



GREENER VISION

The Art of Seeing

GREENER VISION

The Art of Seeing

CONTENTS

Foreword.....	2
Acknowledgements.....	3
Summary.....	4
The Climate Imperative.....	10
1. Examining perceptions.....	11
2. Clearing obstructions.....	19
3. Building a new paradigm.....	30
The Pillars of Unity.....	38
ANNEX I: Thought Leadership 2021-2023.....	39
ANNEX II: The Tabula Project 1993-2023.....	40
ANNEX III: About the Paintings	41
ANNEX IV: Consultation 2023.....	46
REFERENCES.....	50

Foreword

Climate change is an existential threat that we have become strangely accustomed to living with. 2023 looks set to be the world's hottest year on record¹. UN Secretary General Antonio Guterres warns us we are in an era of "global boiling"². However, greenhouse gas emissions continue to rise.

What is going wrong? Is humanity destined to be the proverbial frog that doesn't realise it is being boiled alive until it is too late to jump out?

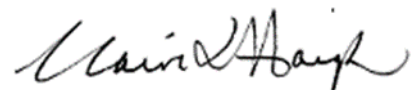
The science is clear. Climate change impacts are accelerating at frightening speed. We've known for years that the economic case for early action is unequivocal³. We also know what we need to do. We have virtually all the technologies we need⁴.

The issue is the politics. The UK has hitherto benefited from a strong cross-party consensus on net zero. However, easy wins in terms of decarbonising the power sector have happened. Little progress has been made in sectors where people need to make changes in their lives. As it becomes clear that net zero will be disruptive to the status quo, a once unshakeable political consensus is looking less solid.

Transport is one sector where potential disruption to people's lives will be greatest, and where some of the toughest challenges lie ahead. **Greener Vision** (formerly **Greener Transport Solutions**) spearheaded two thought leadership programmes which concluded that a radical shift in how we think about decarbonising transport is needed, with an urgent focus on traffic reduction and behaviour change.

This report investigates ways in which our approach to tackling the climate crisis needs to change. Building on the thought leadership programmes, the report draws on key insights from **The Tabula Project**, a creative project which started with the assumption that we won't solve our most intractable problems with the same thinking that created them in the first place.

Anthropogenic climate change is not the only peril we face but it is arguably our greatest existential threat. I hope this report will be the beginning of a wider discussion and would welcome feedback at info@greener-vision.com



Claire Haigh
Founder & CEO, Greener Vision
19th October 2023

Acknowledgements

I would like to extend my sincerest thanks to everyone who made the thought leadership programmes possible. More than 700 leading academics, local and national politicians, senior civil servants, business leaders, environmental and user groups, think tanks and consultants participated.

I particularly want to thank:

Foundation for Integrated Transport for providing grant funding to support the work of Greener Vision (formerly Greener Transport Solutions).

Addleshaw Goddard for sponsoring the “*Rising the Challenge: What will it take to decarbonise transport?*” webinar 2021 series. I am very grateful to keynote speakers: Lord Deben, then Chair of the Climate Change Committee; Huw Merriman MP, then Chair of the Transport Select Committee; and Jamie Driscoll, Mayor of North Tyne.

Trueform for sponsoring the “*Pathways to Net Zero*” roundtable discussion series; and the Rees Jeffreys Road Fund for providing a grant to fund session write-ups.

Greener Transport Council without whose wise counsel and support none of this work would have been possible, and especially the leading academics who chaired the discussions:

- **Professor Jillian Anable**, Chair in Transport and Energy, Institute for Transport Studies, University of Leeds
- **Stephen Glaister CBE**, Emeritus Professor of Transport and Infrastructure at Imperial College London, Associate of the London School of Economics
- **Professor Peter Jones OBE**, Professor of Transport and Sustainable Development in the UCL Centre for Transport Studies
- **Professor Glenn Lyons**, Mott MacDonald Professor of Future Mobility, University of the West of England
- **Professor Greg Marsden**, Professor of Transport Governance, Institute for Transport Studies, University of Leeds

I also want to give a very big thank you to everyone who attended the webinars and roundtables for generously contributing their time and providing such a wealth of invaluable insights. Finally, a very special thank you to friends and colleagues who participated in the consultation and gave me such helpful feedback and advice as I started to bring the conclusions of this report together.

This report offers my personal reflections on how we can move forward on the net zero agenda. In applying insights from The Tabula Project to key findings from the thought leadership programmes, this account is by its very nature a subjective one. All errors are mine alone!

Summary

Our world is fragmented, disordered and chaotic. We are out of alignment with ourselves and the environment on which we depend. Anthropogenic climate change has been allowed to grow like a cancer with the potential to destroy the world as we know it. This is where our best thinking has got us.

Efforts to tackle climate change are moving into a critical phase. Far steeper global greenhouse gas emissions reductions are required to avert a future dominated by catastrophic impacts. We cannot rely on clean technologies alone. A massive shift towards energy demand reduction is also needed. The Intergovernmental Panel on Climate Change calls for the “mainstreaming of climate action across society.”⁵

There has been a recent deterioration in the level of ambition on net zero in the UK. It is important to acknowledge that the Climate Change Act and net zero legislation demonstrated strong political leadership. However, latest developments reveal the net zero consensus is subject to the vagaries of politics. Following the Conservatives unexpected victory in a byelection defined by a fight over expanding London’s Ultra Low Emission Zone, the Prime Minister delayed key net zero targets⁶.

How can we approach climate policy differently? How can we prevent short-term thinking and political expediency from driving critical decisions?

The Tabula Project seeks to provide a new perspective on the mind, firstly through examining current thought patterns, then clearing the mind and finally building a new framework for thought.

EXAMINING
THOUGHT



CLEARING
THE MIND



BUILDING A NEW
FRAMEWORK



In applying this process to our approach to the climate crisis, we must first examine the assumptions underpinning decision making on net zero. An honest appraisal leads us to conclude that our current paradigm is not fit for purpose. We need to identify and remove the main barriers to progress, then create the foundations for a new paradigm that would enable us to rise to the scale of the climate challenge.

We need a radical realignment of how we perceive ourselves in relation to each other and the environment on which we depend.

In 1972, *The Limits to Growth*⁷ argued that civilisation is exhausting the resources upon which its continued existence depends. In 1975 the influential book *The Tao of Physics* demonstrated the limitations of the mechanistic world view embodied by thinkers such as Newton and Descartes and pointed to a more fruitful holistic systems-based approach⁸. Such ideas have become increasingly mainstream.

Our society and its predominant structures originate from a time when the individual was understood to be separate from the world we inhabit. However, climate change exposes the shortcomings of a rationalist view of the world. We have developed “a deeply exploitative ethos” as the basis for our actions (Figueres & Rivett-Carnac)⁹.

Climate change has been described as the greatest and most wide-ranging market failure ever seen (Stern)¹⁰. Failure to price properly for carbon is a key part of the problem and encourages unsustainable levels of consumption. We are using too much energy to fulfil socially and culturally constructed needs and desires.

“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 the immense advantage of carbon pricing is that it would generate new revenue which can be used to help redress unfairness”¹¹.

Professor Stephen Glaister CBE, Greener Transport Council

Tackling the root causes of climate change will challenge predominant forms of consumerism and impact on lifestyles. A better-informed public debate is essential. A greater level of honesty and self-awareness in policy making is also required.

Too often the lens through which we perceive is faulty. The tendency to separate thoughts and feelings causes confusion, is profoundly destabilizing and doesn't lead to good decision making. We need to engage our emotional brains in addressing climate change. Rational scientific data can lose out against a compelling emotional story that speaks to people's values.

We need to strive to see the whole picture. Climate change exposes our tendency to see selectively only what we want to see (Marshall)¹². We are part of the problem if we persist with the illusion that ‘business as usual’ will achieve net zero. “When we are wilfully blind, there is information we could know, and should know, but don't know because it feels better not to know.” (Heffernan)¹³.

“Is the industry being honest enough with politicians about scale of challenge? We know it's not just about demand management, the planning system, sustainable transport, digital etc. It's about all those things and doing them now! Are we holding up the mirror so that leaders can make the urgent and necessary decisions?”

Pathways to Net Zero Roundtable: Politics & Local Delivery, March 2022

A coherent response to the climate crisis requires us first to identify and then to remove the biggest barriers to progress.

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

Professor Greg Marsden, Greener Transport Council

Some of the biggest barriers to progress are political not technological. There is an assumption that electric cars (EVs) will enable us to decarbonise transport and continue our current lifestyles. But improvements in vehicle efficiency and the roll out of EVs have been largely offset by increased use and the trend towards larger vehicles. Road transport emissions are only 3% lower than they were in 1990.¹⁴

The Climate Change Committee have called for more focus on demand measures¹⁵. However, recent announcements that government is “on the side of the motorist”¹⁶ and that some of the cancelled HS2 budget will be diverted to roads, indicate further doubling down on the technology-led approach. Pricing would be one of the most effective levers to pull but repeated failures of road taxation to cover externalities, including the ongoing freeze of fuel duty, means that we over consume roads.

“Is government acting like a gambler or a steward when it comes to the question of future levels of road traffic?”

Professor Glenn Lyons, Greener Transport Council

We focus on the wrong targets. The transport metrics of time savings skew policy towards road building and unsustainable transport policies. GDP is not the best measure of what matters. We should give greater focus to risk and resilience and put an end to economic short-termism. A net zero test for public policy would better ensure cross-government policy alignment. Climate change imposes costs on future generations that the current generation has no direct incentives to fix” (Carney).¹⁷

Climate policy is full of examples of rigid self-defeating thinking. When such ideas go unexamined, they can become like “hard-wired habits very difficult to reverse” (Bateson).¹⁸ Too much attention is paid to symptoms, and too little to the underlying causes. Technological improvements are often undermined by increased usage, so-called rebound effects, as costs to consumers fall due to greater efficiency.

We must address the root cause of climate change: our addiction to fossil fuels. Tackling this will require a whole systems approach with energy demand reduction at its core. We should price properly for carbon whilst also ensuring a fair and just transition. Local areas should be enabled to plan and invest on an integrated long-term basis.

“We will continue to fail to change anything other than at the margins unless we fundamentally alter our whole mindset around what it means to design behaviour change interventions.”

Professor Jillian Anable, Greener Transport Council

What are the foundations of a new paradigm that would enable us to rise to the scale of the climate challenge?

“We need to move from treating people as consumers to treating people as citizens”.

Professor Peter Jones OBE, Greener Transport Council

Climate change is a global intergenerational problem requiring unprecedented levels of cooperation. The cumulative impact of decisions made for short term self-interest is putting huge strain on our ecological system and leading to irreversible changes. We need to think and act in a global long-term context. The key principle should be “equitable access to sustainable development”, with wealthy countries decarbonising more quickly than poorer ones (Stern).¹⁹

We need to develop equitable economic systems that shrink the world’s carbon footprint without also shrinking our quality of life. Prioritising growth according to its contribution to the 17 Sustainable Development Goals, which aspire to sustainably increase global prosperity, equality and well-being²⁰, would be better than strictly linear GDP growth. Pricing properly for carbon whilst also ensuring a fair and just transition is a fundamental building block.

Political expediency won’t get us to net zero. ‘Stealth strategies’ – trying to substitute low-carbon behaviours for high carbon ones without people noticing – are inherently self-limiting as by definition they do not make the case for change (Willis).²¹ The reasons for ecological policies are as important as the policies themselves and these need to be communicated clearly in order to build the mandate for change.

People will willingly shoulder a burden provided they share a common purpose and have a greater sense of social belonging (Marshall)²². We need a framework that provides a contract for shared participation. *I will if you will* described the “triangle of change”: progress depends on people, business and government acting together²³.

Solutions are more likely if climate change is seen as a collective problem. We must avoid polarization and ideological thinking. We should seek to promote intrinsic and “bigger than self” values (Common Cause)²⁴, and to foster the understanding that protection of nature is “protection of our very selves” (Naess)²⁵. The language of sacrifice and moralising won’t win public support.

“Not all environmental behaviour needs to involve sacrifice. So much of our transport is “performative”, such as business meetings that we need to be seen to attend but which would be much better online. The greener choice is often the better choice”.

Pathways to Net Zero Roundtable: Behaviour Change April 2022

Socrates once declared that “The unexamined life is not worth living”. We should avoid emotionally charged ideological evaluations and look at ourselves with a higher degree of detachment. (Elias)²⁶. We need to connect more deeply with our natural empathy and our respect for each other and all living species.

Anthropologist Gregory Bateson once asked how we might work towards "a sacred unity of the biosphere, with fewer epistemological errors". There would be no point in returning to more primitive times as this would involve the loss of the wisdom that prompted the return and would only start the whole process over.²⁷

As we consider how to construct a coherent response to the climate crisis in our fragmented, disordered and chaotic world, we would benefit from holistic thinking and being guided by an approach that seeks to create unity rather than division.



- I. **‘A sacred unity of the biosphere’** – we need a radical realignment of how we perceive ourselves in relation to others and the environment on which we depend. This will require the creation of fairer and more equitable economic systems that allow both humans and the environment to thrive.
- II. **Seeing the whole picture** – we need to become more honest and self-aware about our decision-making. Too often the lens through which we perceive is faulty. Are the assumptions underpinning our response to the climate crisis fit for purpose? What are we not seeing, or choosing not to see?
- III. **Integrating heart and mind** – we need to engage our emotional brains in climate change. The tendency to separate thoughts and feelings causes confusion and is destabilising. The ultimate goal is for the whole mind to be in balance with thoughts, feelings and intuitions working together in harmony.
- IV. **Healing the whole system** – we need to address the root causes of climate change: our addiction to fossil fuels. Too much attention is given to treating symptoms and not enough to the system. We need a whole systems transition. Pricing properly for carbon is a fundamental building block.
- V. **Citizens of One World** – we need to connect with our natural empathy and respect for each other and all living species. We should seek to promote intrinsic and ‘bigger than self’ values. Climate change is one issue that could bring us together and help us overcome our historic divisions.

[THE PILLARS OF UNITY](#)

In 2024 Greener Vision will spearhead a series of events to explore how to develop a response to the climate crisis that is commensurate to the scale of challenge. 'The Pillars of Unity' event series will explore how we might embrace more holistic thinking and develop an approach that creates unity rather than division. If you would like to receive information on the series, please sign up [here](#).

The Climate Imperative

"Climate breakdown has begun. Scientists have long warned what our fossil fuel addiction will unleash. Our climate is imploding faster than we can cope, with extreme weather events hitting every corner of the planet."²⁸

UN Secretary General Antonio Guterres

Record breaking heatwaves have hit much of continental Europe resulting in lethal flash floods and wildfires. We have seen devastating deadly floods in Libya, fires in Hawaii and typhoons in China. The catalogue of human tragedy grows ever longer. Pope Francis warns the world may be "nearing breaking point".²⁹

We are fast entering uncharted territory. 2023 looks set to be the warmest year on record³⁰. Unprecedented temperature anomalies in September have shocked the scientific community and been described as "absolutely gobsmackingly bananas"³¹. The UN's first comprehensive stocktake of global efforts to limit warming concluded that the world is headed for a temperature rise of up to 2.6°C³².

The world is currently way off track – but, crucially, we have the tools we need to halve emissions this decade and get on track for 1.5°C.³³ The Intergovernmental Panel on Climate Change (IPCC) have called for the "mainstreaming of climate action across society."³⁴ We cannot rely on clean technologies alone, a shift towards energy demand reduction is also needed. Reducing energy demand across all sectors could deliver a 40-70 per cent reduction in global GHG emissions by 2050³⁵.

There is potential to deliver significant savings by reducing energy demand, but politicisation can hinder the transition.

The 'gilet jaunes' in France successfully mobilised against attempts to increase taxes on fuel. In Germany the Alternative for Germany party successfully mobilised against a push to require installation of heat pumps. The recent report for the Green Alliance revealed "outright opposition" by some MPs to "the roll out of heat pumps or congestion charge zones", despite a general acceptance of net zero.³⁶

Following an unexpected win in the Uxbridge & West Ruislip byelection, which was defined by a fight over expanding London's ULEZ, UK Prime Minister Rishi Sunak declared that he is "on the side of the motorists". Ahead of the Conservative Party conference he announced a scale down of some of the government's biggest net zero commitments including plans to phase out the installation of new gas boilers and delaying a ban on the sale of new petrol and diesel cars and vans³⁷.

The decision has been criticised by businesses for putting the UK's future economic prosperity and energy security at risk and increasing costs of meeting net zero³⁸. Investors have warned that the sudden changes will damage inward investment³⁹.

The Climate Change Committee (CCC) conclude that the weakening of key decarbonisation policies will make the UK's climate targets harder to achieve and undermine its position as a global climate leader. The move risks hampering ambition at COP28 international climate negotiations in Dubai in November.⁴⁰

Transport is one of the hardest sectors to decarbonise, and where the least progress has been made.

Greener Vision has spearheaded two thought leadership programmes which sought to answer: *“What would be a credible and politically deliverable framework for the decarbonisation of transport that will deliver the necessary emissions reductions in the shortest time possible whilst mitigating any negative social impacts?”* [Annex I]

Since the question was first posed in 2020⁴¹, there has been a notable deterioration in the level of ambition on net zero in the UK. The key recommendation of the Greener Transport Council's Manifesto (2021) was that urgent focus must be given to traffic reduction⁴². In the run up to COP26, when the UK was setting out its stall as a climate leader, government policy included the aspiration for walking, cycling and public transport to be the “natural first choice”⁴³.

Speaking at a Greener Transport Solutions webinar in 2021 Chair of the Transport Select Committee Huw Merriman MP (now Rail Minister) spoke of the importance of modal switch from car to sustainable transport and of the need for government to seriously look at road pricing to fill a looming fiscal black hole as fuel duty receipts disappear with electrification of the fleet. *“If we don't do it now, we never will.”*⁴⁴

Two years later, the government's predominant narrative is on “ending the war on the motorist”. When comparing the Net Zero Strategy (2021) with the Carbon Budget Delivery Plan (2023) the most significant change is an increase in emissions from surface transport – a factor which is likely to be worsened following the publication of the government's Plan for Drivers which includes a clampdown on 20mph limits, bus lanes, low-traffic neighbourhoods (LTNs)⁴⁵.

Having praised the UK's Net Zero Strategy in 2021⁴⁶, the CCC were highly critical of the government for failing to deliver much tangible progress in their 2023 report to Parliament⁴⁷. “The government continues to place their reliance on technological solutions that have not been deployed at scale, in preference to more straightforward encouragement of people to reduce high-carbon activities.”⁴⁸

The risk is that electioneering will undermine public support for net zero. More than eight out of 10 people in the UK are concerned about climate change⁴⁹. However, Failure to inform and engage the public on the climate crisis could result in a 'vocal and unrepresentative minority' undermining net zero goals (Climate Outreach)⁵⁰.

What is clear is that far steeper GHG emissions reductions are required to avoid a future dominated by catastrophic impacts. This report investigates where decision making has become flawed and how our approach to tackling the climate crisis needs to change, starting with an honest appraisal of how we look at the problem.

1 Examining perceptions



Forms of Thought Part VI, 1994-2007

“Faulty perception is at the root of our suffering and much of the trouble in the world. If we can correct this perception the world will radically change. We need to examine ourselves, the filter through which we perceive the world. This leads to the recognition of our fundamental interdependence with each other and the biosphere.”

The Tabula Project, Examining Thought

Too often the lens through which we perceive is faulty. How we think is **inextricably linked to our sense of identity**, which is a product of our history, of our individual and collective experience. Our understanding of the world is heavily influenced by the prevailing paradigms and assumptions in our society. A key question is whether the assumptions underpinning decision making on climate change are fit for purpose.

Climate change exposes the **shortcomings of a rationalist view of the world**. Our society and its predominant structures originate from a time when the individual was understood to be separate from the world we inhabit. This mindset has led to the creation of economic systems which unsustainably plunder finite resources. We are using too much carbon to fulfil socially and culturally constructed needs and desires.

We need a **radical realignment** of how we perceive ourselves in relation to others and the environment on which we depend. Climate change is a threat to the global financial system, public health and national security and a massive and wide-ranging market failure. Failure to price properly for carbon supports unsustainable levels of consumption and grossly inefficient and counterproductive fossil fuel consumption subsidies. A strong, predictable and rising carbon price is needed.

We need a massive shift to clean technologies, but we must also reduce energy demand. This will **challenge some of the predominant forms of consumerism**. Achieving growth whilst decarbonising the economy is a central challenge as it will inevitably impact on lifestyles. There is momentum for clean growth, but a key question is whether it can really be part of a transition to a sustainable economy.

It is vital that we become **more honest and self-aware** about the rationale for our decision-making. Climate change is a “wicked problem” which we are poorly evolved to deal with as it exposes our tendency to see selectively only what we want to see based on our own values, assumptions and prejudices. We are part of the problem if we persist with the illusion that ‘business as usual’ will achieve net zero.

We need to find ways to effectively engage our emotional brains in climate change. Rational scientific data loses out against a compelling emotional story that speaks to people’s values. **Integration of thoughts and feelings** will be key. The division between the rational and emotional brain runs deep in our society and culture. Much of the way we live has been designed using an outdated model of how humans think, feel and behave.

- 1.1 Thinking is inextricably linked to identity**
- 1.2 Limitations of a rationalist world view**
- 1.3 The need for a radical realignment**
- 1.4 Challenging consumerism**
- 1.5 Greater honesty and self-awareness**
- 1.6 Integration of thoughts and feelings**

1.1 Thinking is inextricably linked to identity

How we think is inextricably linked to our sense of identity, which is a product of our history, of our individual and collective experience. Our understanding of the world is heavily influenced by the prevailing assumptions of our society.

In the age of mass information, it is important to recognise that it is not *what* we know, but *how* we know what we know that matters. The massive acceleration in our technological and scientific capabilities has not been accompanied by any real understanding of the implications. We are overloaded with data and information, and it is difficult even to know what we should focus on, what we should think. We are ill equipped to make the ever more difficult decisions we are faced with.

The ability to separate fact from fiction is an essential prerequisite for a both a healthy mind and a healthy society. Without a firm grasp on reality, a person is in a precarious situation. The consequences for institutions and whole societies are even more serious. When basic facts cannot be relied upon, decision making becomes flawed and our democracies are at risk. This imperative has come into even sharper focus in recent times with the concerning rise in populism and the development of a phenomenon described as 'post-truth', where judgements are based on emotions and beliefs rather than facts.

We may imagine that we see things as they are, but we are in fact laden with preconceptions and often unexamined assumptions which colour and influence our view of everything. As anthropologist Gregory Bateson observed "very few people seem to realize the enormous theoretical power of the distinction between what I 'see' and what is actually out there."⁵¹ Advances in behavioural science show that it is an illusion that we alone determine what we choose. Richard Thaler and Cass Sunstein coined the term "choice architect" for someone who "has the responsibility for organizing the context in which people make decisions".⁵²

Alfred Korzybski famously put forward the idea that "the map is not the territory"⁵³. No map shows all its presumed territory, and crucially it leaves out the map maker. S.H. Foulkes, one of the founders of group analysis, argued that no individual has a mind independent of the social process which produced it. The individual is "pressed into shape" by external forces.⁵⁴ The mind derives from the need to communicate, and language is the key ingredient. Anthropologist G.H. Mead showed how the mind and the self emerge from the social through language, through "the internalisation of a conversation of gestures"⁵⁵.

To understand knowledge, we need to know the characteristics of the groups which create and use it. This is a central tenet of Thomas Kuhn's seminal work *The Structure of Science Revolutions* which introduced the concept of the "paradigm"⁵⁶. All knowledge depends on preconceptions which may need to be examined or altered, or even rejected, if one wants to progress in any given field. A "paradigm shift" occurs when the prevailing paradigm is completely rejected and replaced by a new paradigm.

Too often the lens through which we perceive is faulty. Greater self-awareness is needed. It is easy for us to lead ourselves astray. A key question is whether our existing paradigm and the assumptions underpinning our decision making on climate change are fit for purpose. This question couldn't be more important as we struggle to construct a coherent response to our greatest existential threat that is commensurate with the scale of the challenge.

1.2 Limitations of a rationalist world view

Climate change exposes the shortcomings of a rationalist view of the world. “Our economy is based on the belief we can extract resources boundlessly, use them inefficiently, and discard them wantonly.” (Christiana Figueres & Tom Rivett-Carnac)

Our society and its predominant structures originate from a time when the individual was understood to be separate from, and often in opposition to, the world we inhabit. One result of this mindset can be seen in economic systems which lead to the unsustainable plundering of finite resources. In 1972, *The Limits to Growth*⁵⁷ argued that our civilisation is exhausting the resources upon which its continued existence depends.

The root cause of the climate problem is that we are using too much energy to fulfil socially and culturally constructed needs and desires, and fundamentally “the price of fossil fuels that produce that energy, and political and economic structures that keep us addicted to them”⁵⁸. Figueres and Rivett-Carnac show that we have 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 emissions⁵⁹.

Gregory Bateson said that the unit of survival should be the organism *plus* its environment. However, we have become hard wired to focus on that which will serve our immediate self-interests. He described as “purposive consciousness” a shortcut device to enable us to get what we want. Whilst this might be an effective means of satisfying our immediate urges and desires, it leads ultimately to a lack of systemic wisdom and is putting massive strain on our ecological system. By focusing on the “common sense” dictates of our individual consciousness we make decisions that are “greedy and unwise.”⁶⁰

“We won’t get to sustainability and zero carbon if we amble along in our old ways of doing things.”

The Future We Want Roundtable, October 2022

Our decision making is flawed when it ignores our interdependence with each other and the biosphere. In tracing the origins of current predominant paradigms Ralph Stacey and his team at the University of Hertfordshire identified broadly two streams of thinking. The first stream embodied by rationalist thinkers like Kant, Descartes and Freud - represents the mind as existing purely “inside” the individual, and society as something very much “outside” the individual. The second stream embodied by thinkers like Hegel, Mead, Elias - presents a perspective where the individual and the social cannot be separated⁶¹.

There is a growing recognition of the shortcomings of a rationalist view of the world. In his influential book in 1975 *The Tao of Physics* Fritzof Capra demonstrated the limitations of the mechanistic world view embodied by thinkers such as Newton and Descartes and pointed instead to a more fruitful holistic systems-based approach⁶². David Suzuki traces our current plight back to the Renaissance, we lost the idea that we were embedded as a strand of nature and placed ourselves at the top of a pyramid with everything else beneath us. This idea has strengthened since the Industrial Revolution but “it can be reversed.”⁶³

“When we forget that we are embedded in the natural world, we also forget that what we do to our surroundings we are doing to ourselves.”⁶⁴

1.3 The need for a radical realignment

“Climate change is the greatest and widest ranging market failure ever seen”⁶⁵ (Nicholas Stern). We need a radical realignment of how we perceive ourselves in relation to others and the environment on which we depend.

“We will continue to fail to change anything other than at the margins unless we fundamentally alter our whole mindset around what it means to design behaviour change interventions.”

Professor Jillian Anable, Greener Transport Council

Climate change is often mischaracterised as an exclusively environmental issue when it is a broader system threat to the global financial system, public health and national security⁶⁶. If governments are to engage properly with people on climate change, environmentalism needs to be linked more directly with the way the economy functions.

Rebecca Willis argues that a much clearer story of transformation and transition is needed to show how we can move away from a high carbon society to a post carbon future. Although concern about climate change is rising it is accompanied by ‘societal denial’ – a reluctance to think through the implications of this for politicians or social life⁶⁷. George Marshall argues climate change is not yet as central to many people’s concerns as economy, jobs, crime, war and is too closely associated with “cranky” environmentalists.⁶⁸

A fundamental reset of our relationship with our environment will be required if we are to tackle the climate crisis. We need solutions which address its root causes. For example, we need to price properly for carbon. The failure to do so runs through every sector of the economy and continues to support unsustainable levels of consumption and ongoing market failures, such as the massive fossil fuel consumption subsidies which diminish the incentive to use energy efficiently and switch to cleaner fuels.

“Carbon is the problem, so we must attack carbon directly. Telling people to use less carbon, trying to promote modal switch won’t affect change on the timescale needed. Carbon taxation will give us half a chance of getting the balance across different sectors correct.”

Professor Stephen Glaister CBE, Greener Transport Council

Dieter Helm describes “making polluters pay” as the single most radical and effective policy that could be adopted both for prosperity and for the environment⁶⁹. The costs of pollution should be integrated into every decision made by businesses and consumers. We should follow the “net environmental gain principle” to ensure we protect our natural capital. A strong, predictable and rising carbon price is needed. We must support divestment from fossil fuels and stop subsidising fossil fuels.

The Glasgow Climate Pact emphasized that phasing out of “inefficient” fossil fuel subsidies is a fundamental step towards a successful clean energy transition⁷⁰. However, the global energy crisis sparked by Russia’s invasion of Ukraine underscored some of the political challenges of doing so. The IEA estimates that global fossil fuel consumption subsidies doubled in 2022 from the previous year to an all-time high of USD 1 trillion⁷¹. Spending to bring down energy bills represents a significant fiscal burden for governments. These interventions have mostly been grossly inefficient and not at all well targeted, with low-income households receiving the same level of support as high-income households.

1.4 Challenging consumerism

We need a massive shift to clean technologies, but we must also reduce energy demand. This will challenge some of the predominant forms of consumerism and inevitably impact on lifestyles.

The central role of consumerism, mass marketing and advertising in our lives was famously described by Edward Bernays in 1928: “Mass production is only possible if its rhythm can only be maintained... Business cannot afford to wait until the public asks for its products; it must maintain constant touch through advertising and propaganda... to assure itself of the continuous demand which alone makes its costly plant profitable.”⁷²

Our minds are stimulated to consume goods and services. Robert Williams suggests that our minds have become machines for motivating our bodies. Desire, which Plato regarded as the heart of our inwardness, has been colonised by advertising, reduced to an instrument for stimulating consumerism. Our bodies have become machines for perpetuating the cycle of production and consumption. Williams argues that this has dramatically reduced the possibility of our holding an integrated position, of a coherent subjectivity⁷³.

Tim Jackson argues that the the tragedy of consumerism in not just that it is damaging the planet but that it is doing so in pursuit of false gods and elusive dreams. Consumerism entails handing over vast swathes of social life to material expression: a process driven... as much by the structural needs of the economy as it is by our own desires and needs, accelerated massively by advertising, marketing and the demand for economic expansion.⁷⁴

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

Delivering Net Zero Road Transport Roundtable, June 2023

Achieving growth whilst simultaneously decarbonising the economy is a central challenge. Moreover, pressures from climate change impacts will make growth ever harder to achieve. Jackson 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 be⁷⁵.

Better Growth, Better Climate: The New Climate Economy Report shows how structural and technological changes unfolding in the global economy combined with multiple opportunities to improve economic efficiencies provide all countries with opportunity to build lasting growth at same time as reducing massive risk of climate change. Key priorities include building more compact cities rather than urban sprawl, scaling up renewables, restoring degraded land and making agriculture more productive rather than continuing deforestation.⁷⁶

A report for the RSA surmised broadly three positions: business as usual growth; green or clean growth “a new model of capitalism”; and post-growth. 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.”⁷⁷ Raworth suggests a key task for policy makers is to come up with economic designs that would “enable nations coming towards the end of their GDP growth to learn to thrive without it.”⁷⁸

1.5 Greater honesty and self-awareness

“Greta Thunberg’s overarching demand is for us to close the gap between what we know about the urgency of the climate crisis and how we behave”⁷⁹ (Naomi Klein).

“When we are wilfully blind, there is information we could know, and should know, but don’t know because it feels better not to know.”⁸⁰ (Margaret Heffernan)

“Is the industry being honest enough with politicians about scale of challenge? We know it’s not just about demand management, the planning system, sustainable transport, digital etc. It’s about all those things and doing them now! Are we holding up the mirror so that leaders can make the urgent and necessary decisions?”

Pathways to Net Zero Roundtable: Politics & Local Delivery, March 2022

George Marshall demonstrates how we are poorly evolved to deal with climate change, which “exposes our talent for seeing only what we want to see, disregarding what we would prefer not to know”.⁸¹ Everyone converts climate change into stories that embody their own values, assumptions and prejudices. For example, they “cherry pick” evidence that supports their own existing beliefs, knowledge and attitudes (confirmation bias). These create a mental map “schema” which they modify to absorb new information (biased assimilation).

Climate change is a “wicked problem”: multi-faceted, incomplete, contradictory, constantly changing, complex. There is no point at which one has enough information to make decisions. Marshall quotes Daniel Kahneman who concluded “I see no path to success on climate change”: it lacks salience compared with more immediate threats that are concrete, immediate and indisputable; it requires that people accept short term costs and reductions in their living standards in order to mitigate higher but uncertain losses in far future; and it seems uncertain and contested⁸².

It is vital that we become more self-aware and honest about the rationale for our decision-making. Margaret Heffernan demonstrates how we actively choose to blind ourselves to seeing. “Wilful blindness begins not in deliberate choices to be blind, but in a skein of decisions that slowly but surely restrict our view.”⁸³ Wilful blindness is exacerbated by ideologies; narrow mental models that insist on simple solutions; excessive focus on pay; steep hierarchies, deep inequalities, ornate bureaucracies; targets, KPIs, whole managerial toolkits aimed at managing people like machines makes them as unthinking as machines.

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

Professor Greg Marsden, Greener Transport Council

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. Figueres and Rivett-Carnac argue that change of the magnitude required will not be possible while we are informed by the same state of mind that has been predominant in the past. To open the space for transformation we have to change how we think and who we perceive ourselves to be. Reductions on this scale will require a major transformation in almost every area our lives. “A shift in consciousness may sound grandiose to some, insufficient to others”.⁸⁴

1.6 Integration of thoughts and feelings

We need to find a way to effectively engage our emotional brains in climate change. The tendency to separate thoughts and feelings causes confusion and is profoundly destabilising.

“I find it really, really interesting the extent to which in an engineering culture psychological solutions are treated as if they are cheating. If you are an engineer, you can only solve problems through engineering because to do it any other way is basically seen as not playing the game. I think this happens when we get an increasingly siloed business culture.”

Pathways to Net Zero Roundtable: Behaviour Change April 2022

In *Descartes Error* Antonio Damasio explains how the brain and the body are mutually interactive biochemical neural circuits⁸⁵. He shows how emotions and feelings are intimately enmeshed. "The mind had to be first about the body, or it could not have been". This type of thinking marks a departure from the rationalist framework embodied by thinkers such as Kant, Descartes and Newton.

Reason is not pure, and feelings are not intangible. Feelings are just as cognitive as other precepts. The interdependence of thoughts and feelings is evidenced at a biological level. Candace Pert illustrates how our internal chemicals, neuro peptides and receptors, are the biological underpinnings of our awareness manifesting as emotions, beliefs expectations.⁸⁶

However, the division between the rational and emotional brain runs deep in our culture. Bateson describes it as “monstrous”⁸⁷. Tony Leiserowitz describes it as a “long cultural mistake”, “without that feeling of emotion, you cannot make good decisions”.⁸⁸ Seymour Epstein describes “analytical processing” and “experiential processing”.⁸⁹ Rational scientific data can lose against a compelling emotional story that speaks to people’s values.

“We don’t have SI units for human emotions. We have SI units for times and speed, and we can derive units for punctuality, but we don’t have SI units for anxiety!”

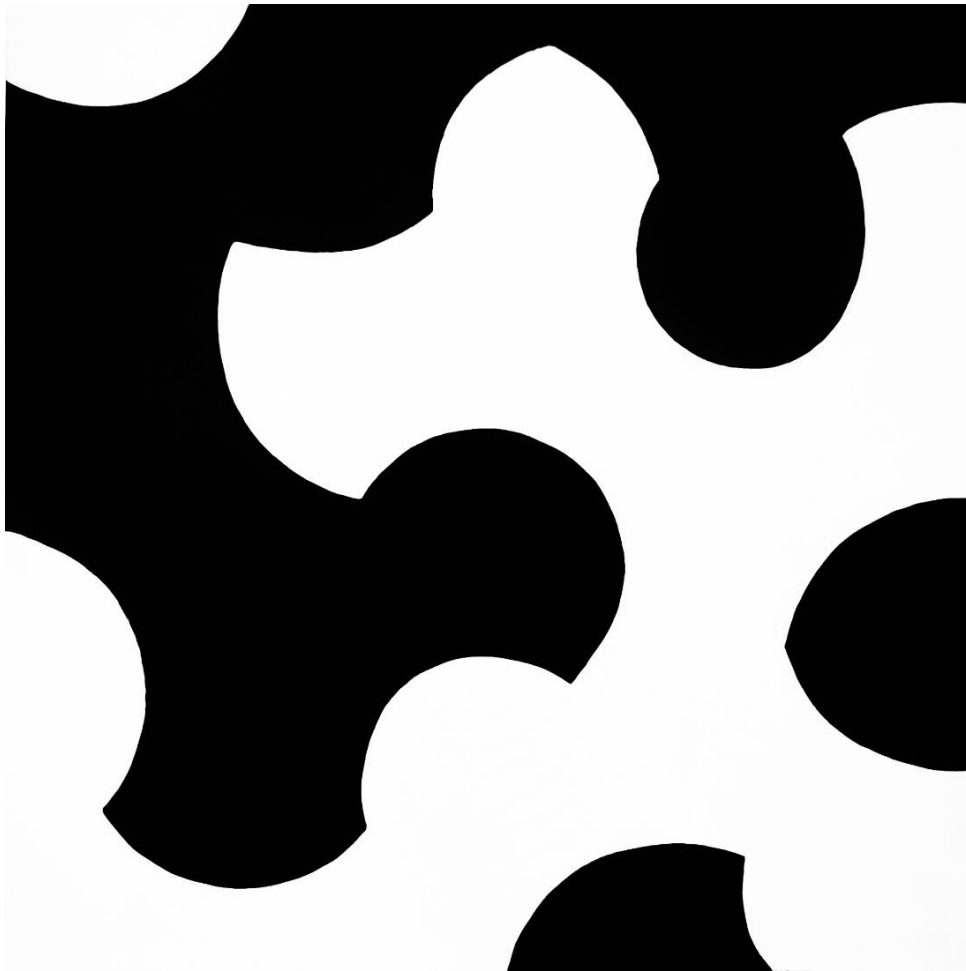
Pathways to Net Zero Roundtable: Behaviour Change April 2022

Pete Dyson and Rory Sutherland demonstrate how much of the way we live today has been designed using an outdated model of how humans think, feel and behave. They refer to the concept of a “homo economicus” who makes decisions using rational cost-benefit analysis in an environment of perfect trust, fully aware of all the available options, acting purely in their own self-interest. But outside of academia these conditions rarely exist. “If we want people to behave differently, it usually pays to first learn how they perceive the world, rather than lecture them on what the world is like and how it ought to be.”⁹⁰

“Not all environmental behaviour needs to involve sacrifice. So much of our transport is “performative”, such as business meetings that we need to be seen to attend but which would be much better online. The greener choice is often the better choice”.

Pathways to Net Zero Roundtable: Behaviour Change April 2022

2 Clearing obstructions



Tabula Rasa Part XVI, 1995-2015

“Our minds are often cluttered with repetitive thoughts that make it very difficult for us to be fully present. Managing the mind is a key skill, and this includes the discipline at times to be able to switch thought off. We need to discover the ability to live fully in the here and now. This is the pathway to true understanding.”

The Tabula Project, Clearing the Mind

We tend to focus on the wrong targets. GDP is not necessarily a good measure of what matters. **Flawed measurements distort decision-making.** Climate change should be framed in terms of managing immense risks. One legacy of Covid-19 should be an increased focus on risk and resilience in investment and appraisal. A net zero test for public policy would help ensure cross-government policy alignment.

Ideas have a self-fulfilling power of their own. When ideas go unexamined, they can become hard-wired habits and difficult to reverse. There is an assumption in government policy that electric cars will decarbonise transport whilst allowing us to continue our lifestyles. But any reductions in carbon from improvements to the efficiency of new cars and the roll out of electric vehicles have been largely offset by rebound effects, increased usage and the trend towards larger vehicles.

We must **address the underlying causes of problems.** ‘Predict and provide’ has been discredited as a strategy to reduce congestion.⁹¹ Too much road building also conflicts with net zero targets by inducing traffic. Pricing is one of the most effective ways to target the root causes of climate change, but the result of repeated failures of road taxation to cover externalities is that we over consume roads. Moreover, in lowering the cost of motoring, electrification will increase congestion.

The **biggest barriers to progress** on climate policy are political not technological. Government urgently needs to begin an honest debate with the public about the changes that we must all make in our own lives. A shift towards demand reduction is needed, requiring political leadership and a strong cross-party consensus. There is a need to develop the mandate for change and tough decisions for long term. Local leaders need consistent policy direction and messaging from central government.

We need narratives based on cooperation that invite us to accept our personal responsibility. **We must avoid polarization and ideological thinking.** This is seen in local transport debates. The disbenefits of car dependency are clear but too often the debate is centred on cars being ‘good’ or ‘bad’ and becomes alienating. The problem is not the car but too much car use. How can you encourage people to change their behaviour when they don’t have any other choices available to them?

The key conclusion of the **Pathways to Net Zero** series is that we need **a radical shift for decarbonising transport**⁹² We need a whole systems approach to net zero, with energy demand reduction at its core. We should price properly for carbon whilst also ensuring a fair and just transition. We must strengthen local delivery.

- 2.1 Flawed measurements distort decision-making**
- 2.2 Ideas have a self-fulfilling power of their own**
- 2.3 Address underlying causes of problems**
- 2.4 The biggest barriers to progress**
- 2.5 Beyond polarisation and ideological thinking**
- 2.6 A radical shift for decarbonising transport**

2.1 Flawed measurements distort decision-making

“What we measure affects what we do and if our measurements are flawed, decisions may be distorted” (Joseph Stiglitz). “GDP measures everything except that which makes life worthwhile” (Robert Kennedy).

Mark Carney warns 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. He says 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”.⁹³

Climate change should be framed in terms of the management of immense risks and that delay is dangerous. Stern says he would place less emphasis today than he did in *The Stern Review* 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 improving health and well-being, enhancing bio-diversity, creating jobs, reducing poverty, increasing resilience and the ability to adapt to climate change⁹⁴.

We must put an end to economic short-termism. The pandemic demonstrated the unpreparedness of the global economy to systemic shocks, despite early warnings from scientists. One legacy of COVID-19 should be increased focus on risk and resilience in appraisal and investment decisions. A net zero test for public policy would ensure cross-government policy alignment, that government sticks to the least-cost path to net zero, and that net zero is considered early enough in decision-making process.

“If there was a mandatory responsibility to deliver carbon reduction rather than numbers of housing – i.e. a legal requirement to deliver net zero in the NPPF – now that would be a real game changer!”

Pathways to Net Zero Roundtable: Planning, March 2022

Too often we focus on the wrong targets. GDP is not necessarily a good measure of what matters. The transport metrics we use of time savings skew policy towards road building and unsustainable transport policies. Funding for road building programmes⁹⁵ vastly exceeds funding for sustainable transport. Local leaders lack the powers and resources to plan on an integrated long-term basis and are often reliant on ad hoc project-based funding streams.

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

Delivering Net Zero Road Transport Roundtable, June 2023

Thaler and Sunstein call for a better system of incentives and feedback. “It helps to think about the environment as the outcome of a global choice architecture system in which decisions are made by all kinds of actors, from consumers to large companies to governments.” As a part of this system markets cause problems in two main ways. Firstly, incentives are not properly aligned – if people engage in environmentally costly behaviour they will probably pay nothing for the environmental harm they inflict. Secondly, people do not get feedback on the environmental consequences of their actions.⁹⁶

2.2 Ideas have a self-fulfilling power of their own

Policies and courses of action adopted for short term gain are often by default adopted for the long term and become rigidly programmed. We are governed by epistemologies we know to be incorrect, but which are nevertheless self-validating.

Bateson highlights the risks of extinction that arise by way of loss of flexibility. When ideas go unexamined, they can become hard-wired habits very difficult to reverse with sometimes disastrous consequences.⁹⁷ Climate policy is full of examples of rigid and ultimately self-defeating thinking. For example, there is a widely held assumption that electric cars (EVs) are the way to decarbonise transport and allow us to continue our current lifestyles.

“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”⁹⁸.

Professor Jillian Anable, Greener Transport Council

The primary focus of government policy on net zero is to reduce use of fossil fuels by more efficient end use technologies and changes in the fuel source to electrification and biofuels. However, any progress to improve efficiency of new cars and the switch to EVs has been largely offset by their increased use, and the tendency to larger vehicles. Road transport emissions are only 3% lower than in 1990⁹⁹ largely due to these rebound effects.

In their 2023 progress report Climate Change Committee (CCC) criticised the government for failing to deliver much tangible progress towards the UK's net zero targets. They have "markedly less" confidence in the UK's ability to meet its carbon budgets from the 2030s. "The government continues to place their reliance on technological solutions that have not been deployed at scale, in preference to more straightforward encouragement of people to reduce high-carbon activities." They conclude that "demand measures" must be prioritised.

When comparing the Net Zero Strategy (2021) with the Carbon Budget Delivery Plan (2023), the most significant change is an increase in emissions from surface transport. Looking ahead to 2030 and beyond CCC conclude, "we have gone backwards". They put this down to increased emissions from plug-in hybrids and the fact that Government has chosen not to include an estimate of emissions savings that could be achieved by reducing traffic.¹⁰⁰

Government is now doubling down on a technology led approach that over the past 30 years has delivered very little progress. The situation is now set to get worse. Under all scenarios traffic will grow. Simply replacing conventional vehicles with electric vehicles risks locking in car dependency. Moreover, in lowering the cost of motoring, electrification will increase car use and make mode shift harder to deliver.

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

Professor Greg Marsden, Greener Transport Council

In *Our Biggest Experiment*, Alice Bell laments how promises of future technologies too often obscure what should be done about the technologies of here and now.¹⁰¹ Energy demand reduction should be central. However, policy remains skewed to technological solutions.

2.3 Address underlying causes of problems

“What sort of habit of mind leads to paying too much attention to symptoms and too little to the system? Treating the symptom makes the world a safe place for the pathology, such as ‘curing congestion’ by building more roads!” (Gregory Bateson)¹⁰²

“Is government acting like a gambler or a steward when it comes to the question of future levels of road traffic?”

Professor Glenn Lyons, Greener Transport Council

‘Predict and provide’ has been discredited as a strategy to reduce congestion¹⁰³. Too great an emphasis on road building also conflicts with net zero targets by inducing traffic.

Speaking at a Greener Transport Solutions webinar 2021 Climate Change Committee Chair Lord Deben highlighted contradictions between achieving the goal of net zero and delivering the £27.4 billion road investment programme¹⁰⁴. Transport Select Committee has concluded there is a potential conflict between net zero and the roadbuilding programme and that DfT should prioritise strategic road maintenance over new road construction.¹⁰⁵

Pricing is one of the most effective ways to target the causes of climate change, but 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. Greener Journeys analysis showed that between 2011 to 2019 the fuel duty freeze caused a 5% increase in road traffic and an extra 5 million tonnes of CO₂¹⁰⁶.

In lowering the cost of motoring, electrification will increase congestion. If we electrify the fleet without sorting out how to transition away from fuel duty, road traffic could increase by an additional 30%¹⁰⁷. Greener Transport Solutions proposed a national road pricing scheme. 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 and vans. To be politically deliverable the scheme should be implemented in stages, with road users incentivized to opt in ahead of the charge becoming mandatory¹⁰⁸.

The switch to EVs should have provided the chance for an honest conversation about road taxation. Following its inquiry into Zero Emissions Vehicles and Road Pricing the Transport Select Committee highlighted that if the Treasury fails to act it will be left with a £35 billion black hole as receipts from fuel duty and VED disappear¹⁰⁹. However, current signs are that this opportunity will be missed. Moreover, neither of the main political parties has given any indication that they will end the freeze on fuel duty.

“I think the biggest problem with the subject for officials and politicians is that [road pricing] had become completely toxic by 2009. It has remained toxic but rather like a barrel of nuclear waste, buried, until very recently. And the idea that the politicians and the officials could lead any kind of public debate on this, it’s probably not going to happen. I just can’t see how they could do it.”

Pathways to Net Zero Roundtable: Pricing, March 2022

2.4 The biggest barriers to progress

The biggest barriers to progress on climate policy are political not technological. A massive shift towards demand reduction is urgently needed. The potential impact on living standards means that implementation of demand measures can be difficult.

“Is there any example out there of massive behaviour change that hasn't revolved around constraint and getting people to not do things? I struggle to think of one.”

Pathways to Net Zero Roundtable: Behaviour Change, April 2022

Reluctance to embrace demand measures is a big barrier to progress. A report for the Green Alliance concludes that whilst nearly all MPs see climate as a mainstream concern, they are increasingly concerned about how to manage the social, practical and political challenges of the net zero transition, even leading to outright opposition to proposals that MPs think might detrimentally impact their constituents such as the roll out of heat pumps or congestion charge zones.¹¹⁰

Energy demand reduction measures can be politicised. Election strategists have decided that the Prime Minister must present himself as “friend of the motorist”. The Plan for Drivers includes a clampdown on 20mph limits, bus lanes, low-traffic neighbourhoods. It also pledges to stop councils implementing 15-minute cities to “prevent schemes which aggressively restrict where people can drive”, a move which has been criticized for giving credence to the notion that these are a UN-led conspiracy to limit people’s ability to travel.¹¹¹

This is all a very far cry from the narrative in the run up to COP26 when the UK was setting out its stall as a leader on tackling climate change, and government policy included the aspiration for walking, cycling and public transport to be the “natural first choice”, with a target for half of all journeys in our towns and cities to be walked or cycled by 2030¹¹².

Speaking at a Greener Transport Solutions webinar in 2021 Chair of the Transport Select Committee Huw Merriman MP highlighted that the greatest challenge on net zero was having the political will to follow through on policies. However, he believed that road pricing could play an important role, and that the UK could provide an example for rest of world. *“If we are serious about net zero, as well as reducing obesity we have to embrace modal switch as well as electrification”*. Successive Governments have shied away from road pricing, but this Government has set ambitious net zero targets, has support from the public on net zero delivery and is facing a looming fiscal black hole as the fleet electrifies and fuel duty receipts disappear. *“If we don't do it now, we never will.”*¹¹³

The urgency of the climate problem requires political leadership. Cross party consensus needs to be robust to overcome tensions between short-term electoral politics and long-term climate change goals.¹¹⁴ There is a need to develop the mandate for change and tough decisions for long term. For local leaders this requires consistent policy direction and messaging from central government. Currently there are too many mixed messages:

“Cuts to Fuel Duty that hasn't even been raised in 12 years sends out really, really poor messages around this agenda. I would have thought cuts to bus fares would have been a lot better, cuts to rail fares would have been better. Bigger investment into active travel would have been better.”

Pathways to Net Zero Roundtable: Politics & Local Delivery, March 2022

“All our ambition to make things better is politicised by people with political mileage to make out of it...I’m pretty well sure I will lose my position because of the road pricing issue!”

The Future We Want Roundtable, October 2022

“I think we have to accept that potentially, politically you could end up being sacrificed by the electorate if they don't like what you are doing. But doing the right thing has to be at the forefront of what we do and that's why we have stuck to our guns with regard to our Low Traffic Neighbourhoods (LTNs) and our interventions to deprioritise motorists' needs in favour of active travellers' needs.... It's difficult. It's always challenging but it's worth the fight because you see the benefits.”

Pathways to Net Zero Roundtable: Politics & Local Delivery, March 2022

The Climate Change Committee (CCC) have said that the rate of emissions reduction each year needs to quadruple across all sectors of the UK economy, aside from electricity, over the next seven years, and that this now requires an urgent focus on demand measures¹¹⁵. “We are worried about the inertia. What is missing is the political leadership” (Chris Stark). The CCC previously calculated that 62 per cent of emissions reductions required between now and 2050 in the UK require some form of behaviour change be it through taking fewer car journeys, eating less meat and dairy, or reducing household energy demand.¹¹⁶

The UK Government has historically been reluctant to admit that behaviour change is a key pillar of the net zero transition. It has made it clear that it will not dictate to the consumer and will instead “go with the grain of consumer choice”¹¹⁷. However, surveys consistently show that public concern about climate change is rising¹¹⁸. Meanwhile research in January 2023 for the Behavioural Insights Team, also known as the “nudge unit”, revealed that nine out of 10 people want to live more sustainably in their lives but find it difficult. Their report sets out how to harness behavioural science to help “build a net zero society”.¹¹⁹

The nudge unit’s key message is that government needs to be bolder in creating supportive ‘choice environments’ in which green choices flourish. Their recommendations tend to be technocratic solutions that sit ‘upstream’ from the individual consumer or employee. The focus is on adjusting pricing mechanisms, business models, and infrastructure to make low-carbon choices accessible, affordable and easy. However, even these appear too intrusive for government, which has sought to distance itself from the nudge unit’s recommendations. “We have no plans whatsoever to dictate consumer behaviour in this way.”¹²⁰

Meanwhile many, including CCC, argue that government needs to be bolder in telling the public what it needs to do. The Environmental Audit Committee has drawn attention to a worrying lack of engagement. “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.”¹²¹ Public Accounts Committee highlighted “no plan” for how to replace income from fuel duty “or even a general direction of travel on levies and taxation”.¹²²

“Individual behaviour change alone is not going to deliver decarbonisation. We need big ticket interventions from government. The importance of behaviour change is to create space for government to act. People’s priorities are jobs, warm homes and to be able to get around.”

The Future We Want Roundtable, October 2022

2.5 Beyond polarisation and ideological thinking

We need narratives based on cooperation that invite us to accept our personal responsibility. We must avoid polarisation. This is demonstrated in discussion around local transport which too often can be alienating and self-defeating.

“There is a risk of polarisation on the climate debate. We need to make sure we don’t pour oil on the fire on issues that can become really divisive, such as LTNs. We need to bring people together. Co-creation is part of that. It takes longer but is well worth it.”

Pathways to Net Zero Roundtable: Behaviour Change April 2022

Geroge Marshall contends that “enemy narratives” adopted by both environmentalists and climate deniers is not helpful to addressing the climate crisis. “The battle for mass action will not be won through enemy narratives... We need to find narratives based on cooperation, mutual interests and our common humanity”.¹²³ Nowhere is this polarisation more evident than in debates around local transport issues where there are high levels of car dependency.

“The built environment has grown up very slowly over the last 200 years based on ability to travel through it using fossil fuels. Nearly all trips have their origin and destination within existing built environment. Fossil fuel mobility has allowed large choices of destinations. If you shrink down to revert to village living what you lose are the choices people value. We are habituated to high levels of choice and it is hard to pull away from that.”

Pathways to Net Zero Roundtable: Wider Economy, March 2022

Terence Bendixson wrote in 1974 that we use cars and trucks so much that “though they pinch like countless pairs of ill-fitting shoes we just shrug our shoulders. There seems to be no choice.” He lists many problems with our car dominated society across a spectrum of safety, cost, congestion. “Anxieties and discomforts of this kind are typical symptoms of our times. They are warnings that something central to daily living is out of order.”¹²⁴

The disbenefits of car dependency are clear. Car dominated sedentary lifestyles contribute to the obesity and loneliness epidemics. Air pollution largely from road traffic is linked to 40,000 early deaths a year¹²⁵. Too often public transport has lost out to the car, and this has heightened social deprivation. A 10% reduction in access to public transport is linked to a 3.6% increase in social deprivation¹²⁶.

However, too often debate is either on “ending the war on the motorist” or on how traffic is killing our towns and cities – on cars being either ‘good’ or ‘bad’. **“This polarisation is actually killing the debate.”** The problem is not the car but too much car use. We need to understand why people like and depend on their cars. The language of sacrifice won’t win public support. We must change the story from “travel less” to “lead a better life without needing to move around so much”. What would a sustainable aspirational lifestyle look like?

“The really bad thing about the car is not the car itself, it’s the fact that that once you own a car you become preternaturally reluctant to use any other form of transport... It’s the effect that owning a car has on your subsequent behaviour that needs to be addressed.”

Pathways to Net Zero Roundtable: Behaviour Change, April 2022

How do you encourage people to change their behaviour when they don't have any other choices available to them? Choice architecture often makes it too easy just to drive rather than travel by public transport i.e. car parked outside one's house instead of in a less convenient location. "The way we start a journey by car has a disproportionately path dependent effect on rest of journey". We need a better understanding of biases in decision making and how to improve choice architecture to encourage behaviour change.

That the car fleet size has more than doubled since Bendixson's book was published is a salutary reminder of just how difficult it is to shift the predominant car-based culture. New housing developments regularly lock in car dependency.¹²⁷ Progressive moves towards better designed cities have been hijacked by debates on ultra-low emission zones and LTNs. However, the debate should be about what a "healthier city" could look like with safer streets for women, less traffic, accessible walking and cycling and better public transport.

"No one is selling benefits of not owning a car. How do we create a vision and movement for this against the tide of our car dominated culture? How do we give a voice to the quarter of households without a car? How do we build a vision of greener less polluted communities?"

Pathways to Net Zero Roundtable: Behaviour Change, April 2022

Speaking at a Greener Transport Solutions webinar¹²⁸, Jamie Driscoll, Mayor of the North Tyne Unitary Authority, argued we need a transport system based around people. This was also the central message of a blog he wrote for Greener Transport Solutions.

"Imagine public transport so good that you'd rather not use your car."¹²⁹

Speaking at a Greener Vision roundtable event **Bridget Smith, the Leader of South Cambridgeshire District Council** said:

"We need to build communities where not only is car ownership unnecessary, but it is positively undesirable".

We need a vision for the future which can inspire more local leaders to move away from "car dominated" policy perspective to a "place-based" perspective, with greater emphasis on public realm, street activities and traffic restraint¹³⁰. But to achieve this will need compelling narratives that invite us to accept our personal responsibility and embrace collective efforts. And we need to overcome the forces of NIMBYism:

"Our experience is that everybody wants a new railway or an off-road bus route until it runs close to their homes. And everyone wants more buses but very few people will leave the comfort of their cars to use them. Everyone wants congestion to be reduced and air quality to be improved until they find out that road closures and congestion charging are the only ways to achieve that. And everyone wants more cycling and walking but they won't give up their road space and their car parks..."

"So, in a nutshell, our experience is that NIMBYism is actually the biggest barrier that we face when trying to drive mobile shift to sustainable transport and zero carbon living."

Pathways to Net Zero Roundtable: Politics & Local Delivery, March 2022

2.6 A radical shift for decarbonising transport

The central proposition of Greener Vision's Pathways to Net Zero series is that we need a whole systems transition to net zero and a radical shift in terms of how we think about decarbonising transport¹³¹.

“You might say I will no longer drive to Sainsburys and have my groceries delivered. But if your green beans still come from Kenya and your apples still come from South Africa and your tablet computer comes from China, you're still living in a globalised not a localised world, you just changed some of the peripherals around the local delivery mechanisms.”

Pathways to Net Zero Roundtable: Wider Economy, March 2022

We need a **whole systems approach** to transport decarbonisation that reflects the shift to digital connectivity, and the integration of transport with land-use planning, energy, green finance and trip generating sectors such as health, education and employment. A useful way to frame the challenge is the “improve – shift – avoid” framework. We can improve the vehicles, encourage modal shift, and reduce the need for travel. Peter Jones demonstrates that since transport is a derived demand, fundamental changes in travel behaviour depend on business model decisions taken in other sectors¹³².

“The missing part of the jigsaw, up to now, has been to develop strategies to avoid travel, both through reducing trip numbers and trip lengths. Here collaboration with the major trip generating sectors is essential.”

Professor Peter Jones OBE, Greener Transport Council

We won't get decisions coordinated across the economy the right way unless we price properly for carbon. Whilst prices and taxes should incentivize consumers to lower their carbon footprint, policy must ensure a fair distribution of cost and incentives. Getting the pricing of carbon right across the economy would also ensure that the right decisions from a net zero perspective become the most cost effective and politically acceptable.

“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 the immense advantage of carbon pricing is that it would generate new revenue which can be used to help redress unfairness”¹³³.

Professor Stephen Glaister CBE, Greener Transport Council

Glenn Lyons describes a 'triple access system', whereby one can combine transport with good land use planning and a very mature telecommunications system¹³⁴. The challenge in delivering this is how to overcome the silos of government nationally and locally. Too often local leaders lack the powers and resources to plan on an integrated long-term basis and are reliant on ad hoc project-based funding streams. Proper devolution, with secure long term funding settlements, is the only way to successfully deliver net zero locally.

“We must end the ridiculous ongoing cycle of beauty pageants which disables long term planning”.

Pathways to Net Zero Roundtable: Politics & Local Delivery, March 2022

“Focusing on the zero-carbon mile leaves us tending to “build” a huge unnecessarily redundant “system” that delivers zero emissions miles. Unless we start focusing on the GHG impact of that infrastructure we risk ignoring the biggest GHG impact in next decade.”

Pathways to Net Zero Roundtable: Wider Economy, March 2022

We must reduce demand for travel and avoid rebound effects. We must also reduce embedded carbon, minimise what infrastructure we build and make more efficient use of existing assets. Reducing energy demand would accelerate the transition to net zero, tackle the cost-of-living crisis and enhance our energy security.

“How about we focus on building radically more infrastructure for walking, cycling, micro mobility, and local sustainable transport? This would be a better way to decarbonize transport and deliver on social justice issues at the same time.”

Pathways to Net Zero Roundtable: Wider Economy, March 2022

A fair and just transition to net zero will involve building more infrastructure for walking, cycling and public transport. Our towns and cities would become more livable places free of congestion and air pollution, with more connected communities and better opportunities.

“How many elephants do you need in the room?”

God comes along and he says I think everybody should work closer to home so I’m going to give you the internet. So he gives us the internet and people keep commuting long distances and using the internet at the other end.

“So he thinks I’ve had enough of that, so he gives us the pandemic. Everybody has to work at home some people can’t. It goes on for long enough that we know now how it works and when it works.

“Now he’s saying that our energy in the future may not be that resilient, and it will be a lot more expensive and your pocket is going to be more empty. Everything is pointing towards the need to localize facilities. We have to plan for phygital mobility – physical and digital. You can’t separate the two in 2022.”

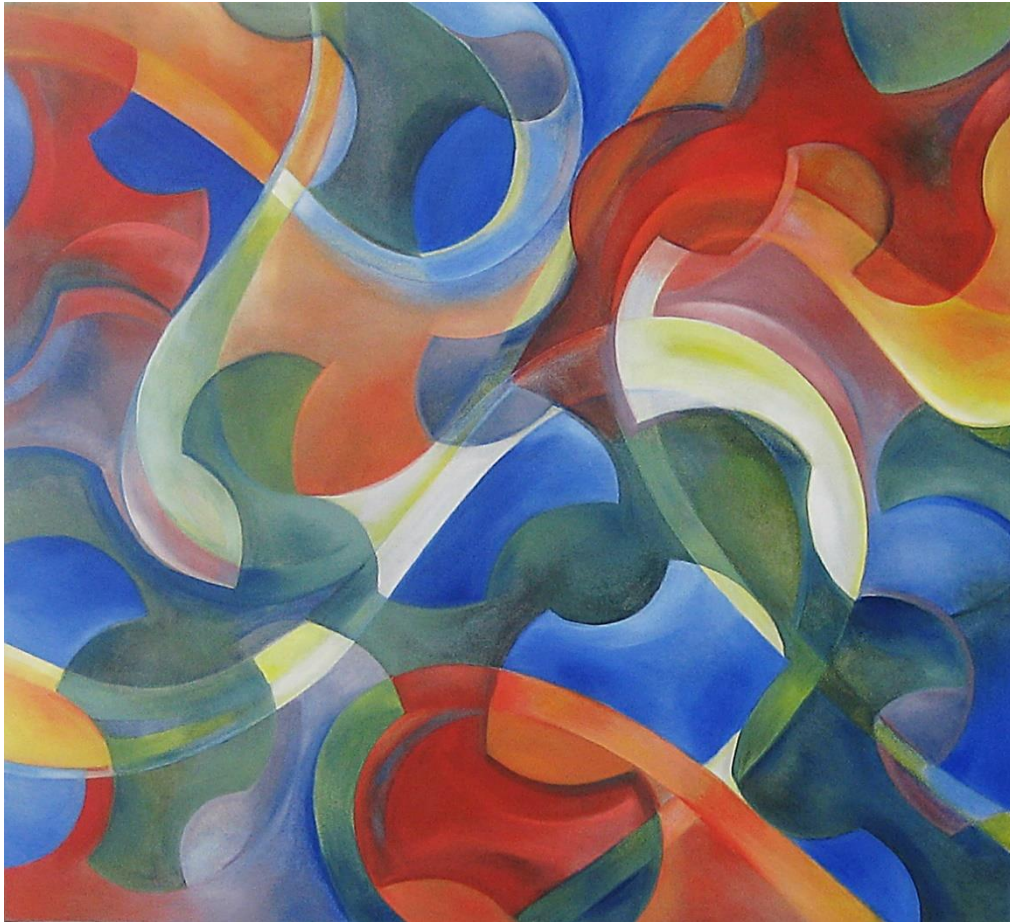
Pathways to Net Zero: Planning, March 2022

FIVE KEY PRINCIPLES

Pathways to Net Zero series of roundtable events was chaired by leading academics on the [Greener Transport Council](#), an independent group of experts focused on accelerating the decarbonisation of transport and fair and just transition to net zero. Building on the findings of the series they recommend five key principles for net zero and decarbonising transport:

- 1. We need a whole systems approach.**
- 2. We must reduce energy demand.**
- 3. We should price properly for carbon.**
- 4. We must ensure a fair and just transition.**
- 5. We must strengthen local delivery.**

3 Building a new paradigm



Building a New Framework Part IX, 2011-2014

“The goal is a new integrated framework for thought. The whole mind is in balance, with thoughts, feelings and intuitions working together in harmony. The mind becomes a tool at our disposal. Free from incessant thoughts we can become open to new insights and will eventually be able to reach a place of enlightenment.”

The Tabula Project, Building a New Framework

Political expediency won't get us to net zero. The reasons for climate policies are as important as the policies themselves and need to be communicated clearly and consistently. People need to be appealed to as citizens rather than consumers and encouraged to **do the right things for the right reasons**. Co-creation is important. Solutions are more likely if climate change is seen as a collective problem.

The cumulative impact of decisions made for short term self-interest is putting huge strain on our ecological system and leading to irreversible changes. We need to **think and act in a global long-term context**. We are wired to focus on immediate self-interests, but the net result is a lack of systemic wisdom. The key principle for moral and practical reasons must be "equitable access to sustainable development", with wealthier countries decarbonising more quickly than poorer ones.

What are the **foundations of a new paradigm** that would equip us to respond properly to the climate crisis? We need to use our ingenuity and creativity to develop economic templates that shrink the world's carbon footprint without also shrinking our quality of life and with a fair and just transition at their heart. We should prioritize growth according to its contribution to the Sustainable Development Goals rather than strictly linear GDP. Pricing properly for carbon is a fundamental building block.

We must **prioritise cooperation over competition**. Progress on climate change depends on enabling people to act together. What is needed is a coherent policy framework that provides a contract for shared participation. We should seek to promote intrinsic and "bigger than self" values, and to foster the understanding that protection of nature is protection of our very selves.

Socrates once declared that "**The unexamined life is not worth living**". If we are to address our most serious problems, we need to avoid emotionally charged ideological evaluations and look at ourselves with a higher degree of detachment. The relationship with the self can be challenging. We need to connect more deeply with our natural empathy and our respect for each other and all living species.

There is a balance to be struck between denying the reality and urgency of the climate crisis and paralysing doom-mongering. Given the scale of the challenge, how do we empower ourselves? We can **learn to see better**. "We make ourselves powerless when we choose not to know. But we give ourselves hope when we insist on looking."¹³⁵ (Heffernan)

- 3.1 Do the right things for the right reasons**
- 3.2 Think and act in a global long term context**
- 3.3 Foundations of a new paradigm**
- 3.4 Prioritise cooperation over competition**
- 3.5 The unexamined life is not worth living**
- 3.6 Learn to see better**

3.1 Do the right things for the right reasons

Political expediency won't get us to net zero. Public buy-in is essential. The reasons for climate policies need to be communicated clearly and consistently. The changes needed are so profound that the way we live in 2050 will be very different to today.

“We need to move from treating people as consumers to treating people as citizens”.

Professor Peter Jones OBE, Greener Transport Council

There is currently a disconnect between public support for tackling climate change, which is generally high¹³⁶ and a low understanding of the changes people need to make in their own lives which is low. If the public does not trust proposed policies, it can 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 can react to measures it doesn't perceive to be fair.

There is also the risk that green policies can be politicised and blown up into black and white issues really quickly, as the fallout following the recent expansion of the London ULEZ demonstrates. ULEZ is principally a health measure and was originally developed by a Conservative Mayor. But parts of the right are mobilizing to slow down the path to net zero, with the Conservatives sensing a narrow path to victory in the next UK general election.

Solutions come about if we see climate change as a collective problem. There is a growing view that people should be at the heart of designing climate policies (Climate Assembly UK)¹³⁷. Rebecca Willis argues for a more deliberative model of democracy in which politicians, citizens and experts debate and collaborate on climate strategies. 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.¹³⁸

Political expediency is self-defeating. Willis argues that ‘stealth strategies’ – trying to substitute low-carbon behaviours for high carbon ones without people noticing – are inherently self-limiting as by definition they do not make the case for change.¹³⁹ Bateson argued that the reasons for ecological policies are as important as the policies themselves and these need to be communicated clearly to people. Otherwise, politicians will struggle to gain the mandate they need to take future difficult decisions¹⁴⁰.

“People need to feel they have agency. There is currently a disconnect. People don't believe that there is much they can do, perhaps just cycle a bit more. They feel they have a low level of political efficacy, and don't think that they have the power to change things. They don't have high trust in our institutions, but they recognise that change needs to come centrally”.

The Future We Want Roundtable, October 2022

Research commissioned in 2021 by BEIS and Defra found that 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. It is important to focus on clear, shorter-term, manageable actions, and for feedback mechanisms to leverage social norms and rewards. There is an “imperative to have strong and united political leadership delivering a clear and consistent message on the actions that will get us to net zero”.¹⁴¹

3.2 Think and act in a global long term context

The cumulative impact of decisions made for short term self-interest is putting huge strain on our ecological system and leading to irreversible changes. Insights from the complexity sciences might help us to begin to envisage a more sustainable world.

Bateson asked how we might work towards "a sacred unity of the biosphere with fewer epistemological errors". He emphasised that there is no point in returning to more primitive times as this would involve the loss of the wisdom that prompted the return and would only start the whole process over.¹⁴² Ervin Lazlo argues that the modern world is unsustainable, and that we urgently need to think and act in a global context with a long-term horizon.¹⁴³

Climate change needs to be understood as a global intergenerational problem requiring unprecedented levels of cooperation. In the words of Figueres and Rivett-Carnac, "Faced with the ultimate scarcity, we must internalise the new zero-sum (either we all win, or we all lose) and apply a mindset of abundance to that which we have left and that which we can co-create and share."¹⁴⁴ Lazlo pointed to the obsolescence of beliefs such as: the "law of the jungle", the "invisible hand" and "a rising tide lifts all boats"¹⁴⁵.

The challenge for the world is to get onto a sustainable consumption path. Solutions must have equity and social justice at their heart. Overall demand must go down, whilst ensuring that the poorest in society and developing countries are not disadvantaged. The key principle for both moral and practical reasons should be "equitable access to sustainable development", with wealthier countries decarbonising more quickly than poorer ones.¹⁴⁶ Stern suggests a promising way forward is to base cooperative action around notion of "equitable access to sustainable development."¹⁴⁷

Two decades ago, Aubrey Meyer formulated the principle of "contraction and convergence" whereby rich countries reduce their emissions first. It was conceived as a mechanism for getting global agreement on the reduction of greenhouse gas emissions based on two principles: that GHG must be progressively reduced; and that global governance must be based in justice and fairness.¹⁴⁸ Regarding second principle, emissions of GHG must be based in an equal per capita allowance. Sadly, little progress has been made.

UN Secretary General Antonio Guterres has said "There is clearly a breakdown in trust between North and South, between developed and emerging economies"¹⁴⁹. Rich countries have still not kept their 2009 pledge to provide \$100 billion annually in climate finance and are yet to operationalize the loss and damage fund agreed at COP27. The net result of a myopic focus on self-interest on a global level is a lack of systemic wisdom. How do we move beyond this tendency? Applying insights from the complexity sciences to human behaviour and might help us to begin to envisage a more cooperative and sustainable world.

Complexity understands the world in terms of organic holistic systems. Stuart Kauffman suggests that self-organization is the root source of order. "Order is free, it just happens". He points to the importance of cooperation over competition, creating a state of dynamic equilibrium. How do we avoid potential catastrophic consequences? Kauffman suggests all we can do is "be locally wise, even though our own best efforts will ultimately create the conditions that lead to our transformation to utterly unforeseen ways of being".¹⁵⁰

3.3 Foundations of a new paradigm

Our current paradigm is fundamentally unsuited to the big challenges we face. What are the building blocks of a new paradigm that would equip us to respond adequately to challenges such as the climate crisis, biodiversity loss and global poverty?

“A deliberately regenerative Anthropocene”. David Attenborough says the “Garden of Eden is no more”. Figueres and Rivett-Carnac say this is why we now have to create a “Garden of Intention”¹⁵¹. Raworth describes today’s economy as divisive and degenerative by default but says that tomorrow’s economy must be distributive and regenerative by design.¹⁵² Jackson suggests that applying our limitless ingenuity and boundless imagination to this challenge is the foundation for an endlessly creative endeavour.¹⁵³ Ken Wilber argued for a basic moral intuition to “protect and promote the greatest depth for the greatest span”¹⁵⁴

“Wicked solutions” can accelerate change. Climate change is often described as a wicked problem, but The Centre for Alternative Technology shows how zero carbon technologies are also non-linear and contain an emerging array of feedbacks which accelerate the scale and speed of deployment. This is evidenced in falls in costs of solar panels faster than even experts predicted. Delivering zero carbon future also holds potential to improving health and wellbeing; enhancing biodiversity; creating jobs; reducing poverty; stabilizing economy; increasing resilience and ability to adapt to climate change.¹⁵⁵

An economic template that radically shrinks the world’s carbon footprint without also shrinking our quality of life. The task is to design an economy that allows humans and the environment to “thrive” (Raworth), where we can experience true “prosperity” (Jackson). Raworth 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.¹⁵⁶ She uses the phrase ‘public luxury and private sufficiency’.¹⁵⁷ Jackson defines prosperity as our ability to flourish within the ecological limits of a finite planet¹⁵⁸.

A fair and just transition must be at the heart of change. The climate crisis “demands collective action on an unprecedented scale and a dramatic reigning in of the market forces that created and are deepening the crisis”.¹⁵⁹ Naomi Klein suggests that climate change could become a catalysing force for positive change¹⁶⁰. Moving away from an economic system that prioritises strictly linear GDP growth doesn’t have to mean our lives will be less worthwhile. Prioritizing growth according to its contribution to the Sustainable Development Goals would be a better place to start. These 17 interconnected goals aspire to sustainably increase global prosperity, equality and well-being.¹⁶¹

Pricing properly for carbon is a fundamental building block. Studies show the overall impact of a carbon tax doesn’t need to be regressive. Whilst it would lead to higher prices, its revenue can be returned to households in ways that promote progressivity.¹⁶² Greener Vision has proposed a universal carbon allowance funded by putting a carbon price on everything we consume¹⁶³. The policy would incentivize people to reduce their energy use and would include a package of energy efficiency measures including help for poorest households to insulate their homes.¹⁶⁴ Individuals on higher incomes would pay more in carbon tax through all the goods and services they buy but receive the same fixed allowance as those on lower incomes. Higher income households consume three times more carbon than lower income households¹⁶⁵.

3.4 Prioritise cooperation over competition

“We are human because our ancestors learned to share their food and their skills in an honoured network of obligation.” (Richard Leahy)¹⁶⁶ Climate change is an issue that could bring us together and help us overcome our historic divisions.

It is sometimes suggested that anthropogenic climate change is an example of the “tragedy of the commons”, that we are doomed to maximise our personal benefit from a common resource even when we know it will lead to ultimate destruction¹⁶⁷. But noble prize-winning author Elinor Ostrom refers to innumerable ways people collectively manage resources (trust, shared vision, grass roots). She argues that people will sustain and even improve shared resources providing that there is free communication, a shared vision, a high level of trust, and a mobilisation of participating communities from the bottom up.¹⁶⁸

The seminal report *I will if you will: towards sustainable consumption*¹⁶⁹ shows how on key environmental issues progress depends on enabling people to act together. People are often “locked in” to unsustainable consumption patterns through perverse incentives, economic constraints, institutional barriers or inequalities in access that actively encourage unsustainable behaviours. There is a gap between their attitudes, which are often pro-environmental, and behaviours. The report describes a ‘**triangle of change**’ whereby people, business and government work together in a supportive framework for collective action. Government creates the right regulatory framework. Choice-editing by retailers and manufacturers gets high carbon impact products off the shelves and low impact onto them.

George Marshall argues that people will willingly shoulder a burden – even one that requires short term sacrifice against uncertain long-term threats – provided they share a common purpose and are rewarded with a greater sense of social belonging. However, people require proof that others are contributing before they themselves will act¹⁷⁰. “Conditional cooperation” has deep roots. Robert Cialdini demonstrates that reciprocation is one of the key drivers of human behaviour¹⁷¹. What is needed is a coherent policy framework that provides a contract for shared participation. Mayer Hillman argued for a “conservation gains principle”, rewarding those whose lifestyles make a low impact on the environment.¹⁷²

Whilst bolder leadership is needed from political and business leaders, active engagement of the public is needed. Common Cause Foundation¹⁷³ is based on the belief that challenges like climate change, global poverty and biodiversity loss require us to promote intrinsic and “**bigger than self**” values. People’s decisions are driven by the values they hold frequently unconsciously and to the exclusion of the facts. *Common Cause* distinguishes between intrinsic or self-transcendent and extrinsic values or self-enhancing values. Appealing to extrinsic motives merely reinforces mindsets that cause problems like climate change.¹⁷⁴

Personal reward for climate action would come from an intensified sense of belonging and satisfaction that comes from contributing to a shared project. Arne Naess uses the term “**ecological self**” to describe the wider sense of identity that arises when our self-interest includes the natural world. “Unhappily, the extensive moralizing within the ecological movement has given the public the false impression that they are being asked to make a sacrifice – to show more responsibility, more concern and a nicer moral standard. But all of that would flow naturally and easily if the self were widened and deepened so that protection of nature was felt and perceived as protection of our very selves.”¹⁷⁵

3.5 The unexamined life is not worth living

How far and under what conditions are people capable of facing themselves? "The true value of a human being is determined primarily by the measure and the sense in which he has attained to liberation from the self."¹⁷⁶ (Albert Einstein)

Socrates once declared that "The unexamined life is not worth living"¹⁷⁷. If we are to rise to the challenge of addressing our most serious social, environmental and systemic problems we cannot avoid looking at ourselves. In his book *Violence: Our deadly Epidemic and its Causes* James Gilligan argued that the tragic flaw of civilization is its "Puritanical kind of moralism and punitiveness, which is generated by the illusion that 'we' have a monopoly on the knowledge of good and evil."¹⁷⁸

Norbat Elias suggested that we avoid emotionally charged ideological evaluations and polarizing notions of good evil. He recommended that we look at ourselves with a higher degree of detachment, to take a "detour via detachment".¹⁷⁹ Mead argued that organised custom represents what we call morality. He said that there is a link between morality and pragmatism, whereby a moral act is a social act that addresses wider interests¹⁸⁰. Is there a moral code that goes beyond the "enlightened self-interest" morality of organised custom?

Greater compassion and understanding are needed. Meister Eckhart, the non-dual Christian mystic sage of the 12th century, wrote that "a really perfect person is dead to self". We need to make a deeper connection with our natural empathy, and our respect for each other and all living species. The sense of self may make sense to our intuition, and on an experiential level, but the notion of the "self" is an assumption fraught with difficulty. Louis Zinkin argued that the very act of self-knowledge produces self-estrangement¹⁸¹.

The relationship with the self can be challenging, but the self does have a purpose. Bateson described it as a ladder, useful in climbing but to be thrown away at a later stage¹⁸². In developmental stages the self is an aid to negotiating early relationships and to learning. Ultimately however it becomes a limitation to understanding. Bateson describes "Learning III" as an advanced stage of learning whereby the self, "is no longer a nodal argument in experience". At this point personal identity merges into the vast ecology.¹⁸³

Robert Kegan describes different orders of consciousness. As we transition through these levels, we transcend previous constructions and co-constructions. At the highest order, we understand that "the self" is incomplete. We recognise the self as a process of form creation; we understand that conflict arises from the over identification with a single system. We also recognise relationships as prior to and constitutive of the individual self. Kegan emphasises that the key is to identify with "the transformative process of becoming rather than formative products of our becoming."¹⁸⁴

Ken Wilber describes the journey to enlightenment as a process whereby at each level the 'observing self' sheds an exclusive identity with a previous lesser or shallower dimension. "Non-dual awareness is the ultimate goal".¹⁸⁵ Guy Claxton suggests that the more the self is involved, the more cautious consciousness must be for fear of getting it wrong. He encourages us not to actively think, but rather to bear the problem or question in mind. "Truth waits for eyes unclouded by longing".¹⁸⁶

3.6 Learn to see better

“We make ourselves powerless when we choose not to know. But we give ourselves hope when we insist on looking.” (Margaret Heffernan)¹⁸⁷

“Hope is not the same thing as optimism. It is not the conviction that something will turn out well but the certainty that something makes sense regardless of how it turns out” (Vaclav Havel)¹⁸⁸

There is a balance to be struck between denying the reality and urgency of the climate crisis and paralysing doom-mongering. Greta Thunberg contends “hope is not something that is given to you, it is something that you have to earn, to create... Hope is taking action. It is stepping outside your comfort zone.”¹⁸⁹ Alice Bell suggests that “perhaps hope is the courage to persevere when winning looks hard.”

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

Professor Glenn Lyons, Greener Transport Council

There was discussion at the June 2023 Pathways to Net Zero roundtable about how we should respond to the sheer scale of the climate crisis. What, given all the challenges, is achievable? Might it be better to achieve less than we want than to fail completely? If we can just do the best we can and work with the tools we have at our disposal, do we need to accept that is the best we can do? Or is there space for a more radical and ambitious realistic prognosis for the future?

Several participants indicated that we need to start embracing more radical thinking and approaches to net zero. We need new ideas. We are already witnessing seeds of change. The disconnect between 40- to 50-year-olds and 20-year-olds is massive. Generation Z predominantly don't want to own a car. They want access, ownership less key.

There was no suggestion that we should ban cars. Simply to think properly about long-term sustainable alternatives incorporating a much more shared approach to the use of vehicles and infrastructure. A straight switch to EVs is not the right solution for many areas as congestion is a big issue blighting many places, and EVs also create a degree of pollution.

“We need to bring in younger futurologists!”

Delivering Net Zero Road Transport Roundtable, June 2023

What can we do? How do we empower ourselves? George Loewenstein says “there is a very narrow window between not believing that the problem is happening at all and being so afraid that you are immobilised”¹⁹⁰. Hope is a vital ingredient. Alice Bell suggests that hope is accepting “what is unlikely is possible, just as what is likely is not inevitable”. Heffernan invites us to “learn to see better.”

“As all wisdom does, seeing starts with a few simple questions: What could I know, should I know, that I don't know? Just what am I missing here?”

The Pillars of Unity

"The dominant spirit of our epoch is already recognisable although its form is not yet clearly defined. The old dualistic world-concept which envisaged the ego in opposition to the universe is rapidly losing ground. In its place is rising the idea of a universal unity in which all opposing forces exist in a state of absolute balance. This dawning recognition of the essential oneness of all things and their appearances endows creative effort with a fundamental inner meaning. No longer can anything exist in isolation."¹⁹¹

Walter Gropius, founder of the Bauhaus School, 1923

The guiding principle of the Bauhaus School¹⁹² was the idea of creating a new unity through the welding together of many arts. A century later as we contemplate how to construct a coherent response to the climate crisis commensurate with the scale of the challenge, we would benefit from being guided by principles that support unity:

- I. **'A sacred unity of the biosphere'**¹⁹³ – we need a radical realignment of how we perceive ourselves in relation to others and the environment on which we depend. This will involve the creation of fairer and more equitable economic systems that allow both humans and the environment to thrive.
- II. **Seeing the whole picture** – we need to become more honest and self-aware about the rationale for our decision-making. Too often the lens through which we perceive is faulty. Are the assumptions underpinning our response to the climate crisis fit for purpose? What are we not seeing, or choosing not to see?
- III. **Integrating heart and mind** – we need to engage our emotional brains in climate change. The division between the rational brain and emotional brain runs deep in our culture and our society. The ultimate goal is for the whole mind to be in balance with thoughts, feelings and intuitions working together in harmony.
- IV. **Healing the whole system** – we need to address the root causes of climate change: addiction to fossil fuels. Too much attention is currently given to treating symptoms and not enough to the system. We need a whole systems transition. Pricing properly for carbon is a fundamental building block.
- V. **Citizens of One World** – we need to connect with our natural empathy and respect for each other and all living species. We should seek to promote intrinsic and “bigger than self” values. Climate change is one issue that could bring us together, nationally and internationally, and help us overcome our divisions.

ANNEX I: Thought Leadership 2021-23



Greener Vision (formerly **Greener Transport Solutions**) spearheaded two thought leadership programmes to answer question first posed at the [Transport Knowledge Hub: Decarbonising Transport](#) event in 2020:

*“What would be a **credible** and **politically deliverable** framework for the decarbonisation of transport that will deliver the necessary emissions reductions **in the shortest time possible** whilst **mitigating any negative social impacts**?”*

• RISING TO THE CHALLENGE | 2021

Publications

- [Rising to the Challenge: Achieving net zero will require new thinking, creative solutions and systemic change, March 2021](#)
- [Recharging Britain’s Roads Policy, Supplementary Written Evidence for Transport Select Committee Inquiry, April 2021](#)
- [A Manifesto for Decarbonising Transport, September 2021](#)

Events: **Three webinars** were held in 2021 attended by **600+ participants** with keynotes from Climate Change Committee Chair Lord Deben, Transport Select Committee Chair, Huw Merriman MP, and Mayor of North Tyne Jamie Driscoll.

- [Not the journey but the destination: how our whole economy needs to change](#)
- [How the Government can support technical and policy solutions to encourage people to make lower carbon travel choices](#)
- [The role of localism in ensuring a fair and just transition to net zero](#)

• PATHWAYS TO NET ZERO | 2022-2023

Publications

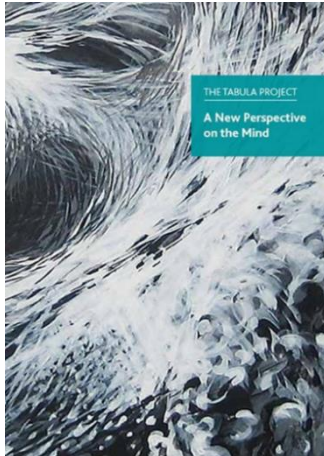
- [Pathways to Net Zero: Building a framework for systemic change, March 2022](#)
- [Pathways to Net Zero: Report on a Roundtable Discussions Series, June 2022](#)
- [Pathways to Net Zero: A Greener Vision, September 2022](#)
- [Pathways to Net Zero: Report on Roundtable Discussion – Hasta La Vista, Carbon! November 2022](#)
- [Pathways to Net Zero: Report on Roundtable Discussion – The Future We Want November 2022](#)
- [Pathways to Net Zero: A Series of Reports & Roundtable Discussions in 2022, December 2022](#)
- [Pathways to Net Zero: Report on Roundtable Discussion – Delivering Net Zero Road Transport, June 2023](#)

Events: **Eight roundtables** were held in 2022/23 attended by **110+ stakeholders** incl. academics, local politicians, businesses, environmental /user groups. Sessions were chaired by the leading academics on the Greener Transport Council.

- [Pathways to Net Zero – Roundtable Discussion Series 1, March 2022](#)
Wider Economy | Pricing | Planning | Politics & Local Delivery | Behaviour Change
- [Pathways to Net Zero – Roundtable Discussion Series 2, October 2022](#)
Hasta La Vista Carbon! | The Future We Want
- [Pathways to Net Zero – Delivering Net Zero Road Transport, June 2023](#)

ANNEX II: The Tabula Project 1993-2023

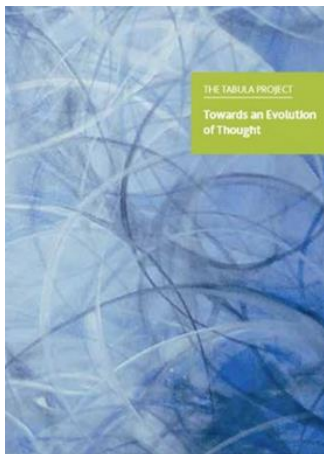
The overall objective of [The Tabula Project](#) is to provide a new perspective on the mind. The paintings depict states of consciousness and thought, and the development of the project is informed by extensive research.



[The Tabula Project: A New Perspective on the Mind](#) describes the development of the paintings and how they relate to different states of consciousness and thought.

The level of threat we live with is greater than ever, but the mindset that got us into this predicament won't get us out of it. If we want to change behaviours we need to change the premises which led to them.

We need a shift in consciousness away from one where we are narrowly focused on individual desires, to one where we operate from a higher level of consciousness, at one with our society, our environment and the world around us.

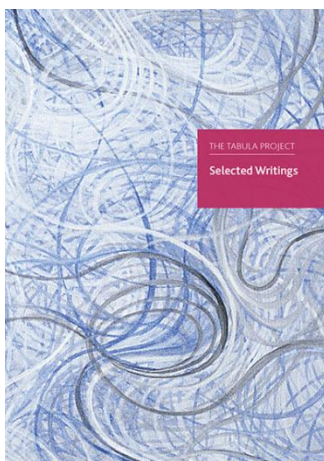


[The Tabula Project: Towards an Evolution of Thought](#) includes a summary of the main findings of the research. The material is grouped into three main sections:

1 Examining how we think – explores the assumptions governing our current perceptions and understanding of the world.

2 The need for change – our understanding of our “selves” is problematic. We need to embrace a more holistic perspective where the individual and the social cannot be separated.

3 Towards an evolution – points to the steps we need to take to begin to evolve our thinking and make better decisions.



[The Tabula Project: Selected Writings](#) includes personal reflections, poems and excerpts from art diaries as the ideas for the project developed.

Poems **Metamorphosis** and **Evolve to Survive** inspired the first two series of 'Examining Thought' paintings. From the art diaries, **Tabula Rasa** sets out the thinking behind 'Clearing the Mind'. Personal reflections include **The First Rule** which introduces the concept of 'non-memory-based thinking'. **Awareness** reflects on the lens through which we perceive. A sea-change in perception underpinned by **Core Principles and Objectives**, is needed if we are to tackle our most difficult challenges.

ANNEX III: About the Paintings

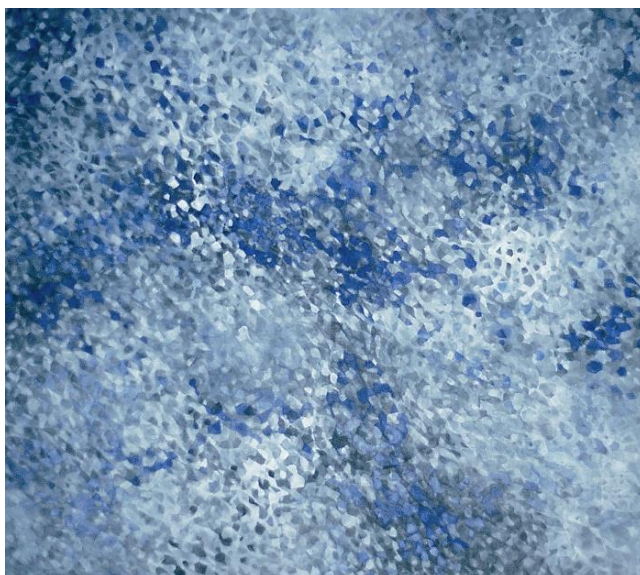
The overall objective of [The Tabula Project](#) is to provide a new perspective on the mind. The paintings depict states of consciousness and thought, and the development of the project is informed by extensive research.

The paintings are grouped into three main sections and were produced in parallel over a period of more than two decades.

- **Examining Thought** seeks to explore current predominant thought forms.
- **Clearing the Mind** is about achieving a state of consciousness without thought.
- **Building a New Framework** is about discovering a new integrated framework for thought where the whole mind is in balance.

EXAMINING THOUGHT

Faulty perception is at the root of our suffering and much of the trouble in the world. If we can correct this perception the world will radically change. We need to examine ourselves, the filter through which we perceive the world. This leads to the recognition of our fundamental interdependence with each other and the biosphere.



[Metamorphosis](#) explores the fluidity of the self and the infinitely malleable and changeable nature of consciousness. The paintings represent stages of a [poem](#). They depict states of awareness, and a range of sensations of pain and pleasure which could be experienced by any sentient being. The fourth painting in the series, *Easing the burden of consciousness* (pictured) encapsulates the driving motivation behind The Tabula Project.

[1993, 15 paintings, oil on canvas, each painting 96x106 cm]



Evolve to Survive explores the self-limiting nature of much of our current thinking. The paintings represent stages of a [poem](#). The series describes how thinking that is focused primarily on self-interest can become self-defeating and destructive, as described in the second painting *Life shrinks further inside* (pictured). We are hard wired to focus on that which serves our immediate narrow self-interest, but this can lead to poor decision-making.

[1994, 4 paintings, oil on canvas, each painting 80x88 cm]



Forms of Thought attempts to represent generic thought forms. The paintings in this series are deliberately devoid of figurative content, the assumption being that the patterns depicted could apply to a wide range of subject matter. The paintings seek to explore in the most abstract sense how the mind processes and generates information.

[1994-2007, 9 paintings, oil on canvas, each painting 80x88 cm]

CLEARING THE MIND

Our minds are often cluttered with repetitive thoughts that make it very difficult for us to be fully present. Managing the mind is a key skill, and this includes the discipline at times to be able to switch thought off. We need to discover the ability to live fully in the here and now. This is the pathway to true understanding.

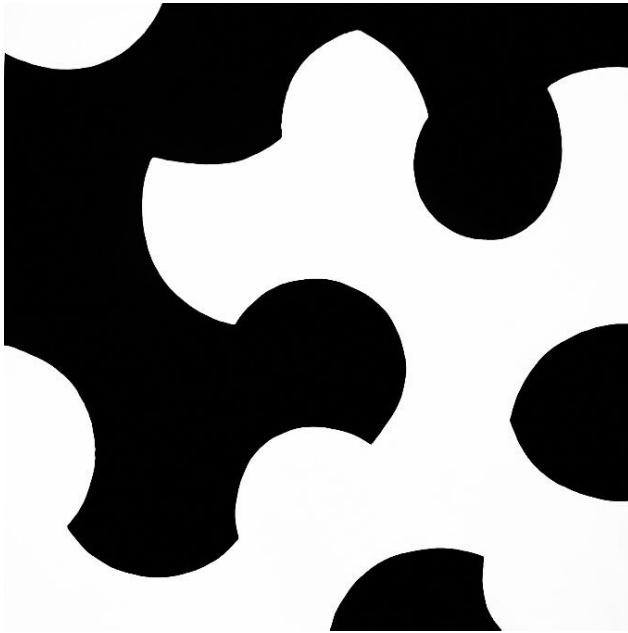


States of Mind depict different states of consciousness. Each ink wash was produced very quickly, the result of a spontaneous outpouring of visual thoughts and feelings. It was an enormously cathartic process. The effect was one of at least briefly decluttering the mind, accessing stillness, before more thoughts and feelings emerged. [1993, 15 studies, ink on paper, each 34x44 cm]



In Search of the Perfect Line illustrates the challenge of quietening the mind. The paintings seek to define the mind at rest, the landscape upon which new thought will eventually emerge. The perfect line represents a clear mind. But in searching for the perfect line, new lines continue to appear seeming to replace the previous ones - like repetitive thoughts which echo unprompted and repeatedly through the mind.

[1994, 6 paintings, oil on canvas, each painting 80x88 cm]



Tabula Rasa depicts the mind at rest, free of thought and full of infinite potential. The perfect line emerges as the interface between black and white. Clearing the mind of thought, creating a blank canvas on which we can create a new framework. This creating the conditions for mindfulness, pure potentiality and the freedom to redefine ourselves.

[1995-2015, 16 paintings, acrylic, each painting 92x92 cm]

BUILDING A NEW FRAMEWORK

The goal is a new integrated framework for thought, where the whole mind is in balance, with thoughts, feelings and intuitions working together in harmony. The mind becomes a tool at our disposal. Free from incessant thoughts we can become open to new insights, and eventually able to reach a place of enlightenment.



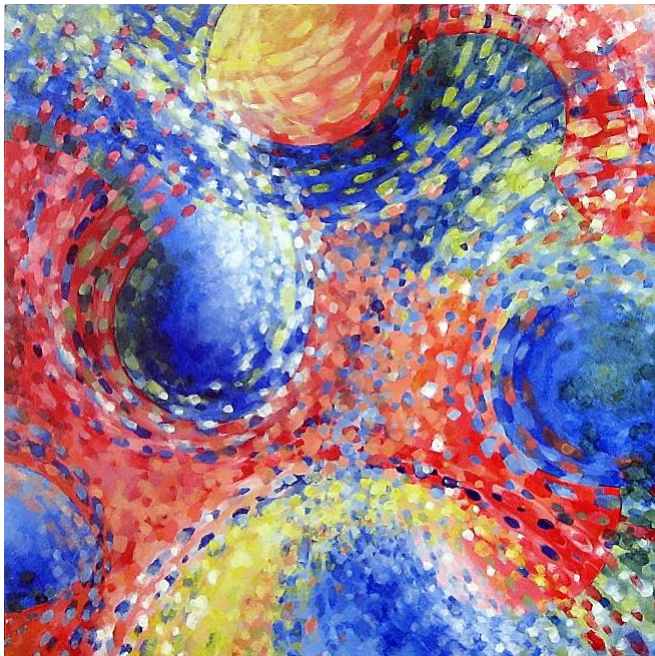
Building a New Framework develops further the generic patterns of thought depicted in the Forms of Thought series. The nine-part series presents an evolution to an increasingly integrated thought system. The journey begins with a representation of basic cognitive awareness and gradually builds in layer by layer more developed thoughts, feelings, and intuitions. The final painting in this series (pictured) seeks to bring all these aspects together into an integrated whole.

[1994-2010, 9 paintings, oil on canvas, each 80x88cm]



Finding New Frontiers illustrates some insights from the fields of quantum mechanics, string theory and the complexity sciences, including *The Particle and the Wave* (pictured). Patterns can be a way of expressing the inexpressible where verbal communication is inadequate. There are fundamental principles about how things work, and these principles can be captured in patterns.

[2006-2007, 6 paintings, acrylic on board, each painting 92x92 cm]



A New Framework. Here the boundaries between thoughts, feelings and intuitions begin to dissolve. The paintings point to the beginnings of a new framework for awareness. We may recognise that the self is an object in our awareness, a filter through which we see the world. We may come to see our knowledge as a tool or a construction, and our “selves” as constructions too. This brings the possibility of real change: the liberation from the self.

[2011-14, 3 paintings, oil/acrylic on board, each painting 92x92cm]

ANNEX IV: Consultation - Summer 2023

During summer 2023 Greener Vision carried out a [consultation](#) to investigate where decision making has become flawed and how our approach to tackling the climate crisis needs to change.

Summary of key points discussed:

Reflections following the Uxbridge and South Ruislip byelection result.

- A key lesson from the Uxbridge byelection, which was defined by a fight over expanding the London ULEZ, was that although there is political consensus around net zero, it is very fragile and contingent on other things. It also shows green policies need to work for people and need to be fair and seen to be fair. ***“The equity issue was huge.”***
- It is important to acknowledge that the Climate Change Act and net zero legislation are examples of good political leadership, taking the right action in the hope that public opinion will catch up. But the ULEZ result shows that politicians are prone to follow what they think public opinion is.
- Green policies can really quickly be blown up into black and white issues and massively oversimplified. ***“The Tories are clutching at straws looking for narrow path to victory, using net zero as a wedge issue to gain political advantage”***. But it also shows Labour’s timidity. ***“Labour didn’t fight back on those points.”***
- The big risk is that electioneering on net zero issues will undermine the consensus in the longer term. It was suggested that the irony is that the public are much more agreed and aligned on issues such as the climate than politicians give them credit for. The media tends to sway elite opinion and government opinion more.

Do we need a new kind of politics?

- People see policy as coming from above, which is why “take back control” was such a powerful slogan. Many people feel powerless, and that anything they do won’t make any difference anyway, which mitigates against climate action.
- There were differing views on the role and value of Climate Assemblies. Some see that they have an important role provided that they don’t replace deliberation by politicians. Others see a risk that they could become a bit self-selecting, that they don’t necessarily deliver the mandate. It is also very important to be clear what information goes in.
- There needs to be much more collaboration between business, people in the climate movement, civic society, a bottom-up approach. ***“Relying on existing politicians and the media alone hasn’t worked so far and there is no reason to think it will”***.
- However, it was noted that we should be very careful to avoid the trap people can fall into of saying politics should be taken out of it. It is healthy that there should be debate about the best way to achieve climate goals.

How do we build a more compelling case for climate policies?

- The IPCC has always been pretty clear on the science. The problem is the wider debate and how their conclusions are interpreted, such as where they are quoted in the media out of context to make different points – would there be a role for an equivalent IPCC

sister organisation whose purpose would be to communicate the IPCC conclusions in simple terms that media and public can understand?

- It is better to focus on issues people immediately relate to and care about. For example, people are very attached to the environment. There is generally little public support for road building per se because people don't like to see roads cut across the environment.
- Climate and health should be put together more. We should emphasise health impacts and how climate change is wrecking holidays. ***"It's a real here and now problem. Politicians should be using these examples to sell action on climate change!"***
- So much about how we think is linked to our identity, our economic situation and our general circumstances. 'More in Common' has shown that different groups respond to climate crisis differently e.g. for conservatives it may be more about conservation, for liberals more about new tech etc.
- There is no clear silver bullet story. The climate imperative needs to be pulled together into a clear compelling narrative. Doom mongering, including from the climate lobby, is disempowering and mitigates against taking action.

"It's all about the stories we tell and the stories we are told, and the dominant stories are all about economic growth, making money, material progress. Modern capitalism can provide some of the solutions to the climate catastrophe. There is a strong case to be made for green growth policies."

"But the point is that these stories have become overly dominant and crowd out other stories, for instance about collective action, our relationship with nature and the need for a longer-term perspective in policy making."

Neil Stockley, Public Affairs Consultant

How do we build a stronger sense of community?

- The current mindset is not conducive to tackling the climate crisis because it is short term and consumeristic. If we look at things from an individualistic angle, we are by definition not looking at things from a collective angle.
- We can't rewind consumer society, but can we refocus it? Fundamentally people see themselves as part of groups, as part of a community. The type of community may have changed. It may be a community based on social media. ***It is in our core to belong to communities. Need to find ways of channeling it, bringing it out more.***
- We need stories about how we are all collectively threatened, but without getting into doom mongering. What will happen if we don't change how we do things? What people can do about it, how they could benefit, how everyone is doing their share?
- The pandemic was a useful example of collective effort that we were "all in it together", people bought into a greater good. (NB Which is why Downing Street lockdown parties were so damaging – people are willing to make sacrifices as long as people aren't abusing the system!)
- Travel and mobile phones make it easier to be more globally minded. ***"We are living at a time when the world has never been smaller. Ukraine, flooding, environmental disasters around the world are all on our iPads!"*** Younger people tend to be more switched on, and more globally minded.

Competition versus cooperation?

- All participants agreed that how we get more cooperation over competition is one of the biggest issues of our time because so much of what we are dealing with depends on a greater level of cooperation, less antagonism, less polarization. We need to be able to point to examples of where it is happening.
- We need both. Businesses thrive on competition but can only survive if there is an element of give and take. The basic building block is there. ***“If you just have competition, it will be miserable because we need a whole level of cooperation”.***
- It is interesting to note that increasingly politicians are rowing back on the Thatcherism perspective, 80s and 90s all about competition but there has been a cycle here. ***“The trick is to tap into the new mood towards greater cooperation.”***
- The younger generation are more hopeful about change, compared with the older generation, and are also likely to be better educated on environmental issues. One gave the example of a CEO of a leading pharmaceutical company who has been influenced by his grandchildren who told him “Your generation is messing up our future!”

“ESG has become a must do for business. Partly because it looks good, but then businesses start to walk the walk, and it makes sense. Customers and staff and the wider community care about it and expect it now. There is turning back. It is here to stay. Reputable companies don’t just go for the bottom line; they are investing in staff mental health and wellbeing etc.”

Naomi Grimley, BBC TV and radio correspondent

Is green growth possible?

- There were differing views on this question. Some saw it as the only kind of growth possible, but that the pressures from climate change impacts (crop failures etc.) will make it ever harder to achieve. ***“I’m not convinced by post-growth, although I’m more open than I was...”***
- It was noted that the importance of achieving economic growth is the money it raises to support NHS, education, tackle social issues, alleviate poverty etc. ***“However, it looks unlikely that we will achieve it in the UK anytime soon.”***
- Whilst in theory we need to consume less in the developed world, in practice it is difficult to see how it will happen. ***“I have real doubts about whether people will voluntarily consume less”. “I do not support post growth. We need green growth; we need to look at the new technologies coming on stream.”***
- It was generally felt that it is not a good idea to be too precise on definitions, because people quickly start to differ. It is better to keep things as broad as possible. ***“It is better to keep focused on solutions rather than definitions, otherwise one too easily becomes a target (e.g. seen as the hair shirt brigade!).”***

Role of mainstream and social media

- It is hard to have a constructive debate because people so quickly fall into boxes. We have become a more divided society – as exemplified by Brexit – different groups don’t understand each other in the way they might have done in the past.

-
- We used to have more informed debates, proper discursive interviews, such as the Brian Walden interviews, but that doesn't seem to happen now. There has been an erosion of public debate through e.g. social media. ***“On the plus side we can hear more voices, on the negative side they are more in boxes and echo chambers.”***
 - There will always be some kind of divisive element in social media, but we need to start to use it to build up solutions and communities. We have the tools to campaign across the world, we should really use that. ***“My sense is that it may not stay as it is right now. We are only at the foothills of the cooperation and the advocacy that social media can achieve.”***
 - People don't understand big issues like climate change; pension reform; NHS; illegal migration etc. ***“We are dumbed down and quickly distracted”***. But having said that podcasts such as Rory Stewart and Alistair Campbell are very popular. How do we bring it to life? ***“Blue Planet did a great job!”***
 - We should focus more on “solutions-based journalism” – ‘this works over there, maybe we try this over here etc.’ This would give people hope, keep them energised and motivated. ***“We need to celebrate the wins and breakthroughs!”***

A positive vision for the future.

“We didn't start by trying to create a problem. There were many good reasons for fossil fuel development, and those solutions have brought us real prosperity. Without that there wouldn't have been industrialization, economic development and lifting people out of poverty. This was originally an example of people applying their minds to solve problems. But those solutions have now got consequences which in the early days people would never have dreamt of.”

John Stewart, Transport Specialist and Campaigner

- We need to apply some of the thinking that brought us so many solutions to climate change, but the problem is that climate change is extremely complex, and people are trying to oversimplify it. ***“Nobody has got it quite right. Nobody has got the complete truth although some people may think they have.”***
- One participant noted that during the Attlee administration of the 1940s the thinking and planning was for decades ahead (NHS etc.) What are the technologies that we can embrace today that will transform lives for the better, what are the long-term investments that will tackle climate crisis?
- It was suggested that it is a mistake in campaigning to say things like “We've only got seven years to fix this, or we are all doomed!”. Change won't happen if people feel they have no hope. They will just give up. Also, rather than negative campaigning about fossil fuels we should be emphasizing the exciting potential of clean technologies.
- It's not a good idea to come across as telling people what is good for them, but better to engage them in the solutions. ***“Let's just keep moving forward! We need solution focused forward thinking.”***

REFERENCES

- ¹ **Carbon Brief** estimates with 3 months remaining there is a greater than 99% chance that 2023 will be the hottest year since records began in the mid-1800s and likely for millennia before: <https://www.carbonbrief.org/analysis-greater-than-99-chance-2023-will-be-hottest-year-on-record/>
- Copernicus Climate Change Service** estimates 2023 will be the warmest year on record: <https://climate.copernicus.eu/copernicus-september-2023-unprecedented-temperature-anomalies>
- NOAA** modelling indicates a 50% chance that 2023 will be the hottest year on record and a 99% chance that it will rank amongst the 5 warmest years on record: <https://www.noaa.gov/news/world-just-sweltered-through-its-hottest-august-on-record>
- ² <https://news.un.org/en/story/2023/07/1139162>
- ³ The Economics of Climate Change: The Stern Review, Nicholas Stern Cabinet Office - HM Treasury, 2006, published as a volume by Cambridge University Press 2007
- ⁴ <https://www.ipcc.ch/report/ar6/syr/>
- ⁵ <https://www.ipcc.ch/2023/03/20/press-release-ar6-synthesis-report/>
- ⁶ <https://www.gov.uk/government/news/pm-recommits-uk-to-net-zero-by-2050-and-pledges-a-fairer-path-to-achieving-target-to-ease-the-financial-burden-on-british-families>
- ⁷ <https://www.clubofrome.org/publication/the-limits-to-growth/>
- ⁸ Fritjof Capra, The Tao of Physics, 1975, Fontana Paperbacks 1983
- ⁹ Christiana Figueres and Tom Rivett-Carnac, The Future We Choose, published by Manilla Press, 2020
- ¹⁰ The Economics of Climate Change: The Stern Review, 2006
- ¹¹ <https://greenertransportsolutions.com/insight/its-time-to-put-a-price-on-carbon/>
- ¹² George Marshall, Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change, Bloomsbury USA, 2014
- ¹³ Margaret Heffernan, Wilful Blindness: Why We Ignore the Obvious, Simon & Schuster UK Ltd, 2011
- ¹⁴ <https://www.gov.uk/government/publications/transport-decarbonisation-plan>
- ¹⁵ <https://www.theccc.org.uk/publication/2023-progress-report-to-parliament/>
- ¹⁶ <https://www.gov.uk/government/publications/plan-for-drivers>
- ¹⁷ Mark Carney, Value(s): Building a better world for all, published by William Collins 2021
- ¹⁸ Gregory Bateson, Steps to an Ecology of Mind, 1972, University of Chicago Press, 2000
- ¹⁹ Nicholas Stern, Why are we waiting? The Logic, Urgency, and Promise of Tackling Climate Change, MIT Press, 2016
- ²⁰ <https://www.undp.org/sustainable-development-goals>
- ²¹ Rebecca Willis, Too Hot to Handle? The Democratic Challenge of Climate Change, Bristol University Press 2020
- ²² George Marshall, Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change, Bloomsbury USA, 2014
- ²³ I will if you will, Towards Sustainable Consumption, National Consumer Council & Sustainable Development Commission, 2006
- ²⁴ Common Cause: The Case for Working with our Cultural Values, WWF-UK, September 2010
- ²⁵ Joanna Macy & Chris Johnstone, Active Hope: How to Face the Mess We're in with Unexpected Resilience and Creative Power, New World Library 2012, 2022
- ²⁶ Norbat Elias, The Symbol Theory, Sage, London 1991
- ²⁷ Gregory Bateson, Steps to an Ecology of Mind, 1972, University of Chicago Press, 2000
- ²⁸ <https://press.un.org/en/2023/sgsm21926.doc.htm>
- ²⁹ <https://www.bbc.co.uk/news/world-67005362>
- ³⁰ <https://climate.copernicus.eu/copernicus-september-2023-unprecedented-temperature-anomalies>
- ³¹ <https://www.theguardian.com/environment/2023/oct/05/gobsmackingly-bananas-scientists-stunned-by-planets-record-september-heat>
- ³² <https://unfccc.int/topics/global-stocktake>
- ³³ <https://www.ipcc.ch/report/ar6/syr/>
- ³⁴ <https://www.ipcc.ch/2023/03/20/press-release-ar6-synthesis-report/>
- ³⁵ <https://www.ipcc.ch/report/ar6/wg3/>

-
- ³⁶ Sustaining the political mandate for climate action, Green Alliance September 2023
- ³⁷ <https://www.gov.uk/government/news/pm-recommits-uk-to-net-zero-by-2050-and-pledges-a-fairer-path-to-achieving-target-to-ease-the-financial-burden-on-british-families>
- ³⁸ <https://www.businessgreen.com/news/4127227/delay-400-businesses-urge-prime-minister-weaken-climate-policies>
- ³⁹ <https://www.ft.com/content/de793144-99ff-47b6-b419-6fd415d202fa> Sunak's green U-turn dismays sustainable investors
- ⁴⁰ <https://www.theccc.org.uk/2023/10/12/ccc-assessment-of-recent-announcements-and-developments-on-net-zero/>
- ⁴¹ <https://greener-vision.com/events/03-march-2020-decarbonising-transport-a-transport-knowledge-hub-national-workshop/>
- ⁴² <https://greener-vision.com/publication/a-manifesto-for-decarbonising-transport/>
- ⁴³ <https://www.gov.uk/government/publications/transport-decarbonisation-plan>
- ⁴⁴ <https://greener-vision.com/events/how-the-government-can-support-technical-and-policy-solutions-to-encourage-people-to-make-lower-carbon-travel-choices/>
- ⁴⁵ <https://www.gov.uk/government/publications/plan-for-drivers>
- ⁴⁶ <https://www.theccc.org.uk/2021/10/26/governments-net-zero-strategy-is-a-major-step-forward-ccc-says/>
- ⁴⁷ <https://www.theccc.org.uk/publication/2023-progress-report-to-parliament/>
- ⁴⁸ <https://www.theccc.org.uk/publication/2023-progress-report-to-parliament/>
- ⁴⁹ 82% of the public is concerned about climate change <https://www.gov.uk/government/statistics/desnz-public-attitudes-tracker-spring-2023>
- ⁵⁰ Orr, R and Powell D (2023). Towards a UK public engagement strategy on climate change, Oxford: Climate Outreach, September 2023
- ⁵¹ Gregory Bateson, Sacred Unity: Further steps to an ecology of mind, Harper Collins, 1991
- ⁵² Richard H Thaler & Cass R Sunstein, Nudge: Improving Decisions About Health, Wealth, and Happiness, Yale University Press, 2008
- ⁵³ Alfred Korzybski, Science & Sanity, Fifth Edition, Institute of General Semantics, 1994
- ⁵⁴ S.H. Foulkes, quoted by Farhad Dalal, Taking the Group Seriously, Jessica Kingsley Publishers, 1988
- ⁵⁵ G.H. Mead, Mind, Self & Society, University of Chicago Press, 1934
- ⁵⁶ Thomas Kuhn, The Structure of Science Revolutions, University of Chicago Press, 1962
- ⁵⁷ <https://www.clubofrome.org/publication/the-limits-to-growth/>
- ⁵⁸ <https://www.thersa.org/reports/a-new-agenda-on-climate-change>
- ⁵⁹ Christiana Figueres and Tom Rivett-Carnac, The Future We Choose, published by Manilla Press, 2020
- ⁶⁰ Gregory Bateson, Steps to an Ecology of Mind, 1972, University of Chicago Press, 2000
- ⁶¹ Ralph D Stacey, Douglas Griffin, Patricia Shaw, Complexity and Management, Routledge, 2000
- ⁶² Fritjof Capra, The Tao of Physics, 1975, Fontana Paperbacks 1983
- ⁶³ <https://www.theguardian.com/environment/2023/aug/06/david-suzuki-climate-action-crisis-in-conversation-natasha-mitchell-melbourne-museum>
- ⁶⁴ <https://davidsuzuki.org/expert/david-suzuki/>
- ⁶⁵ The Economics of Climate Change: The Stern Review, Nicholas Stern Cabinet Office - HM Treasury, 2006, published as a volume by Cambridge University Press 2007
- ⁶⁶ <https://www.thersa.org/reports/a-new-agenda-on-climate-change>
- ⁶⁷ Rebecca Willis, Too Hot to Handle? The Democratic Challenge of Climate Change Bristol University Press 2020
- ⁶⁸ George Marshall, Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change, Bloomsbury USA, 2014
- ⁶⁹ Dieter Helm, Green and Prosperous Land: A Blueprint for Rescuing the British Countryside, March 2019
- ⁷⁰ <https://unfccc.int/process-and-meetings/the-paris-agreement/the-glasgow-climate-pact-key-outcomes-from-cop26>
- ⁷¹ <https://www.iea.org/reports/fossil-fuels-consumption-subsidies-2022>
- ⁷² Edward Bernays quoted in Greta Thunberg, The Climate Book, Allen Lane 2022
- ⁷³ Robert Williams, Art Theory: an historical introduction, Blackwell Publishing, Oxford, 2004
- ⁷⁴ Tim Jackson, Prosperity without Growth: Foundations for the Economy of Tomorrow, Second Edition, published by Routledge 2017

-
- ⁷⁵ Tim Jackson, *Post Growth: Life after capitalism*, published by Polity Press, 2021
- ⁷⁶ *Better Growth, Better Climate: The New Climate Economy Report*, September 2014
- ⁷⁷ <https://www.thersa.org/reports/a-new-agenda-on-climate-change>
- ⁷⁸ Kate Raworth, *Doughnut Economics: Seven ways to think like a 21st Century Economist*, Random House Business Books, 2017
- ⁷⁹ Naomi Klein, *On Fire: The burning case for a new deal*, Penguin Random House, 2019
- ⁸⁰ Margaret Heffernan, *Wilful Blindness: Why We Ignore the Obvious*, Simon & Schuster UK Ltd, 2011
- ⁸¹ George Marshall, *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*, Bloomsbury USA, 2014
- ⁸² Daniel Kahneman quoted in George Marshall, *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*, Bloomsbury USA, 2014
- ⁸³ Margaret Heffernan, *Wilful Blindness: Why We Ignore the Obvious*, Simon & Schuster UK Ltd, 2011
- ⁸⁴ Christiana Figueres and Tom Rivett-Carnac, *The Future We Choose*, published by Manilla Press, 2020
- ⁸⁵ Antonio R. Damasio, *Descartes Error*, Picador London, 1995
- ⁸⁶ Candace B Pert, *Molecules of Emotion: why you feel the way you do*, Simon & Schuster London, 1998
- ⁸⁷ Gregory Bateson, *Steps to an Ecology of Mind*, 1972, University of Chicago Press, 2000
- ⁸⁸ Tony Leiserowitz quoted in George Marshall, *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*, Bloomsbury USA, 2014
- ⁸⁹ Seymour Epstein quoted in George Marshall, *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*, Bloomsbury USA, 2014
- ⁹⁰ Pete Dyson and Rory Sutherland, *Transport for Humans: Are we nearly there yet?* London Publishing Partnership, 2021
- ⁹¹ <https://www.sciencedirect.com/science/article/pii/S0967070X14000213>
- ⁹² <https://greener-vision.com/publication/pathways-to-net-zero-series-of-reports-and-roundtable-discussions/>
- ⁹³ Mark Carney, *Value(s): Building a better world for all*, published by William Collins 2021
- ⁹⁴ Nicholas Stern, *Why are we waiting? The Logic, Urgency, and Promise of Tackling Climate Change*, MIT Press, 2016
- ⁹⁵ <https://www.gov.uk/government/publications/road-investment-strategy-2-ris2-2020-to-2025>
- ⁹⁶ Richard H Thaler & Cass R Sunstein, *Nudge: Improving Decisions About Health, Wealth, and Happiness*, Yale University Press, 2008
- ⁹⁷ Gregory Bateson, *Steps to an Ecology of Mind*, 1972, University of Chicago Press, 2000
- ⁹⁸ <https://greenertransportsolutions.com/insight/are-you-sitting-comfortably-the-tale-of-the-hedgehog-the-fox-the-owl-and-the-ostrich/>
- ⁹⁹ [Decarbonising Transport: Setting the Challenge](https://www.gov.uk/government/publications/decarbonising-transport-setting-the-challenge), Department for Transport, 2020
- ¹⁰⁰ <https://www.theccc.org.uk/publication/2023-progress-report-to-parliament/>
- ¹⁰¹ Alice Bell, *Our Biggest Experiment: A History of the Climate Crisis*, Bloomsbury Sigma, 2021
- ¹⁰² Gregory Bateson, *Sacred Unity: Further steps to an ecology of mind*, Harper Collins, 1991
- ¹⁰³ <https://www.sciencedirect.com/science/article/pii/S0967070X14000213>
- ¹⁰⁴ <https://greenertransportsolutions.com/events/not-the-journey-but-the-destination-how-our-whole-economy-needs-to-change/>
- ¹⁰⁵ House of Commons Transport Committee, *Sixth Report: Strategic road investment*, July 2023
- ¹⁰⁶ <https://greenerjourneys.com/publication/the-unintended-consequences-of-freezing-fuel-duty/> Originally published 2018, analysis updated 2020.
- ¹⁰⁷ <https://greenertransportsolutions.com/publication/the-unintended-consequences-of-freezing-fuel-duty/>
- ¹⁰⁸ <https://greenertransportsolutions.com/publication/re-charging-britains-roads-policy/>
- ¹⁰⁹ <https://committees.parliament.uk/committee/153/transport-committee/news/160791/road-pricing-act-now-to-avoid-35-billion-fiscal-black-hole-urge-mps/>
- ¹¹⁰ *Sustaining the political mandate for climate action*, Green Alliance September 2023
- ¹¹¹ <https://www.gov.uk/government/publications/plan-for-drivers>
- ¹¹² <https://www.gov.uk/government/publications/transport-decarbonisation-plan>
- ¹¹³ <https://greener-vision.com/events/how-the-government-can-support-technical-and-policy-solutions-to-encourage-people-to-make-lower-carbon-travel-choices/>
- ¹¹⁴ Anthony Giddens, *The Politics of Climate Change*, Polity, 2009
- ¹¹⁵ <https://www.theccc.org.uk/publication/2023-progress-report-to-parliament/>

-
- ¹¹⁶ <https://www.theccc.org.uk/uk-action-on-climate-change/reaching-net-zero-in-the-uk/>
- ¹¹⁷ <https://www.gov.uk/government/publications/review-of-net-zero>
- ¹¹⁸ <https://www.ipsos.com/en-uk/8-10-britons-concerned-about-climate-change-half-think-net-zero-target-should-be-brought-forward>
- ¹¹⁹ <https://www.bi.team/publications/how-to-build-a-net-zero-society/>
- ¹²⁰ <https://www.bbc.co.uk/news/business-58981505>
- ¹²¹ <https://committees.parliament.uk/committee/62/environmental-audit-committee/news/156091/environmental-audit-committee-chair-reacts-to-climate-change-progress-report/>
- ¹²² <https://committees.parliament.uk/publications/9012/documents/159059/default/>
- ¹²³ George Marshall, Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change, Bloomsbury USA, 2014
- ¹²⁴ Terence Bendixson, Instead of Cars, Penguin, 1977 (first published 1974)
- ¹²⁵ [Every breath we take: the lifelong impact of air pollution](#), Royal College of Physicians, 2016
- ¹²⁶ <https://greenertransportsolutions.com/publication/study-value-local-bus-services-society-task-iii-technical-report-econometric-analysis/> University of Leeds Institute for Transport Studies 2016
- ¹²⁷ <https://www.transportfornewhomes.org.uk/>
- ¹²⁸ <https://greenertransportsolutions.com/events/the-role-of-localism-in-ensuring-a-fair-and-just-transition-to-net-zero/>
- ¹²⁹ <https://greenertransportsolutions.com/insight/imagine-a-transport-system-based-around-people/>
- ¹³⁰ <https://cordis.europa.eu/project/id/636573>
- ¹³¹ <https://greener-vision.com/publication/pathways-to-net-zero-series-of-reports-and-roundtable-discussions/>
- ¹³² [Jones, P., Smeds, E. and Dean, M. \(2021\). Initial conceptual framework to map and establish cross-sector 'links' between major trip generating sectors of the economy. Deliverable D1.4, H2020 CIVITAS SUMP-PLUS project.](#)
- ¹³³ <https://greenertransportsolutions.com/insight/its-time-to-put-a-price-on-carbon/>
- ¹³⁴ [Guidance for transport planning and policymaking in the face of an uncertain future](#), Glenn Lyons & Cody Davidson, June 2016
- ¹³⁵ Margaret Heffernan, Wilful Blindness: Why We Ignore the Obvious, Simon & Schuster UK Ltd, 2011
- ¹³⁶ <https://www.ipsos.com/en-uk/8-10-britons-concerned-about-climate-change-half-think-net-zero-target-should-be-brought-forward>
- ¹³⁷ <https://www.climateassembly.uk/report/>
- ¹³⁸ Rebecca Willis, Too Hot to Handle? The Democratic Challenge of Climate Change Bristol University Press 2020
- ¹³⁹ Rebecca Willis, Too Hot to Handle? The Democratic Challenge of Climate Change Bristol University Press 2020
- ¹⁴⁰ Gregory Bateson, Sacred Unity: Further steps to an ecology of mind, Harper Collins, 1991
- ¹⁴¹ [Net Zero Public Dialogue, A Report by Newgate Research and Cambridge Zero, commissioned by BEIS and Defra, March 2021](#)
- ¹⁴² Gregory Bateson, Steps to an Ecology of Mind, 1972, University of Chicago Press, 2000
- ¹⁴³ Ervin Laszlo, The Chaos Point: The World at the Crossroads, Piatkus Books Ltd London, 2006
- ¹⁴⁴ Christiana Figueres and Tom Rivett-Carnac, The Future We Choose, published by Manilla Press, 2020
- ¹⁴⁵ Ervin Laszlo, The Age of Bifurcation, Gordon & Breach, 1991
- ¹⁴⁶ <https://sustainabledevelopment.un.org/content/documents/1595TheNewClimateEconomyReport.pdf>
- ¹⁴⁷ Nicholas Stern, Why are we waiting? The Logic, Urgency, and Promise of Tackling Climate Change, MIT Press, 2016
- ¹⁴⁸ Aubrey Meyer, Contraction and Convergence, Global Commons Institute 2000
- ¹⁴⁹ <https://www.un.org/sg/en/content/sg/speeches/2022-11-17/secretary-generals-remarks-cop27-stakeout>
- ¹⁵⁰ Stuart Kauffman, At Home in the Universe, OUP, Oxford, 1995
- ¹⁵¹ Christiana Figueres and Tom Rivett-Carnac, The Future We Choose, published by Manilla Press, 2020
- ¹⁵² Kate Raworth, Doughnut Economics: Seven ways to think like a 21st Century Economist, Random House Business Books, 2017
- ¹⁵³ Tim Jackson, Post Growth: Life after capitalism, published by Polity Press, 2021
- ¹⁵⁴ Ken Wilber, A Brief History of Everything, Shambhala, 2000

-
- ¹⁵⁵ Zero Carbon Britain: Rising to the Climate Emergency (CAT) <https://cat.org.uk/info-resources/zero-carbon-britain/research-reports/zero-carbon-britain-rising-to-the-climate-emergency/>
- ¹⁵⁶ Kate Raworth, Doughnut Economics: Seven ways to think like a 21st Century Economist, Random House Business Books, 2017
- ¹⁵⁷ <https://www.theguardian.com/environment/2023/jun/08/the-planets-economist-has-kate-raworth-found-a-model-for-sustainable-living>
- ¹⁵⁸ Tim Jackson, Prosperity without Growth: Foundations for the Economy of Tomorrow, Second Edition, published by Routledge 2017
- ¹⁵⁹ Naomi Klein, On Fire: The burning case for a new deal, Penguin Random House, 2019
- ¹⁶⁰ Naomi Klein, This changes everything, Simon & Schuster, 2014
- ¹⁶¹ <https://sdgs.un.org/goals>
- ¹⁶² [Impacts of a carbon tax across US household income groups: What are the equity-efficiency trade-offs? L.H. Goulder et al, May 2019](https://www.greener-vision.com/press/51682/)
- ¹⁶³ <https://www.greener-vision.com/press/51682/>
- ¹⁶⁴ <https://www.greener-vision.com/press/energy-demand-reduction-essential-to-tackle-climate-and-cost-of-living-crisis/>
- ¹⁶⁵ <https://www.gov.uk/government/publications/net-zero-review-final-report>
- ¹⁶⁶ Richard Leahy quoted in Robert Cialdini, Influence: The Psychology of Persuasion, first published 1984, HarperCollins Publishers Ltd 2009
- ¹⁶⁷ https://www.garretthardinsociety.org/articles/art_tragedy_of_the_commons.html Garrett Hardin argued in a Science magazine article in 1968 that we are all forced by our evolutionary drives to maximise our personal benefit from a common resource even when we know it will lead to ultimate destruction “the tragedy of the commons”
- ¹⁶⁸ Elinor Ostrom, Governing the Commons: The Evolution of Institutions for Collective Action, Cambridge University Press, 1990
- ¹⁶⁹ I will if you will, Towards Sustainable Consumption, National Consumer Council & Sustainable Development Commission, 2006
- ¹⁷⁰ George Marshall, Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change, Bloomsbury USA, 2014
- ¹⁷¹ Robert Cialdini, Influence: The Psychology of Persuasion, Collins Business Essentials, first published 1984
- ¹⁷² Mayer Hillman How we can save the planet, Emerald Group Publishing Limited, 2004
- ¹⁷³ <https://commoncausefoundation.org/about/>
- ¹⁷⁴ Common Cause: The Case for Working with our Cultural Values, WWF-UK, September 2010
- ¹⁷⁵ Arne Naess, quoted by Joanna Macy & Chris Johnstone, Active Hope: How to Face the Mess We're in with Unexpected Resilience and Creative Power, New World Library 2012, 2022
- ¹⁷⁶ Albert Einstein, The World as I see it, London John Lane, The Bodley Head, 1935
- ¹⁷⁷ Mortimer J.Adler, How to think about the Great Ideas, 2000, Open Court, Chicago
- ¹⁷⁸ James Gilligan, Violence: Our Deadly Epidemic and Its Causes, 1996
- ¹⁷⁹ Norbert Elias, The Symbol Theory, Sage, London, 1991
- ¹⁸⁰ G. H. Mead, Mind, Self & Society, University of Chicago Press, 1934
- ¹⁸¹ Louis Zinkin, Malignant Mirroring, 1983
- ¹⁸² Gregory Bateson, Mind and Nature: A necessary unity, Fontana 1980
- ¹⁸³ Gregory Bateson, Steps to an Ecology of Mind, 1972, University of Chicago Press, 2000
- ¹⁸⁴ Robert Kegan, In Over Our Heads, Harvard University Press, 1994
- ¹⁸⁵ Ken Wilber, A Brief History of Everything, Shambhala, 2000
- ¹⁸⁶ Guy Claxton, Hare Brain: Tortoise Mind, 1997
- ¹⁸⁷ Margaret Heffernan, Wilful Blindness: Why We Ignore the Obvious, Simon & Schuster UK Ltd, 2011
- ¹⁸⁸ Vaclav Havel Library Foundation <https://www.vhlf.org/>
- ¹⁸⁹ Greta Thunberg, The Climate Book, Allen Lane 2022
- ¹⁹⁰ George Loewenstein quoted by George Marshall in Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change, Bloomsbury USA, 2014
- ¹⁹¹ Walter Gropius 'The Theory and Organization of the Bauhaus' 1923,
- ¹⁹² <https://www.britannica.com/topic/Bauhaus>
- ¹⁹³ Gregory Bateson, Steps to an Ecology of Mind, 1972, University of Chicago Press, 2000 - Bateson asked how we might work towards "a sacred unity of the biosphere with fewer epistemological errors".