².

Progress is also impeded by a lack of clarity and focus about who should be doing what and where power should lie. Coordination of the different aspects of policy essential for decarbonisation is easier at the local level, but England has one of the most centralised systems of government in the world. The disjointed and fragmented nature of devolution means that too often local leaders are reliant on ad hoc project-based funding streams and lack the powers and resources to plan on an integrated long-term basis (Section 2.5)

Climate action requires a social contract between government and people. In her book *Too Hot to Handle?* Rebecca Willis highlights that climate action is a democratic challenge.⁵³ (Section 3.2) Society in richer countries is dependent on constant energy input, which is mostly derived from burning fossil fuels. Citizens in these countries are so accustomed to high-carbon systems that it is very difficult for them, or their political leaders, to envisage a low-carbon society.

Citing the many declarations of Climate Emergencies, Willis argues that whilst politicians may have acknowledged the climate crisis, they have also compartmentalized it. She says we must all fight "socially organized denial – the idea that people accept that climate change is happening but just don't talk about it".



To grow or not to grow

There are divergent views on whether economic growth can be consistent with meeting carbon reduction targets. In 1972 *The Limits to Growth*⁵⁴, which argued that our civilisation is exhausting the resources upon which its continued existence depends, sparked controversy. But a debate that began on the fringes has gathered momentum. In 1987 a report of the World Commission of Environment & Development “Brundtland Report” defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Achieving growth whilst simultaneously decarbonising the economy is the central dilemma for policy on climate change. Potential impacts on living standards means that this can become very challenging politically. However, there is a growing body of opinion that strictly linear GDP growth can no longer be the priority. Prioritizing growth according to its contribution to the Sustainable Development Goals would be a good place to start. These 17 interconnected goals aspire to sustainably increase global prosperity, equality and well-being.⁵⁵

Professor Nicholas Stern says that “growth, development, mitigation and adaptation go hand in hand”. At the same time a just transition means governments must commit to mitigate negative impacts on displaced workers, affected communities and low-income households⁵⁶. He highlights that in some of the best performing economies growth is being decoupled from carbon emissions. A compact transit-orientated model for urban development in the world’s largest 724 cities could reduce GHG by 1.5 billion tonnes CO₂ per year by 2030, mostly by reducing personal vehicle use in favour of more efficient modes⁵⁷.

Stern sees story of alternative low-carbon paths as exciting given phenomenal technological progress and structural transformation. However, he believes that tackling climate change must be framed in terms of the management of immense risks and delay is dangerous. Today he would place less emphasis on narrow frameworks of cost-benefit analysis “which often leave out or trivialise the big risks”. Greater emphasis should be given to co-benefits such as air pollution, environmental damage of deforestation. We should emphasise more strongly the principles of discounting and look at ethics and moral philosophy more deeply.

Professor Tim Jackson argues that the idea that renewable energy and greater efficiencies will allow us to sever economic growth from its environmental impact runs contrary to historical evidence and the basic arithmetic of growth⁵⁸. He argues that whilst green growth is obviously better than harmful growth, the speed with which we are able to decouple carbon from output is nothing like what it needs to be⁵⁹. Professor Kevin Anderson argues that we are facing the need for cuts so great that they challenge the fundamental logic of prioritising GDP growth over everything else⁶⁰.

A post growth future?

A report for the RSA in 2014, *A new agenda on climate change*⁶¹, surmises broadly three positions on global ecological risks and the economy: business as usual growth; green clean growth “a new model of capitalism”; and post-growth. The report concluded that the problem with post growth is that there is no political and economic narrative of transition that currently



makes sense. “Momentum is behind clean growth, but the key question is whether it is really part of a transition to a sustainable economy with projects being invested in greener architecture.”

In *Donut Economics*⁶² Kate Raworth suggests we should be “agnostic about growth”. She makes the case for a social foundation of well-being that no-one should fall below, and an ecological ceiling of planetary pressure that we should not go beyond. She argues that a “the prevailing direction of global economic development is caught in the twin dynamics of growing social inequality and deepening ecological degradation.” She says we can’t wait for economic growth to reduce inequality and clean up the environment because it won’t.

Raworth argues that today’s economy is divisive and degenerative by default, whereas we need to design economies that are redistributive and regenerative by design. In reference to the polarized debate between ‘keep-on-flying’ advocates of green growth and the ‘prepare-for-landing’ advocates of post-growth economies she highlights a key task for policy makers. Namely, to come up with economic designs that would enable nations coming towards the end of their GDP growth to learn to thrive without it.

Professor Jackson defines prosperity as our ability to flourish within the ecological limits of a finite planet. In *Prosperity without Growth*⁶³ he argues that our technologies, our economy and our social aspirations are all badly aligned with any meaningful expression of prosperity. “The tragedy of consumerism is not just that it is damaging the planet. But that it is doing so in pursuit of false gods and elusive dreams.” In *Post Growth: Life after Capitalism*⁶⁴ he argues that the myth of growth and the denial of limits are closely related to one another. He sets out the building blocks for a new post growth prosperity.



2 An Agenda for Change

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The decarbonisation of transport cannot occur without changes to the wider economy. We need a whole-systems approach that reflects the shift to digital connectivity, and the integration of transport with land-use planning, energy and green finance.

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2.1 Our whole economy needs to change

The decarbonisation of transport cannot occur without changes to the wider economy. We need a whole-systems approach that reflects the shift to digital connectivity, and the integration of transport with land-use planning, energy and green finance.

Moving beyond silos

Professor Peter Jones demonstrates that since transport is a derived demand, fundamental changes in travel behaviour (particularly trip reduction, internet substitution and short trips) depend on business model decisions taken in other sectors⁶⁵. Professor Glenn Lyons refers to a ‘triple access system’, whereby one can combine transport with good land use planning and a very mature telecommunications system⁶⁶. The challenge in delivering this is how to overcome the silos of government nationally and locally.

Historically there has been little serious engagement with the trip generating sectors of the economy. However, Professor Jones notes that there are encouraging signs that several major trip-generating sectors are recognising their role in influencing travel volumes and patterns and are starting to take responsibility for the associated transport-generated carbon. For example, the NHS’s Net Zero Carbon strategy recognises that 14% of carbon emissions associated with its estate and operations comes from travel⁶⁷.

Professor Dieter Helm argues that digitalisation will increasingly drive the economy. Whilst policy makers understand the importance of electrification and smart systems, there is less recognition of just how far digitalisation will drive the entire economy and therefore the choices that we have to make about whether we actually want transport. Our current system of regulation is not designed “to address the integration of transport into our digital world, and into our economy in a decarbonisation context”⁶⁸. The Aldersgate Group shows that ambitious well-designed environmental regulations can deliver significant benefits but crucially “these must not sit in a silo and should be carefully joined up across sectors”⁶⁹.

Professor Nick Eyre argues that delivering a secure, affordable and sustainable energy system will require an energy transition on the scale of the industrial revolution. The sustainable energy transition will not just involve the shift from unsustainable fuels to renewables but also changes in how, when and where these fuels are used. Energy use in a car-dominated system of personal transport depends not just on technological features of the car but also occupancy rates, performance of other modes, land use planning, road infrastructure, regulations governing car use, wider cultural norms⁷⁰.

The integration of transport with energy will be critical. The creation of the Office for Zero Emissions Vehicles is a step forward, but the National Audit Office recommends a review of whether it has “the capacity, skills and remit to enable it to effectively oversee the fast-paced transition implied by the 2030 target.”⁷¹ Our energy system has not been designed to cope with electricity being generated from a multiplicity of different sources. Speaking at a GTS webinar, Lord Deben highlighted the need for a systemisation of the electricity generation system with cars being electrified and able to store electricity.⁷²



Planning for net zero

The integration of sustainable transport with planning is another fundamental building block for achieving net zero. Speaking at the same webinar Lord Deben expressed concern that there was no central planning advice from the Ministry of Housing, Communities and Local Government (now Department for Levelling Up, Housing and Communities) to the Planning Inspectorate on achieving the move to net zero through planning decisions. The upcoming Planning Bill should be used to create an assumption that any planning decision should further the goal of reaching net zero.⁷³

Victoria Hills, Chief Executive of Royal Town Planning Institute (RTPI) says that net zero should be incorporated from the earliest stages of planning and policy through to the delivery and lifecycle of communities and projects. RTPI research has explored the role of planning and place-based solutions in helping the transport sector drive the UK towards net zero emissions and delivering better place outcomes⁷⁴. Hills believes the Planning Bill presents “a real opportunity to change how we approach transport planning for the better, integrating net zero into planning from the outset” but “a significant behavioural shift is required in how we understand, plan, deliver and interact with transport throughout the UK”.⁷⁵

The government seeks to build 300,000 homes a year to tackle housing shortages, but as Stephen Joseph highlights, where new homes are built, and the design of the developments will have a major impact on travel and on carbon emissions “national and local planning policies need to locate new development where it can be easily served by public transport, strengthen requirements for local facilities and for active and sustainable travel as part of the design, and reorient funding and assessment systems to promote zero carbon rather than car dependent homes.”⁷⁶

Transport for New Homes has demonstrated that the current planning system appears to take limited or no account of the transport impacts, resulting in car dependent “cowpat” developments plopped into green fields miles from anywhere.⁷⁷ Research for the Transport Knowledge Hub identified siloed transport and planning decision-making and fragmented and short-term public sector funding as the key barriers to integrating sustainable transport and housing.⁷⁸

Freight and logistics

Professor Alan McKinnon has suggested that there is a lack of data underpinning the TDP and has called for action to break down the silos between freight and logistics. Government is not taking the necessary steps to decarbonise the freight industry and is pinning too much hope on short term measures. He noted that the railways had lost their freight coal traffic and that the rail freight industry should be looking for options to replace these. Action should be taken to improve the efficiency of rail freight and the utilisation of freight capacity. Digitalisation could be used to help fill the vehicles better⁷⁹.

In 2019 transport accounted for 27% of domestic greenhouse gas emissions making it the largest emitting sector. 16% of domestic transport emissions from heavy goods vehicles HGVs, 16% light goods vehicles LGVs. A report by the Urban Transport Group⁸⁰ stresses the importance of modal switch for freight. Not only do we need to decarbonise the HGV



sector and improve road safety but we need to encourage shift to rail and water. Road freight currently accounts for 80% of goods moved in Britain. Rail accounts for just 9%.

In an article for GTS, Paul Campion CEO of TRL highlights that everything we consume – every piece of food, every article of clothing, every leisure activity, every chore and every treat – contains embedded transport. He suggests that unless we can more or less immediately decarbonise every means of transport then to decarbonise transport, as a segment, we will have to reduce our usage of it. “Consuming less stuff is, at the same time, a really obvious thing to propose and something that always seems politically impossible”.

Perhaps there is a middle way. Campion explores whether there could be new ways to deliver transport networks that could minimise the reductions in living standard required to remove carbon emissions from the transport included in everything that we consume. UK startups like Magway are reimagining part of the logistics chains that get stuff from port to distribution centre or store. E-cargo bikes and similar specialised devices are changing the relationship between transport miles and carbon footprint. Mobility hubs could be part of a re-configuration of our local areas⁸¹

Green stimulus, green jobs

The investment needed to decarbonise transport will go beyond what will be achievable from the taxpayer or individual user. Paul Hirst, Partner and Head of Transport at Addleshaw Goddard notes that “ultimately, there will need to be considerable investment from both the public and the private sector... and significant focus by the public and private sectors across Transport and Energy markets”⁸² A key challenge will be how to harness private investment. Mechanisms such as land value capture will be needed. Dr George Hazel has shown how this successfully help in funding for railways⁸³.

Greening finance and the financing of green investments will be key. Mark Carney highlights that changes in climate policies, new technologies and growing physical risks will prompt reassessments of virtually every financial asset. Firms that align their business models with the transition to a net zero carbon economy will be rewarded handsomely; those who fail to adapt will cease to exist. He argues that the financial system can be retooled to make markets part of the solution. Sustainable investing is developing into an essential tool to bring the values of the market into line with those of society⁸⁴.

A landmark study from the Smith School in Oxford⁸⁵ demonstrates that green stimulus packages are more effective at supporting increased economic activity, generating higher numbers of jobs and long-run cost savings as well as having strong potential to cut emissions. Ideal investments are those that put newly unemployed people to work quickly, delivering a high short-term multiplier, while producing valuable assets that meet the needs of the future, delivering a high long-term multiplier. Clean energy investment, for example, has positive high long run multiplier impact and a positive climate impact. By contrast airline bailouts without attaching climate conditions score lowest on both counts.



2.2 The importance of behaviour change

Technical solutions alone will be insufficient, we must encourage behaviour change. We must reduce demand and avoid rebound effects. Electric vehicles are not a panacea. Achieving our 2030 net zero transport target will require a reduction in car kms of a quarter.

Encouraging behaviour change

The Committee on Climate Change estimates that 62% of future reduction in emissions will rely on individual choices and behaviours⁸⁶. The National Audit Office reports evidence of a disconnect between public support for tackling climate change and people's understanding of the changes they need to make in their own lives⁸⁷. The Public Accounts Committee has concluded that government has not yet properly engaged with the public on the substantial behaviour changes that achieving net zero will require⁸⁸.

A report for the RSA surmises that there are broadly three functions of behaviour change in climate change: behaviour change to reduce energy demand indirectly by improving energy efficiency; behaviour change to reduce energy demand directly by reducing consumption; and behaviour change to substitute our energy supply. However, there are competing commitments that militate against all of these goals.

Climate change is mischaracterised as an exclusively environmental issue when it is a broader system threat to the global financial system, public health and national security. "Whilst directions of causality on such matters are never linear or one-way, what we appear to need most are forms of 'behaviour change' that get people to change in ways that get governments to change, in ways that get markets to change"⁸⁹.

Research commissioned by BEIS and Defra, March 2021 found high levels of scepticism from the public about the motivation and commitment of a range of stakeholders (e.g. energy companies, industry) to reaching net zero "Ultimately, people wanted net zero to be achieved in ways which respected individual choice and promoted well-being, which were seen to be fair in their distributional impact, and which did not restrict interpersonal relationships or result in the widening of social inequalities."⁹⁰

Tackling climate change is seen as a massive global issue. People not only have a bias for the present but need to feel that their actions are meaningful, and are aligned with the actions of others, including both industry and other countries. In facilitating behaviour changes it will be important to focus on clear, shorter-term, manageable actions, and for feedback mechanisms to leverage social norms and rewards. "Imperative to have strong and united political leadership delivering a clear and consistent message on the actions that will get us to net zero".⁹¹

Anthony Smith, Chief Executive of Transport Focus, stresses that the user must be at the forefront in the design of policies and technological changes⁹². Transport Focus research⁹³ finds that whilst people think about sustainability, they find it a vague concept and difficult to take action. As an environmental problem, plastic pollution is seen as more tangible and



easier to respond to. Many of the issues concerning transport seem beyond their control and more in the court of industry and government to solve.

Changing behaviour to embrace a net zero lifestyle will require a cultural revolution of information-driven decision making, visible peer pressure and strong Government policies. The Energy Research Partnership concludes that a mix of regulation, incentives, nudges and penalties will be needed. Habit disrupters can drive positive behaviour change. Interventions targeted to moments of change (e.g. moving house) are more effective⁹⁴

Rebound effects

The primary focus of government policy is to reduce use of fossil fuels by more efficient end use technologies and changes in the fuel source to electrification and biofuels. However, there are major problems with an approach that focuses purely on supply side measures to the exclusion of demand side measures. Progress to improve efficiency of new cars has been largely offset by their increased use, and the tendency to larger vehicles.

Road vehicles are responsible for 90% of transport emissions⁹⁵. Rising demand for car and van travel one of the central reasons why transport emissions remain high. Emissions in the UK are 4% higher than in 2013, and only 3% lower than in 1990⁹⁶. Average CO2 emissions of new cars increased in 2017, 2018 and 2019.⁹⁷ Notably sales of SUVs rose to 14% of sales of new cars by 2015 and rose still further to 21% in 2018.

Andy Eastlake, CEO of the Zemo Partnership, says that introducing new, zero tailpipe emission technology is only a part of the challenge. “The technology will also have to be used in the right ways and be adaptable to changing behaviour. We need to consider not just the tailpipe emissions, but the full life cycle and sustainability impacts of the technology choices we make. We’ll certainly need significant behaviour changes; we may need to find ways to travel less, certainly to share more and adopt active travel habits.”⁹⁸

Eastlake stresses the importance of deciding “what and how much we need to transport before we build technology and system to deliver it in a net zero way”. If we don’t, we run the risk of building ‘white elephants’ and materially undermining the investment case for the right new technology. He notes that there is a tension between the current technology led approach (just make it zero and we can continue to grow) versus trying to plan what is actually needed then build the right future system for net zero.

Eastlake cites as an example the current debate about how many EV charge points we need. Some are arguing that more than two million would be required if we are to create a “right to charge” almost anywhere anyone goes, regardless of whether or not these would actually be used sufficiently. “But this would give about 5- 7% utilisation of those public assets for which there is no business case.” The work being undertaken by the Electric Vehicle Energy Taskforce suggests that approximately 400,000 are needed.

Professor Marsden says we must focus not only on when to stop selling petrol and diesel cars (ICEs) but how we should electrify as part of a carbon pathway that delivers deep cuts right now. The work of the DecarboN8 network is focused on rebalancing road space between cars, buses, cycling and walking; not locking-in car dependency by assuming we just replace ICEs with (more) electric vehicles (EVs); and reducing our carbon footprint by



shifting to much more intensive use of a smaller fleet of vehicles and other e-micromobility solutions⁹⁹.

Simply replacing ICEs with EVs risks locking in car dependency. In lowering the cost of motoring, electrification will increase car use and congestion and make mode shift to public transport and active travel harder to deliver. If we electrify the car fleet without sorting out how to transition away from fuel duty, road traffic could increase by 30%, which in addition to the 40% traffic increase already predicted will lead to increase of 70% by 2035¹⁰⁰.

EVs are not a panacea

We need to shift to a more intensive use of a smaller fleet of vehicles and to encourage behaviour change. The 2030 ban on sales of new petrol and diesel cars and vans is welcome but we will still need to reduce traffic on our roads.

There is an emerging consensus that achieving our 2030 net zero target for transport will require a reduction in car kms of around a quarter.

Green Alliance concludes that the Government's anticipated roll-out of EVs will be insufficient to keep us on the 'balanced pathway' to its net zero target, and that a reduction in car-km of 20-27% by 2030 will be needed¹⁰¹. This is consistent with Transport for Quality of Life analysis¹⁰². The Mayor of London has pledged 27% reduction in car kms by 2030¹⁰³. The Scottish Government has pledged a 20% reduction¹⁰⁴.

It is important to keep a clear sense of proportion about the role EVs can play in reducing emissions, improving social equity and tackling congestion. The most obvious immediate benefit is the reduction in local air pollutants such as NOx emissions. However, these air quality benefits will be undermined if by reducing the running costs of motoring, EVs lead to more congestion. In nose to tail traffic emissions from vehicle tailpipes increase fourfold¹⁰⁵.

There is no such thing as a zero emissions car. EVs are carbon intensive to produce. Decarbonisation of the grid is critical. The manufacture and disposal of batteries, vehicles, electricity generation and civil engineering must also decarbonise. Steve Gooding, Director of the RAC Foundation highlights that a key challenge still to overcome is the financial, economic and social cost of sourcing raw materials for batteries¹⁰⁶.

Reducing the need for and extent of individualised car ownership would deliver many wider co-benefits, including improving health and road safety and reducing congestion and local air pollution. Our current use of roads is grossly inefficient. The car is used for 61% of trips and nearly two thirds of car trips are single occupancy¹⁰⁷. The RAC Foundation reveals that the average car is parked 96.5% of the time, and only used 3.5% of the time¹⁰⁸.



2.3 Getting the price signals right

The aim of public policy around climate change should be to ensure that wherever possible external costs are internalized. Price signals should incentivize consumers to lower their carbon footprint. The switch to EVs provides the chance for an honest conversation about road taxation.

Making polluters pay

Professor Dieter Helm describes “making polluters pay” as the single most radical and effective policy that could be adopted both for prosperity and for the environment¹⁰⁹. We should follow the “net environmental gain principle” to ensure we protect our natural capital. We must stop subsidising fossil fuels and support divestment from fossil fuels. The costs of pollution should be integrated into every decision made by businesses and consumers. A strong, predictable and rising carbon price is needed.

The wider system of taxation, incentives and fiscal measures is of fundamental importance. Price signals should incentivize consumers to lower their carbon footprint by making lower carbon choices. Focus should not only be on environmental taxes but also the consequences of the fiscal system as a whole for outputs relevant to decarbonisation. We should seek through our taxation system to tax the “bads” (source of emissions) not the “goods” (labour). We need sticks as well as carrots. Some taxes would change behaviour. Others would raise money for green investments.

Professor Stephen Glaister comments that if carbon were properly priced then people would quickly seek ways to use less of it and to find substitutes or simply consume less carbon-derived energy. The remaining carbon in use would find its way into the most valuable applications instead of being squandered as it is now. He argues that a recognition of the need to pay more for carbon would support the argument that fuel duty should be restored at least to the higher rate in real terms it used to be earlier in the century.

Whilst acknowledging that such policies can be hard to sell, and that a perception of “fairness” is essential, Glaister says that the immense advantage of carbon pricing is that it would generate new revenue which can be used to help redress unfairness. That is an important difference from policies that require increased taxpayer support. “The proposition is that when, but only when, individuals see it as being in their personal interest to change because of changes in relative prices, will they respond quickly enough.”¹¹⁰

A reformulation of transport pricing

The result of repeated failures of road taxation to cover externalities is that we over consume roads. The fuel duty escalator was first introduced in 1993 as an environmental tax, to stem the increase in pollution from road transport. However, since the fuel duty protests in 2000, and the referendums on congestion charging in Edinburgh and Manchester, levying any additional charges on road users has been seen as politically toxic. Analysis for Greener Journeys published in 2018 and updated in 2020, showed that the freeze on fuel duty since 2011 had caused a 5% increase in road traffic and an extra 5 million tonnes of CO₂¹¹¹.



The main conclusion of the Transport Knowledge Hub (TKH) Workshop on ‘Decarbonising Transport’, was that we need a total reformulation of transport pricing.¹¹² A joint paper for the TKH (Glaister et al March 2020) argues that in the longer term the answer is road user charging, but in the meantime increasing fuel duty would be a useful interim measure. To make any increase in fuel duty less unacceptable to the public, the incremental revenue should be ring-fenced for beneficial transport purposes. One way to do that would be to use public trusts as these legally require trustees to use money for a dedicated purpose¹¹³.

The argument for road pricing has received welcome support from the Transport Select Committee¹¹⁴. The final report following its inquiry into Zero Emissions Vehicles and Road Pricing highlights that if it fails to act the Treasury will be left with a £35 billion black hole as receipts from Fuel Duty and Vehicle Excise Duty (VED) disappear. If one includes VAT on fuel the black hole rises to £40 billion. (Annually £28bn is received in fuel duty; £6.5bn from VED and £6bn from VAT on fuel.)

Road pricing has always been the most effective way to tackle traffic congestion and reduce pollution but now there is a fiscal imperative. Whilst this is a compelling argument for the Treasury, the benefits to the public of any future change in how we pay for road use should be framed in terms of reducing carbon and congestion, cleaner air and more equitable access to transport. As fuel duty and VED receipts diminish it would be inequitable in the extreme if road infrastructure was financed from general taxation. This would mean non car owners, a high percentage of them on low income, cross subsidising motorists.

Re-charging Britain’s Road Policy

In its original written evidence¹¹⁵ GTS welcomed the Transport Select Committee inquiry into Zero Emissions Vehicles and Road Pricing for putting a spotlight on two key issues central to decarbonising transport: We need to accelerate the shift to zero emissions vehicles. At the same time, some form of road pricing will be essential. Firstly, to replace receipts from fuel duty and VED. Secondly, to reduce vehicle mileage.

The switch to EVs provides the chance for an honest conversation about road taxation. In supplementary written evidence, GTS submitted proposals for a national road pricing scheme¹¹⁶. Government should signal that from 2030 fuel duty and VED will be abolished and replaced by a mandatory road user charge based on distance and congestion which will apply to all road vehicles, to coincide with the ban on sales of new petrol and diesel cars.

To be political deliverable the scheme should be implemented in stages, with road users incentivized to opt in ahead of the charge becoming mandatory. EV’s enhanced grants should be offered on the condition that buyers commit the vehicle to the new charge. The charge should be independently determined and monitored, should not in aggregate cost more than current system and may save users money if they travel at less congested times.

The recommendation to move away from VED shifts the burden of taxation away from fixed annual costs towards variable costs. This allows a closer linkage between road tax and infrastructure costs, congestion and emissions. Current VED charges do not reflect this. Shifting the burden away from ownership to use increases the propensity to walk, cycle or use public transport.



Climate Change Allowance

Carbon pricing is one way to raise the very significant investment needed to support the transition to net zero. However, at a time of escalating fuel and gas prices, political parties worry increasingly about the impacts of environmental taxes and policies on consumers.

The CCC has estimated that by 2030 investment needs to be ramped up to £50 billion a year to achieve net zero¹¹⁷. This includes investment in new forms of energy generation and usage and adapting and optimizing existing infrastructure.

On 4th March 2022 the House of Lords Industry and Regulators Committee warned that government still has not provided the policy clarity required to mobilise the investment needed in crucial low carbon infrastructure. Government has committed to a net zero power system by 2035. “However, there is a very large gap between these ambitious targets and the extensive investment required from businesses and individuals.”

In their highly critical report, the Lords Committee noted “we are concerned that any component falling on billpayers falls disproportionately on lower-income groups. Charges on bills are only a fraction of the required amount and government has yet to explain how the remainder will be raised.”¹¹⁸

This report followed similar criticism on 2nd March 2022 by the House of Commons' Public Accounts Committee (PAC), which accused Ministers of failing to plug significant gaps in its Net Zero Strategy. PAC highlighted concerns over the Treasury's failure to address how to manage fuel duty revenues that are set to fall as electric vehicle demand soars.¹¹⁹

The central dilemma for climate policy is how to ensure that the poorest in society are not penalized (See next section, 2.4).

How can we use carbon pricing as an instrument whilst ensuring that the transition to net zero avoids inflicting hardship on low-income households? The answer is that Government could introduce a universal carbon allowance, funded by putting a carbon price on *everything* we consume.

Greener Transport Solutions is developing proposals for a ‘Climate Change Allowance’. This would be a fixed allowance paid to every individual in the UK. If we price properly for carbon this is likely to be a substantial sum, so as a percentage of people’s income it would be a highly progressive measure. Low-income households, who overall consume less carbon than higher income households, would be better off.

This measure would be a highly effective way to raise the funding needed to accelerate the transition to net zero and protect our energy security, whilst ensuring that low-income groups are not penalised.



2.4 Ensuring a fair and just transition

The transition to Net Zero must be fair and just. Environmental taxes should ensure a fair distribution of cost and incentives. Targeted support should be provided for poorer households. Access to essential services, whether by transport or digital means, must be available for all.

Mitigating negative impacts

At a time of increasing geopolitical uncertainty, volatility in energy markets, insecurity of gas supplies and rising fuel and gas prices, it is even more critical to design policies in a way that avoids unintended consequences and ensures a fair distribution of costs and incentives.

In its *Interim Net Zero Review*, Treasury concluded that the combined net effect of climate action on UK economic growth is likely to be small, but the effects will be unequally felt. High carbon sectors will have to adapt or decline. Mitigation measures will be needed to ensure “an equitable balance of contributions from households, businesses and taxpayers”¹²⁰.

At an aggregate level, higher income households consume three times more carbon than lower income households, but lower income households spend a higher share of their income on high carbon goods¹²¹. However, the Treasury’s final *Net Zero Review* highlights that there is significant variation within income groups, depending on how much energy they use, the type of house they live in, and whether they drive a car and that these factors will have significant influence over a household’s overall exposure to the transition.

The *Review* concludes therefore that given significant variation, it will be more effective to focus on individual technology transitions, with taxpayers providing targeted capital support than to consider the transition in aggregate and develop universal and untargeted policies. The *Review* notes that policies to support the adoption of EVs may disproportionately benefit higher income groups, and the costs of any policies that affect the remaining drivers may fall disproportionately on low-income groups; this could create a trade off in some areas between incentivising decarbonisation and minimising distributional impacts.¹²²

This trade off problematises the use of fuel duty as a policy instrument. A study by the Joseph Rowntree Foundation found that taxes on fuel for cars are not regressive overall because poorer households are less likely to have a car.¹²³ However, a large proportion of the poorest households rely on a car, they are often old and less efficient vehicles. The freeze in fuel duty since 2011 will have helped them. At the same time, by damaging public transport networks, the freeze will have detrimentally impacted low-income households without a car, an impact which will worsen as networks struggle to recover from pandemic.

These are not easy trade-offs. But if Treasury would consider measures to mitigate the transition to net zero *in aggregate*, a universal ‘Climate Change Allowance’ funded by putting a carbon price on *everything* we consume (2.3) would be a highly progressive measure.

More targeted support needed

Government will face a major public backlash if it does not provide more targeted support for lower-income citizens. EVs currently cost approximately £10,000 more than cars with an



internal combustion engine. Households in the bottom 40% mostly buy second-hand cars. A second-hand car market for EVs rapidly needs to be developed. Consumer confidence will also require a massive scaling up of EV infrastructure and public charging points.

The Social Market Foundation demonstrates that low-income groups are significantly less willing to pay for new EV charging infrastructure and renters will find it harder to access charge points than those that own properties¹²⁴. Ultra-low emission vehicles (ULEVs) are typically owned by people in the richest two income deciles. Only 4% of ULEVs are owned by people in the lowest two income deciles¹²⁵.

Whilst people on lower incomes have been effectively priced out of the EV market, an equally serious social equity issue is the risk to public transport. We must avoid public transport becoming a major casualty of the roll out of EVs. With the most ambitious target in the world, Norway's policy on EVs has been extremely successful. However, success has come at the expense of public transport. Public transport's share of commuting has fallen from 23% to 6%. The car's share has risen from 65% to 83%.¹²⁶

Ensuring access to transport

Transport is a Universal Service Obligation. No citizen can participate in our society unless they have access to transport. However, a quarter of households, and nearly half of workless households, have no access to a car¹²⁷. Despite their lower levels of car ownership and usage, it is those who earn the least who experience the most negative effects of car usage. Lower income families are exposed to higher levels of traffic, poorer air quality and their children are more likely to be involved in road traffic accidents (Bourn 2012).¹²⁸

Improving the affordability of bus fares must be a priority. A 10% reduction in access to public transport is linked to a 3.6% increase in social deprivation.¹²⁹ Over the last 20 years the cost of motoring has fallen in real terms by 15%. Over the same period the cost of public transport has increased in real terms: rail fares by 20% and bus and coach fares by 40%.¹³⁰

The IPPR sets out a vision for a transport system that is fair to all, works to improve people's health and wellbeing and provides a better environment for nature¹³¹. Informed by citizens' juries, they demonstrate public demand for an alternative transport vision: more liveable streets and neighbourhoods, reclaiming space for nature, improved health through air quality improvements, and lower congestion. The transition must be rooted in fairness – not only because the poorest communities are least responsible for climate crises and worst affected, but because unless action is rooted in social and economic justice it won't succeed.¹³²

The IPPR makes the case for a new social contract and a people's dividend. Transport decarbonisation plans must make it possible to live a good life without needing to own a car. Recommendations include a world leading local public transport system free at the point of use by 2030; ensuring principles of local access within a 20-minute walk, cycle or public transport trip are adopted; reallocation of road space to cycling, walking and green space.

Tackling inequalities

The government sees improving access to local public transport as a key tool for tackling UK regional inequalities. *Levelling Up the United Kingdom* seeks to tackle regional inequality to



“spread opportunity more equally across the UK.” One of its key missions is to ensure that by 2030, local public transport connectivity across the country should be “significantly closer to the standards of London, with improved services, simpler fares and integrated ticketing”.

In the decade since the financial crisis, overall squeeze on living standards has brought inequalities in the UK into sharper focus. The IFS Deaton Review is seeking to understand inequalities of income, health, wealth, political participation, opportunity and not just between rich and poor but by gender, ethnicity, geography, age and education. The UK is unequal by international standards¹³³.

Speaking at a Policy Exchange webinar, Andy Haldane highlighted that UK spatial differences are widening and the highest across Europe except Poland and Romania. We need good local infrastructure because currently regions are punching below their weight because their effective working population is falling well short of their residential working population by dint of poor local transport networks¹³⁴

The UK2070 Commission Report concluded that devolution of powers and responsibilities and funding must be a priority¹³⁵. The Institute for Fiscal Studies highlights that the pandemic has focused attention on multiple sources of deprivation in certain areas of the UK. They recommend that this should put additional urgency on the need for effective place-based policies that address levelling up and build resilience in these communities.”¹³⁶



2.5 The vital role of localism

Greater devolution would drive faster delivery of UK wide net zero targets. 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 collaborative working across wider regional areas.

Accelerating delivery of UK wide net zero targets

Decarbonisation strategy requires the overcoming of government silos. Coordination of different aspects of policy is much easier at the regional or local level. Greater devolution would accelerate the delivery of UK wide net zero targets, as evidenced by the trailblazing strategies of the devolved administrations.

The Scottish Government has put “sustainable transport at the heart of decision making”¹³⁷. It has committed “to reduce car kilometres by 20% by 2030” (against 2019 levels). The Welsh Government declared in the October 2021 publication of its ‘Net Zero Wales Carbon Budget 2 (2021 to 2025)’ its aim “to reduce the number of car miles travelled per person by 10% by 2030”¹³⁸. The Welsh Government aims to encourage people out of their cars, with a target for 45% of journeys to be by sustainable means across Wales by 2045, up from 32%¹³⁹.

In January 2022 the Scottish Government in partnership with COSLA (the Convention of Scottish Local Authorities acting as the councillor-led ‘voice of Local Government in Scotland’) has published a route map for how to turn that world-leading aspirational commitment into a reality in the next eight years. It includes key principles to travel less, stay local, switch mode and combine a journey. Research will be commissioned to explore equitable options for demand management to discourage car use to enable the development of a new Framework for Car Demand Management by 2025.¹⁴⁰

Mayor of London Sadiq Khan has committed to putting a green recovery and policies to improve London’s air and halt the climate emergency at the heart of his second term. He has set a target that car journeys need to be reduced by 27% by 2030 to meet the net zero target and is actively exploring smart road user charging; setting a boundary charge to drive into London; exploring a daily clean air charge for all petrol and diesel cars throughout Greater London or expanding the ULEZ; also looking at additional daily charge comparable to the price of a single fare on public transport to nudge car users to switch¹⁴¹. London has committed to 80% of trips to be made by foot, cycle or public transport by 2041¹⁴².

Yet beyond the capital it remains the case that England has one of the most centralised systems of government in the world. UK100 sets out why the delivery of net zero must flow through local government. Their report *Power Shift*¹⁴³ lists some outstanding examples of local innovation. London and Manchester have clear science-based net zero targets. Brighton and Hove City Council is leading the way with its car free housing development policy. Nottingham City Council is supporting new public transport infrastructure through its Workplace Parking Levy. However, for such innovation to become mainstream, the Government must provide local leaders with sufficient powers and resources.



We need to reform transport funding and governance so that local leaders can plan for housing, jobs and transport on an integrated long-term basis. Analysis for the Transport Knowledge Hub identified siloed decision-making and short-term funding as key barriers to integrating transport and housing.¹⁴⁴ New developments in urban centres well connected by sustainable transport can stimulate 50% more economic growth than less well-connected developments on the fringe, whilst dramatically reducing both pollution and congestion¹⁴⁵.

The need for further reform and support

An evaluation of the devolved institutions published by BEIS concluded that devolution policy in England has evolved in a fragmented way over time through different pieces of legislation, often appear confusing, ad hoc and asymmetrical to the public. Devolved institutions have had little time to establish systematic routes to external civic engagement. Local areas need to be in a better position to plan long-term without relying on ad-hoc and fragmented programme or project-based funding streams¹⁴⁶.

Levelling Up the United Kingdom promises a “devolution revolution”. One of its key missions by 2030 is for every part of England that wants one to have a devolution deal with powers and a simplified long term funding settlement. However, in the meantime it should be noted that the strategy seems to involve at least as much centralisation as devolution. Inviting local authorities to bid for different pots of money is resource intensive and militates against the joined up strategic planning needed. Decarbonisation should be at the heart of thinking and decision-making, but it is notable that there is little reference to net zero in the paper.

The Industrial Strategy Council previously warned that government will fail to level up Britain’s poorer regions or set the country on course for net zero unless more power is devolved locally, and more money is invested in green policy¹⁴⁷. The model of bidding for central pots of money is not a recipe for success and is more likely to leave behind those already disadvantaged. It emphasised that sustained local growth needs to be rooted in local strategies, covering not only infrastructure but also skills, sectors, education and culture – as with the Local Industrial Strategies drawn up under the 2017 Industrial Strategy.

The National Infrastructure Commission (NIC) has recommended a more strategic approach to transport investment and devolution. Government should bring together local devolution and longer-term funding into a new model, putting decision making into the hands of local leaders who will be accountable for delivering benefits locally. Devolved budgets should be spread across the country and embedded in legislation to mark a permanent change away from short term, fragmented funding pots.¹⁴⁸

In addition to reform, greater support is needed. Central government needs to engage more with local authorities and ensure that they are sufficiently resourced to deliver on net zero¹⁴⁹. 9 out of 10 councils have declared a climate emergency and 80% have set a carbon neutral target. But 96% report that funding is a barrier to tackling climate change; 93% report that legislation or regulation is a barrier; 88% cite lack of workforce capacity, 78% lack of skills.¹⁵⁰

Kamal Panchal, Senior Adviser at the Local Government Association (LGA) emphasises the importance not only of funding but also *political support*. Clear and consistent messaging



from central government is needed. Councils need support in reallocating road space, often politically very challenging to deliver, and better incentives for modal switch. Councils also need clarity and greater support in their role in delivering the future EV charging infrastructure. Councils need long term devolved funding and support to develop in-house resources and skills to devise and deliver more complex, ambitious and effective decarbonisation strategies.¹⁵¹

Reforming appraisal

A reform of appraisal is needed. Decarbonisation will be driven by a low carbon road, rail, air integrated system. This will require central planning and system regulation¹⁵². Total packages of policies must be appraised, not single schemes. We must prioritise carbon reduction, and we need to move beyond narrow frameworks of cost-benefit analysis.

NIC research shows that existing methods bias projects towards the most easily appraised outcomes such as faster journeys, rather than harder to identify objectives such as integrating housing, jobs and transport¹⁵³. Following its recent Green Book Review the Treasury has changed its guidance for policy appraisal to ensure departments place greater emphasis on environmental impacts¹⁵⁴. It now needs to set out how this will work in practice. New analytical tools will be needed to ensure that investments support a green recovery.

In *Why are we waiting* Lord Stern sets out how he would place less emphasis today on a cost benefit approach than he did for the 2006 *Stern Review*. Climate change must be framed in terms of the management of immense risks¹⁵⁵. Greater emphasis should be given to co-benefits such as improving health and well-being, enhancing bio-diversity, creating jobs, reducing poverty, stabilising the economy, and increasing resilience and the ability to adapt to climate change.

Lord Stern also argues that pure time discounting involves valuing welfare of people in the future lower than welfare of people today.¹⁵⁶ Climate change can radically alter the circumstances of future generations, making them much poorer “that would surely radically alter the discount factor between those parts of the future and now”. Mark Carney makes the point that climate change is the ultimate betrayal of intergenerational equity. “It imposes costs on future generations that the current generation has no direct incentives to fix”.¹⁵⁷

Working collaboratively for the long term

The need for long term stable funding was a key theme of a GTS webinar¹⁵⁸ chaired by Hilary Chipping, CEO South East Midlands Local Enterprise Partnership. She highlighted that an integrated strategic approach to planning would be essential and emphasised the importance of working collaboratively across the public and private sectors. Anna Heaton, Joint Head of Transport Sector Team and Real Estate Partner, Addleshaw Goddard noted that with more certainty of public funding there would be more involvement of the private sector who see this as a huge opportunity.

A genuine partnership between the public and private sectors will be needed to facilitate the drive towards a low-carbon economy. This includes long term certainty of funding as well as consideration of the importance of the public sector’s return on investment. Speaking at an



earlier GTS webinar, Suzanne Moir, Partner, Infrastructure, Projects and Energy at Addleshaw Goddard, cited as an example Aberdeen City Council's pivotal role in driving both the demand and the supply side to support the local hydrogen fuel economy¹⁵⁹.

Hilary Chipping highlights that working collaboratively across a wider area than individual local authorities will also be essential if we are going to develop in a greener way. Local Enterprise Partnerships can help to shape the area in a way that makes it easier for such behavioural change. Integrated growth strategies are necessary to provide the route map to decarbonise transport in the UK.¹⁶⁰

Delivering decarbonisation through places is one of the central strands of the TDP and Sub-national Transport Bodies are ideally placed to deliver strong regional leadership, bringing local leaders, businesses and stakeholders together. In a powerful address to the Midlands Connect COP26 Conference Maria Machanosos urged the region to raise its game and act with a sense of urgency. "I'm here to urge you to stand up and refuse to be a bystander, and to act with climate emergency. Our futures and our lives depend on it."¹⁶¹

Planning for people instead of vehicles

We need a vision for the future which can inspire local decision makers to create places free of congestion and pollution. Congestion Reduction in Europe: Advancing Transport Efficiency (CREATE) demonstrates the benefits of moving away from "car dominated" policy perspective to a "place-based" perspective, with greater emphasis on public realm, street activities and traffic restraint¹⁶².

The disbenefits of our car dominated culture are painfully apparent. Congestion is not just a constraint on growth it also dramatically worsens emissions. In nose to tail traffic emissions increase fourfold¹⁶³. Air pollution largely from road traffic is linked to 40,000 early deaths a year¹⁶⁴. Car dominated sedentary lifestyles are contributing to the obesity epidemic and have exacerbated the growing loneliness epidemic. Damage to public transport networks has heightened social deprivation.

Speaking at a GTS webinar¹⁶⁵, Jamie Driscoll, Mayor of the North Tyne Unitary Authority, argued that we need to create a transport system based around people. This was also the central message of a blog he wrote for GTS "Imagine public transport so good that you'd rather not use your car."¹⁶⁶

Greener Transport Council Member Anna Rothnie says that her vision for the UK in 2050 is for car ownership and its exclusiveness to be a thing of the past. She asks whether with evolving lifestyles post-Covid and the urgency and pressure of decarbonisation, people will continue to do and want the same things. She asks, "what if we started planning transport systems to enable future generations to live life free from car ownership as a default? This is very much a world I would like to wake up and see in 2050."¹⁶⁷



3 The Decisive Decade

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3.1 Learnings from Covid

How will the Covid-19 pandemic impact on efforts to tackle climate change? One legacy should be an increased focus on risk and resilience. We must ensure that we build back better and avoid a car-led recovery.

A sharper focus on risk and resilience

The pandemic has demonstrated the unpreparedness of the global economy to systemic shocks, despite early warnings from scientists. One legacy needs to be an increased focus on risk and resilience in appraisal and investment decisions. We must put an end to economic short-termism. Greater emphasis should be given to co-benefits such as improving health and well-being, enhancing bio-diversity, creating jobs, reducing poverty, stabilising the economy, increasing resilience and the ability to adapt to climate change¹⁶⁸.

The Environmental Audit Committee (EAC) has warned that if the economic recovery from Covid-19 is not used as an opportunity to ‘grow back better’, climate change and biodiversity collapse may deliver an even greater crisis¹⁶⁹. The Environment, Food and Rural Affairs Committee (EFRA) has called on the Government to address alarming levels of poor air quality in England, highlighting that air pollution disproportionately affects those from lower socioeconomic backgrounds¹⁷⁰. Both Committees have highlighted the link between air pollution and higher Covid-19 mortality and that it is those who earn the least who, despite their own lower car usage, experience the most negative effects of traffic pollution.

COVID-19 has exposed and exacerbated fault lines in the UK economy. The Institute for Fiscal Studies warned that Britain risks entrenching deep class, ethnic, gender, educational and geographical divides unless Government acts to tackle inequality. With the exception of key workers, most people in the bottom tenth of earnings were in sectors were forced to shut down, and 80% are either in a shut-down sector or were unable to do their job from home, compared with only a quarter of the highest earning tenth. The young and the BAME community were disproportionately affected¹⁷¹.

Mark Carney highlights that when pushed, societies have prioritised health first and foremost and then looked to address the economic consequences. “Cost-benefit analysis, steeped in calculations of the value of statistical lives, have mercifully been over-ruled, as the values of economic dynamism and efficiency have been joined by those of solidarity, fairness, responsibility and compassion.” He argues that the key to building back better will be to base our response on objectives derived from values of solidarity, fairness, responsibility and compassion, and not on an economic determination of where the net-benefit lies.¹⁷²

Building back better?

Government support to companies should be conditional on climate commitments and accelerate clean energy investments. These should include: the obligation to disclose climate-related financial risks from 2021 in line with TCFD recommendations¹⁷³; clearly defined decarbonisation targets for 2030, in line with net zero by 2050; and investment plans outlining how investments will contribute to companies’ emissions reductions trajectory.



The C40 Cities Global Mayors COVID-19 Recovery Task Force has advocated for a post-COVID stimulus that supports a green and just recovery and is consistent with limiting global heating to below 1.5 degrees Celsius. “Fundamental to this will be sustainable, efficient and safe mass transit systems that keep our cities moving and our economies running, while leaving our streets car-free, air clean and skies blue. All residents will live in ‘15-minute cities’, where shops, workspaces and essential services are easily reached within a short cycle or walk, surrounded by plenty of green spaces where they can relax, exercise and play.”

The C40 Cities calculate that stimulus funding that supports a green and just recovery could reduce air pollution by 29% 2020-2030, prevent over 270,000 premature deaths and could create over 50 million good, sustainable jobs by 2025 – over a third more than would be created by investing in high-carbon recovery¹⁷⁴. However, despite all the declared intentions to “build back better”, estimates suggests that national decision makers have “largely failed” to harness the opportunity. Research for the C40 Cities suggests only 3-5% of US\$12-\$15 trillion in international COVID stimulus funding is committed to green initiatives¹⁷⁵.

We must avoid a car-led recovery

The pandemic has emboldened the active travel agenda, and the ease with which large parts of the economy have transitioned to digital format suggests the prospect of big potential emissions savings long term. Research in March 2021 by CREDS and Decarbon8 revealed that 20% more people were walking regularly. They calculated that if people who used to commute by car and who are now working from home were to continue to do so for two days a week, almost 14% of morning car trips would be cut. This would result in traffic reductions similar to those seen in school half terms¹⁷⁶.

We need a major realignment of investment and policy to ensure that we don’t return to the overcrowded, congested, polluting and unhealthy transport system that people had come to expect as inevitable. We must avoid a car-led recovery. Congestion exceeds pre-pandemic levels in many areas as people continue to avoid public transport. Public transport is struggling to sustain even 60-80% of 2019 patronage levels. It has been estimated that without ongoing government Covid support 30% of bus services could be lost¹⁷⁷.

Studies have demonstrated a link between long-term exposure to PM2.5 air pollution, much of which comes from diesel cars, and higher infection and death rate from Covid-19¹⁷⁸. A spike in air pollution from increased car use would aggravate any future respiratory pandemic. Both EAC and EFRA Committees have called for a major public awareness campaign to encourage people to use public transport once the pandemic is over.

It is vital that we protect the role of public transport. Sustainable transport supports at least 8 of the 17 Sustainable Development Goals¹⁷⁹. A 10% improvement in access to public transport is associated with a 3.6% reduction in social deprivation¹⁸⁰. We need to move away from planning for vehicles to planning for people and places. We need a more efficient system for freight and logistics if we are to avoid ever more delivery vehicles on our roads further exacerbating trends to slower traffic and worsening congestion. In nose to tail traffic emissions from vehicles increase fourfold¹⁸¹.



3.2 Winning hearts and minds

The biggest barriers to progress are political not technological. Can we decarbonize at the pace and scale needed whilst maintaining the status quo? There is a role for deliberative democracy. It's time for an honest conversation.

Barriers political not technological

The biggest barriers to progress are political not technological. As a society we are not well equipped to deal with the implications of the scale of behaviour change required. The democratic mandate required for political parties to get elected means that the hard choices have not so far been grappled with by political parties, except perhaps by the Green Party.

If public does not trust proposed policies, this could lead to a backlash and jeopardize the success of the net zero transition. The 'gilet jaunes' movement in France is an example of how the public will react to measures it doesn't perceive to be fair. A Swiss referendum on climate change policies, where voters narrowly rejected plans for car fuel tax and tax on air tickets (51% against)¹⁸², suggests that many were worried about the impact on the economy as country tries to recover from Covid-19.

To take the public with it on the journey to net zero, government must first level with it about the hard choices ahead. Government might be reluctant to be upfront about the behaviour change required for fear of a public backlash if the Secretary of State were to say: "you must fly less, you must drive less". But in perpetuating the myth that we can continue our existing lifestyles unchanged government is storing up problems for the future and will only make unavoidable changes harder.

We might ask whether our current structures are fit for purpose. Can we decarbonize at the pace and scale needed whilst maintaining the status quo or are the changes needed too fundamental? Stubbornly high transport emissions are a symptom of our inability to consume less. These are difficult and unpalatable messages for a politician. How do we get to a place where politically unpalatable decisions become possible?

Power to the people

In *Too hot to handle: The Democratic Challenge of Climate Change*, Rebecca Willis argues for a more deliberative model of democracy in which politicians, citizens and experts debate and collaborate on climate strategies. Climate change must be seen as a collective problem. We need a clearer story of transformation if we are to transition away from a high carbon society towards a post-carbon future. And we need to acknowledge that climate change is about more than evidence and technical fixes, it is an appeal to the heart as well as head.¹⁸³

There is a growing body of opinion that not only must we have fair and just transition to net zero, but that people must be at the heart of designing policy to tackle the climate crisis. The recommendations of the IPPR's Environmental Justice Commission, were developed through citizen's assemblies¹⁸⁴. The final report makes the case for a new social contract and a people's dividend. A fairness lock – procedural fairness, fair distribution of costs for consumers and the taxpayer.



A successful transition to net zero will require high levels of consultation with the public. The Climate Assembly UK (CAUK) has shown that deliberative democracy can deliver results, and often change participants attitudes. 83% of Assembly members reported behaviour changes after taking part and 72% were more convinced that achieving net zero by 2050 would be possible¹⁸⁵. CAUK demonstrated that deliberative engagement is important for both building consensus and maintaining public trust in the net zero transition and will facilitate the behavioural change required to underpin a successful transition to net zero.

CAUK highlighted that after public engagement, ‘fairness’ was the second most important principle which should underpin the net zero transition. Following the success of CAUK, the BEIS Committee has recommended that Government sets out plans for deliberative engagement on net zero policies through citizens assemblies. Government should publish a net zero Public Engagement Strategy, which includes detailed plans for education and engagement during the transition to net zero.¹⁸⁶

Willis emphasises that deliberation must go beyond the commissioning of one-off processes like citizens assemblies. “It is instead an outlook: more a painstaking to-and-fro between politicians and the electorate... It is a social contract between the citizen and state, in a constant, and constructive, state of negotiation, in response to the uncertainty and enormity of the climate challenge”. She says that ‘stealth strategies’, trying to substitute low-carbon approaches for high carbon ones without people noticing, are “inherently self-limiting” as by definition they do not make the case for change.¹⁸⁷

An honest conversation

Government has yet to properly engage with the public on behaviour change. There will be a role for deliberative democracy. CAUK found that 56% supported charging for use of roads, against only 39% who did not. But we also need a concerted awareness campaign. Britain Thinks research shows that two-thirds of the public support taxing environmentally damaging behaviour, but there is little support for levies such as road pricing¹⁸⁸.

The experience of the pandemic has shown that governments can act decisively and people will respond when presented with a clear imperative. Government needs to have an honest conversation with the public about road taxation, and to communicate the wider co-benefits of switching to more sustainable modes, such as improved health and road safety, reducing congestion and air pollution.

Whilst generalized concern about climate change is high, its perceived relevance to people’s lives remains low. It is not (yet) part of the everyday batch of issues which preoccupy people or which they want their politicians to engage on. We need a wide public debate about the wider implications of climate change and the co-benefits of tackling it.

Climate change is the mother of all issues. “This crisis dwarfs and encompasses any other issue we may care about. Climate change should be of concern to all who care about social justice... Climate change should be of concern to all who care about health. More than seven million people die from air pollution each year. Climate change should be of concern to all who care about economic stability and investment value. Climate change should be of concern to all who care about intergenerational justice.”¹⁸⁹



3.3 The future is not yet written

Our climate is heating up at great speed. The decisions we make in this decade are arguably the most important in human history. We must act quickly and decisively.

Unfortunately, the world is way off track. The brutal reality is that emissions have risen and will continue to rise. As Professor Helm concludes, the last 30 years have been an abject failure in tackling the climate crisis. Even now coal remains the biggest culprit¹⁹⁰.

At a time of rising geopolitical uncertainty, volatility in energy markets, insecurity of supplies and escalating fuel and gas prices, it becomes more critical than ever to design policies in a way that avoids unintended consequences and ensures a fair and just transition to net zero. We can no longer take for granted the strong cross-party consensus in the UK which had seemed unshakeable until the recent emergence of the Net Zero Scrutiny Group.

This will be a battle for hearts and minds and will require a level of public engagement and informed debate currently missing. Professor Michael Mann warns against a doomist nihilistic framing of the climate crisis. There is **urgency** he says, but also **agency**. “The climate crisis is very real, but it is not unsolvable, and it is not too late to act. Every ounce of carbon we don’t burn makes things better.”

Mark Carney warns us of the ‘tragedy of the horizon’ in which the catastrophic impacts of climate change will be felt beyond the traditional perspectives of most businesses, investors, politicians and central bankers. Once the physical effects of climate change become the defining issue for policy makers it could be too late to stop their catastrophic effects.¹⁹¹

We are in the critical decade. We must act quickly and decisively. Our response must be commensurate to the scale of the challenge.

To have even a 50% chance of success we must cut global GHG emissions by half their current level by 2030, half again by 2040 and finally zero by 2050. A change of this magnitude will require a major transformation in almost every area our lives.

Figueres and Rivett-Carnac argue that attempting to change while we are informed by the same state of mind that has been predominant in the past will lead to insufficient incremental advances. To open the space for transformation we have to change how we think and who we perceive ourselves to be. Systemic change is a deeply personal endeavour. Our social and economic structures are a product of our way of thinking.

Our economy is based on the belief that we can extract resources boundlessly, use them inefficiently, and discard them wantonly. Over time we’ve developed a deeply exploitative ethos as the basis for our actions. We must now adapt to the scarcity of resources we have caused, and the rapidly diminishing space left in our global atmosphere for carbon emissions. To do this we must prioritise collaboration. “A shift in consciousness may sound grandiose to some, insufficient to others”.¹⁹²

“Our future is unwritten. It will be shaped by who we choose to be now” Christiana Figueres and Tom Rivett-Carnac



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