What would a UK climate emergency plan that faces up to climate reality look like?

Jonathan Essex

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Summary

There have been lots of recent declarations of climate emergency in the UK but not yet an economy-wide plan that responds to the climate crisis in line with the climate science, as such declarations have called for. Existing government plans are mainly local or focus on technological changes, including those not yet proven at scale. The gaps between the climate science, political statements and economic policies and funding, and the actual levels of change required are huge. So where to begin?

This report sets out thoughts and ideas that started with a collective Green House discussion, and draws on different perspectives from our Climate Emergency conference held in September 2019.

It explores how an emergency plan for the whole economy requires a shift in approach and thinking. One aspect that makes this different from most current plans is planning for zero carbon consumption, not just emissions that occur within the UK itself, which means the plan must confront our increasingly globally connected economic strategy. This must reach beyond how to eliminate fossil fuels from our future energy supply to immediately scaling down demand and completely decarbonising or phasing out all high-carbon industries and activities (*e.g.* blast furnace steel production, concrete, bricks, aviation and long-distance shipping). Thus a climate emergency plan will rethink our scale of transport and trade, reconnect us to the land and localise our economies.

Transforming all sectors (not just energy supply), our economics, politics and culture as well as technologies and infrastructure choices requires a different sort of planning too. How might we collectively relearn, reimagine and take on the different roles in recreating our future together? So the planning process cannot be a bureaucratic or expert-owned blueprint but an inspiring and engaging process that is nested, adaptive and people-led. It must prioritise quality of life in place of orthodox economic growth as measured by GDP, just like we have done during the Covid-19 pandemic lockdowns.

This report sets out some of the ingredients needed for climate emergency planning that does not just accept the severity of the climate science but reflects this in sufficiently honest and courageous responses. But above all these responses require us all to play our part. Starting now.

Introduction

This report is an introduction to a short Green House project that aims to support engagement between campaigners, politicians, public and business interests to prepare and act on the climate emergency. It builds on the ideas and positions set out in earlier work by Green House Think Tank: *Facing up to Climate Reality* (Foster 2019) and the Post-Growth Project (Blewitt and Cunningham 2014), envisioning what a Britain that is post-growth will look like[1] and exploring the jobs which will be created in facing up to the climate emergency, across the UK.[2]

Extinction Rebellion (XR) and the school strikes have created a momentum for much deeper action on climate change in the UK, and elsewhere. But neither have detailed how we are to deliver the changes needed. At the time of writing:

- Over two thirds of local councils across the UK have declared a commitment to eliminate carbon emissions in the areas they represent, most to zero by 2030.[3]

- The UK government has legislated for zero carbon by 2050 following publication of a plan to achieve this by its independent Committee on Climate Change (2014) but is yet to make changes to its local planning framework or national plans and economic strategies (including continued expansion of airports and global trade, expanding exploitation of onshore oil and gas, and non-zero carbon development) to reflect this commitment. Also, the UK has so far failed to acknowledge its responsibility either to reduce the additional carbon emissions of its consumption associated with the embedded carbon in its imports, or to completely decarbonise our share of global trade (through aviation and shipping).

- XR, and climate economists have said that even a linear reduction to 2030 target is inadequate and a deadline of 2025 is needed (Jackson 2019).

In the face of these different levels of ambition what might a sufficient climate emergency plan look like? Arguably almost any climate emergency plan would aim to face up to climate change, almost by definition. But what would such plans look like if they:

- ***Committed to responding quickly enough*** for the UK, and all countries, to stay within our carbon budgets in a fair way. The carbon budget accounts for the total emissions up to a given date; rather than whether we reach zero emissions by that point.

[1] See Blewitt and Cunningham 2014 and https://www.greenhousethinktank.org/post-growth-project.html.
[2] See various reports: https://www.greenhousethinktank.org/climate-jobs.html.
[3] The UK Parliament, along with Scottish Parliament and NI Assembly, have also made ‘climate and ecological emergency’ declarations.

- ***Didn't separate climate change from the wider environmental crisis***, which is reflected in a crisis in biodiversity, our relationship with the natural environment and fossil fuel energy, and the impact of our, still growing, physical ('built') environment.

- ***Embedded adaptation in our plans for rapid elimination of carbon emissions.*** This will require weaving our mitigation and adaptation into one flexible process that strengthens community resilience. This is what is referred to as Transformational Adaptation (Lonsdale et al 2015) and will take on elements of Deep Adaptation too (Bendell 2018).

- ***Recognised and confronted the realities of now-inevitable climate-driven disasters***, and that we are required to meet this future through revolutionary transformation if we are to avoid catastrophe.

In short, what should be included if one was to truly face up to the true reality of the climate change already locked-in (including the need for adaptation) and the possibility that mitigation will fail to stop runaway climate change – including setting this against the intransigence of the current political, economic and cultural systems to anything like sufficient change on the timescale indicated by the latest climate science? What actions would be required at the local, national and global levels – including the associated structural changes to our economy, politics and cultures, for perhaps the greatest transformation our society has ever seen – if it is to eliminate the use of fossil fuels? What is *really* needed?

This introductory report suggests climate emergency plans must include:

1. **A sufficient response.** To reach zero carbon in the UK by 2025, or 2030 at the latest, including transformational and deep adaptation.

2. **Engagement of citizens in setting and responding to emergency (spatial and strategic) plans and budgets.** Set this plan within an approach that empowers and deepens democracy, and recognises the need for a plan-led approach from local to global that puts all physical planning and national budgets on an emergency footing.

3. **Whole economy transformation.** A radical plan that extends far beyond energy generation and use, and beyond a 100% renewable energy powered economy: to change our farming, land-use and resource management; to stop expanding our built environment; completely rethink transportation and reduce demand for energy and materials across our society – meaning an end to orthodox economic growth as measured by GDP; to plan for the disasters already anticipated as well as the worst case scenarios.

These three elements are, at least to some extent, reflected in the recent responses to the COVID-19 global pandemic. Firstly, governments aimed to ensure responses were sufficient by basing them on scientific evidence. Secondly, government's enacted emergency plans which impacted the whole economy. Finally, this linked with citizen responses that transformed ways of living to such an extent that this changed how societies functioned. Scotland's First Minister Nicola Sturgeon, put it like this: '*Life*

should not feel normal', and if it did, you should ask, '*if you are doing the right things*' (Sturgeon 2020).). The pandemic has paused the future, but that's ok, it was a dangerous one anyhow. The above three elements – sufficiency, a whole economy transformation and citizen action and consent – should equally be reflected in the way we plan and respond to the climate emergency.

1. A Sufficient Response

1.1. Reflecting the Climate Science

This section sets out how the response needs to be sufficiently far reaching in its ambition and transforms the whole economy.

To take responsibility for the climate impact of our way of living in a fair way means that we should not only act sufficiently to avoid dangerous climate change,[4] but also base our assessment of this impact on our level of consumption as well as the emissions that occur within the boundary of our country. Tim Jackson (2019) proposes that we ensure our carbon budget is sufficient by following these principles:

1. The UK should remain within a fair carbon budget, calculated pro rata on a per capita basis and allowing a margin for historical responsibility;

2. Our emissions should be measured on a consumption basis to include all those emissions for which UK citizens are responsible; and

3. Reliance on negative emission technologies should be used only as a 'last resort' and at a minimum level, consistent with evidence on their availability and effectiveness.

Jackson calculates that this would require a linear reduction to achieve zero carbon by 2025 in the UK, or reverse-exponential reductions (faster initial cuts) leading to 95% carbon reductions by 2030. Jackson comments that 'when measuring carbon emissions on a consumption basis, a net zero target of 2050 could lead to a "carbon overdraft" more than five times the UK's "fair carbon budget"'. So working towards a 2025 or 2030 target is not simply doing the same thing earlier – it is making the transition to zero whilst consuming far, far less in the meantime.

1.2. From Local Climate Emergency Plans to a Climate Emergency Economy

As highlighted above there is now much work in planning how a climate emergency might impact locally produced emissions across the UK. However, whatever is planned locally will need to be supported by changes at a national level. Yet similar work to plan and implement structural changes to the economy at a national and

[4] Most recently as defined by the IPPC as staying within 1.5°C post-industrial global temperature rise (IPCC 2018).

global level lag behind local efforts. This is where many of the current blockages to embedding sustainability now sit. For example:

- At the time of writing the UK government was still banking on infrastructure expansion to drive short-term economic growth,[5] continuing business-as-usual plans that preclude a sufficient response to the climate emergency.

- Current levels of government subsidy for fossil fuels exceed support for renewable energy (as can also be seen for France, Ireland, the Netherlands and Sweden – Carrington 2019).

- The UK economic strategy is tied to increased global trade, reflected in continued plans for airport expansion (including of air cargo at East Midlands (Pegden 2019) and Manston (Montlake 2020) airports, bailing out failed domestic airlines (Topham 2020) and government policy allowing unrestricted growth of airports across UK. Existing airports are planning to cause over *twice* as much growth in air travel as the Heathrow 3rd runway plans which were recently blocked by legal action on climate grounds[6]).

- The requirement for all new homes to be zero carbon by 2016 was deleted in 2011, whilst the new National Planning Policy Framework removed the requirement for development to be 'plan led'. Taxation incentivises new house building over retrofit of existing buildings.[7]

- Onshore wind turbine planning consents have stalled as a result of planning policy changes in England and as subsidies were blocked by the UK government from 2015 to 2020 (Harrabin 2020). Government does not require local authorities to plan where renewable energy is to be generated[8] or how existing buildings will be retrofitted to be more energy efficient[9] – both of which are vital if the UK is to become zero carbon.

These initiatives all reflect national economic strategies, planning rules and funding by the UK Treasury. As long as governments continue to subsidise and enable further fossil fuel extraction and invest in ever more infrastructure that locks in its use, it will be next to impossible to achieve a zero carbon Britain, let alone a zero carbon world. The ways in which military expenditure and industrial and infrastructure growth are

[5] The spring 2020 budget included a pledge of over £600 million on infrastructure over five years. This must now change following the COVID-19 pandemic.
[6] See https://www.carbonbrief.org/guest-post-planned-growth-of-uk-airports-not-consistent-with-net-zero-climate-goal and https://planb.earth/plan-b-v-heathrow-expansion/.
[7] See https://nhic.org.uk/cut-the-vat/.
[8] This was a requirement of Regional Spatial Strategies until they were abolished in May 2010: https://publications.parliament.uk/pa/cm201011/cmselect/cmcomloc/writev/abolition/arss121.htm.
[9] Local authorities are only required to *report on* home retrofits, not plan or deliver it. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/771851/HECA_Guidance_2019.pdf.

tied together and drive globalisation must also change.[10] Instead, national (and local) government should act as enablers to bring about the changes required, making this an overriding priority. There are some precedents for this, even before the COVID-19 pandemic. For example, the Rapid Transition Alliance (Newell and Simms 2017) claims that history is full of examples where we have accomplished the seemingly impossible in a very tight time frame. However empirically unpersuasive some of these supposed analogies (*e.g.* 1940, where the enemy was external and obvious), the general idea that human beings can achieve transformative change against even huge odds is important to hold onto.

Whilst such transformations are possible in principle, our economy must be constrained by different government priorities and policies if they are to be achieved. For example, a carbon tax and new rules to limit all new investments, both public and private, within a strict carbon budget, could be introduced now. Similarly, the creation of a national 'carbon army' of workers to undertake an energy-efficiency retrofit of buildings across Britain (Green New Deal Group 2013) could be unleashed to shift the economy straight from dealing with COVID-19 to the climate emergency. This should sit alongside introduction of a universal basic income to ensure no citizen is left behind (as has now been introduced in Spain, as a result of the coronavirus pandemic). New mechanisms are required to divert funding from fossil fuel extraction and carbon intensive construction, manufacture and operations, both nationally (such as recreating a publicly owned Green Investment Bank) and more locally (noting that it was regional and public, not for profit *Sparkassen* banks which underpinned the *Energiewende* renewable energy programme in Germany). Such measures should sit within an economy-wide plan that includes some kind of carbon rationing, led by the public sector to maximise the creation and sharing of community assets and services.

But it will take more than this. We need the institutional structures and skills to transition cultural norms and replicate actions locally, with collaboration between the public sector, businesses and communities across the UK. As well as thinking on a conceptual level we need to think through the breadth, scope and depth of change required, to see the reality of what works well on the ground.

1.3. Beyond Energy: Embedding Adaptation in Zero Carbon Transitions

The first true[11] national zero carbon plans aimed to eliminate the fossil fuel and nuclear power as part of our energy generation and use. Examples include the Zero Carbon Britain reports from the Centre for Alternative Technology[12] and négaWatt's

[10] See various works by Joanna Macy (https://workthatreconnects.org/the-global-context/) and Galbraith 1967.

[11] As opposed to net zero, which includes offsetting, like the UK government's plan published in 2019.

[12] These can be found at https://www.cat.org.uk/info-resources/zero-carbon-britain/research-reports/. 'Zero Carbon Britain: Rethinking the Future' (2013) gives detailed research of balancing supply and demand in a 100% renewable-energy-supplied UK. This adds to the work integrating land-use in a renewable energy strategy ('Zero Carbon Britain 2030: A New Energy Strategy' 2010) following the original report (2007). Subsequent work

zero carbon plans for France.[13] As the Zero Carbon Britain project progressed it explored the need for actions far beyond a 100% renewable energy supply: to transform land-use; manage energy demand; shift diets, and for cultural, economic and political actions to overcome the barriers that have blocked sufficient action so far. The 'Absolute Zero Report' (Allwood et al 2019) sets out the implications for trade and industry, including elimination of traditional cement and production of steel in blast furnaces, and fossil-powered aeroplanes and shipping.

There has also been an increasing focus on the need to embed adaptation into carbon reduction plans (transformational adaptation) and explore the consequences of failing to act sufficiently (deep adaptation). These two terms are described below:

- **Transformative adaptation** requires that the transition to zero carbon is set alongside adaptation measures together in one overall 'pathway' for change. These measures are needed to cope with the increasing severity, frequency and unpredictability of climate disasters alongside slow-onset changes such as overall temperature and sea level rises. This is explored in scenarios around how the UK may adapt (Lonsdale et al 2015) and is reflected in the IPCC (2018) report on the impact of 1.5°C global warming. The latter refers to this as "*climate resilient pathways*" and as "*ambitious and well-integrated adaptation-mitigation-development pathways that deviate fundamentally from high-carbon, business-as-usual futures*".
- Against the idea that we can achieve sufficient reductions in emissions and avoid catastrophe, Bendell (2018) believes that climate change will bring about societal breakdown within a decade and calls for '**deep adaptation**'. Read and Alexander (2019) similarly consider that civilisation, as we know it, is finished. Essex and Gallego-Lopez (2014) earlier highlighted that climate change will increasingly dominate plans across agriculture, health and cities, and how we conceive and manage disaster risks. Surely such a time is already upon us. In which case we should take note of the exploration by Klein (2007) of what she refers to as the 'Shock Doctrine' (and now morphed for her into 'Corona Capitalism'),[14] which could be read as a playbook of how existing powers, such as finance and corporations, might take advantage of a world increasingly dominated by climate chaos.

Even before the breakdown envisaged above, continuing on business-as-usual will shrink those served by our economies, increasing the scale of austerity and the numbers of people living precariously and just surviving, as contemplated by Saskia Sassen (2014) in *Expulsions*. Thus it is vital that we envision a future where the planning and actions are not just sufficient and radical but envisioned and

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by CAT has explored the impact of this energy strategy on diet ('People, Plate and Planet', 2014), the barriers to implementation ('Zero Carbon Britain: Making it Happen', 2017) and a summary of zero carbon energy plans and strategies published worldwide ('Raising Ambition: Zero Carbon Scenarios from Across the Globe', 2018).

[13] https://negawatt.org/The-negaWatt-2050-energy-scenario

[14] See https://www.youtube.com/watch?v=IFqNAEx1lm4 . This video clip from Naomi Klein opens with the words of Milton Friedman: "Only a crisis – actual or perceived – produces real change. When that crisis occurs, the actions that are taken depend on the ideas that are lying around."

implemented not only in everyone's interest but also with their consent. That is the focus of the next section.

2. The Need for a People's Climate Emergency Plan

2.1. Empowering and Deepening Democracy

If we are to shift both our energy supply and the scale of society's exploitation of nature, the whole nature of our society must also shift. Power structures must be eroded where they have been concentrated by money and intergenerational inequality, and are committed to continued exploitation and use of fossil fuels. Hallam (2019) proposes that this requires radical empowerment to act, transform and change things at the community level through non-violent direct action, because traditional politics has failed thus far.

Read and Alexander (2019) argue that a movement calling for change will not be enough, and that if we are to generate sufficient actions to shift the whole of society then ultimately all will need to be involved. Shifting from a protest movement calling for political change to an activist approach that brings forward the changes needed has implications for the type of engagement required by XR and the type of leadership required for a sufficiently green politics (Foster 2020). Smith et al (2020) propose that this complex societal shift needs to be many times faster than previous social movements have achieved, built upon local clusters of action with strong ties to each other. We need to do no less than tip public opinion to shift the range of policies that are politically acceptable to the mainstream, such that there is a realignment of politics. This is clearly not a small ask: if we struggle in this task of course we might lose, but if we don't we are guaranteed to lose.

Allwood et al (2019) argue that this must go beyond a protest movement that seeks government and business-led societal change but must also, crucially, transform public behaviour in ways that have a significant impact. Public opinion must back not flying and changing how we insulate and heat our homes, and not ignore these culture-shifting actions in favour of small high-profile actions such as avoiding plastic straws. This could build on the Transition Towns movement, which aims to reach beyond a twelve-step programme to come off our addiction to oil and create new social enterprises that strengthen community resilience and bring about community-led change. Our challenge is how to make such change happen everywhere – a nationwide upwelling of community activities.

We need citizens and communities to come together and face up to the climate reality of where we are now and where we need to be, to recognise the gap between these and what is required to enable this gap to be bridged, and, crucially, to accept and give up the things that will stop it from happening. This is no small task. It requires citizen consent and community resilience to come first and be reflected in a strategic plan. Peter Lefort comments that the shifts in public behaviour during the coronavirus crisis only happened because this was viewed as everybody's problem and that, crucially, it is hard to prioritise resilience when everyone else is prioritising

efficiency.[15] In prioritising the climate emergency it is vital to ensure that citizens are engaged and co-create responses to enhance their 'buy-in' to a different economics and different power structures as society is transformed.

Yet this is the kind of social change reflected in our collective response to the coronavirus crisis. And a recent YouGov poll of those experiencing the lockdown found that most people (85%) want to see some of the personal or social changes they have experienced continue afterwards, whilst just 9% want everything to go back to how it was before the pandemic (Pritchard 2020).[16]

So how might we take the positives from this coronavirus crisis response and put these onto a permanent footing to build the foundations for a climate emergency response? What might be the next steps to bring this about? How might citizen response-by-consent and co-creation extend to more fundamental changes required to address the climate emergency and become integrated across the whole economy? Such a people's plan might emerge as acceptance of the need for change grows and replicates across different communities similarly to how XR has grown into a national movement of local groups. But as highlighted in the recent debate between Caroline Lucas, George Monbiot and Faiza Shaheen (Lucas et al 2020) we must restore the collective economic immune system provided by the welfare state that has been eroded for decades ***and*** link this to the climate emergency challenge. Instead of simply building back better we need to take this opportunity to bounce forward. Instead of 'returning to normal' we need to flip to a 'new normal'.

This shift must be done so as to generate sufficient buy-in to snowball and morph or merge into a strategic climate emergency plan. The scale of this challenge should not to be underestimated: it must respect demands for immediate 'emergency' needs now, and incorporate class, inequality and cultural dimensions. Such changes will be contested by those powerful forces seeking to restore business-as-usual.

It is important that community participation and democracy are deepened, not bypassed, so that we shift to zero carbon living without recourse to authoritarianism or fascism. There may be a need a strong rule of law to introduce aspects such as rationing, but this must be something new, not a continuation of our current so-called democracy – one that is co-opted by corporate interests through lobbying and political funding, the cultural dominance of 'consumerism' through advertising and social media, and the tendency for populism to displace policies and truth in mainstream politics. One idea currently being proposed to help facilitate this change is to increase active engagement through citizen assemblies[17]. However, how this will relate to both representative democracy and existing power structures is, at the time of writing, still ill defined.

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[15] Peter Lefort is the Sector and Partnership Lead for Cornwall Council's Carbon Neutral Cornwall Programme. His comments were made during an online webinar (22 April 2020): 'Developing resilience to predictable and unpredictable change'.

[16] See also this IPSOS MORI poll – 'Two thirds of Britons believe Climate Change as serious as Coronavirus and majority want Climate prioritised in economic recovery' - https://www.ipsos.com/ipsos-mori/en-uk/two-thirds-britons-believe-climate-change-serious-coronavirus-and-majority-want-climate-prioritised.

[17] For example, see https://news.camden.gov.uk/camden-citizens-assembly-to-take-on-climate-crisis-challenge/.

2.2. Demand-led: Downshifting and the Need for Deep Cultural and Value Shifts

Transforming the supply side of the economy alone will be completely inadequate.[18] Allwood et al (2019) calculate that zero carbon requires both that no carbon emissions are produced by any industry or household in the UK or imported, *and* that energy consumption across our whole economy falls to 30% of its current level (which they contrast with the UK's final energy consumption having only reduced by 7% in the 30 years following 1990).

Such a reduction in total energy demand, reflected across all sectors will mean that individual and community scale behaviour changes must play their part in driving change. We need to wean ourselves off the excesses of our consumer culture at the same time as decarbonising energy supplies and capital investments. Cultural and behavioural shifts that scale down our consumption must progress hand-in-hand with changes in what we invest in, to bring about an overall transformation regarding how our economy works.

This reduction in overall energy use, and associated overall scale of material use, will require a shift from resources and land exploited for private gain, to being shared to meet the essential needs of all. Some will view this as a political challenge. Preserving essential services needed for all, before focusing on the (often high carbon) luxuries enjoyed by some was highlighted in the ways different countries responded to the COVID-19 pandemic. It is equally crucial that the climate emergency leads to changes to our individual lifestyles and shared norms that increase fairness and sustainability at the same time. For most this means downshifting our lifestyles together – not just each consuming a lot less, but doing so in ways that increase sharing, so that everyone's needs are met, as visualised by the concept of doughnut economics (Raworth, 2017). This means not only changes in where we source our energy and resources, but an increase in our connections to each other. This will be reflected in how we re-imagine not just our future, but our role in co-creating it, as explored in the next section.

2.3. The Role of Re-imagining Education

How can we see round corners? Because that is the kind of envisioning and courage we need to inspire what appears now to be impossible, in a similarly impossibly short amount of time. Jonathan Rowson (2019) proposes that a zero carbon transition requires, not simply includes, a re-imagining of education. Rowson draws on the German concept of *Bildung*: education as the formation of thinking autonomous citizens. Rather than seeing autonomy as being about the freedom of the individual to choose we should see it as an ability to evaluate reasons for choices and take responsibility for them.[19]

[18] See http://www.withbotheyesopen.com/, the Zero Carbon Britain reports (endnote Error: Reference source not found) and Allwood et al (2019).
[19] See MacIntyre, 1999, discussed in Chapman, 2007, p.131.

Taking the climate emergency seriously entails a re-purposing and re-organisation of education. Existing formal educational systems are geared to reproduce the existing social order, aimed at producing a ready-made labour supply. These processes reside in educational institutions, within increasingly transactional relations, based increasingly on the commodification of education. A re-imagining of education's purpose and location would need to change these, focusing, for example, on cultivating critically engaged citizens rather than trained workers or passive consumers (Barry, 2011).

Education must be orientated differently, towards a critical pedagogy of change that accepts climate grief and empowers people with purpose and dignity. Instead of viewing climate change through a lens of fear, we must learn the practical alongside the academic – learn how to be more resilient and how to adapt. Education also needs to generate creativity, a way of thinking that imagines the unimaginable. But, given the urgency of the situation, we cannot rely on the school, further or even higher education systems to change. We must think of education more broadly, to include on-the-job training for all workers and adult education co-delivered in and by the community itself.

Such learning by doing (Puri 2018) and active citizenship should increase support for the societal changes required. This was recently exemplified in how societal responses to the COVID-19 pandemic potentially shifted the 'Overton window' of what was politically acceptable, by enabling citizens to widen the consent for top-down changes in investment and strategic economy-wide replanning. Similarly in this re-imagining and re-organisation, citizens and community groups must re-assume a leading role. Thus, an economy geared towards a collective upskilling – including the re-skilling in historic lost (*i.e.* not fossil fuel dependent) technologies and socially useful production will not just create the skills but also enable the cultural shift needed to respond to the climate emergency.

In this regard, Paolo Freire's *Pedagogy of the Oppressed* (1970) might help address this challenge of education-into-action, striving to achieve change from the bottom-up whilst the levers of power still drive ever increasing orthodox economic growth and energy use, and hence direct society towards climate destruction, environmental ignorance and species extinction. Central to Freire's approach is conscientisation – working together to reflect on and become aware of each other's current reality as a precondition for transcending that reality and co-creating a better one. Through such a process, current governance structures can be understood better and actions for change identified. That is, though, only the first step. Beyond awareness, and before taking transformative action, we must make an imaginative leap together. This should lead us to engage with the shared values held across society and enable us to make the jump we need to make into a zero carbon future. Then, as we each change, what we collectively envision as possible will also change, and our collective journey will change both our shared destination and ourselves.

3. A Climate Emergency Plan for the Whole Economy

This section is less about the how to make a climate emergency plan, but how its remit must extend to completely transform whole sectors of our economy. It will

bring about structural changes and relocalisation of our economy, including in the following four key areas:

1. **Rethinking our use of transport.** Transport has so far not decarbonised in the UK, and aviation and shipping emissions are still increasing for the UK, and globally. The climate emergency will change the scale of our consumption and transform how much freight we transport long distances, leading to a shift in transport from increasing mobility to enabling local accessibility and resilience (see section);

2. **Reconnecting us to the Land.** How might we plan changes to land-use to shift us to local and sustainable food and wider production that is resilient and increases biodiversity (see section)?

3. **Creating Climate Jobs.** How might the plan lead through creating employment supported by changes to infrastructure, not the other way around? This would put us at the heart of creating the zero carbon economy, which will conflict with some current economic trends, such as automation and the gig economy (see section); and

4. **Build Resilience.** How can these aspects help to build local and systemic resilience – embedding the flexibility to adapt into emergency planning and increasing the resilience of communities, alongside a rapid fall in carbon emissions (see section)?

3.1. Scale and Subsidiary: Rethinking our Use of Transport and Relocalising Economies

Rethinking transport is central to restructuring the economy in light of the climate emergency. Yet transport's greenhouse gas emissions in the UK have increased since 1990, whilst emissions in other sectors have reduced (Hopkinson and Sloman 2019). This has led to the economy's carbon emissions being increasingly locked-in to globalised patterns of carbon intensive trade and a car-dominated culture. A radically different transport system is needed in a zero carbon Britain and world.

Overall this will require a dramatic reduction in journeys, changing the distance and ways that people and freight are moved. This must extend from how we commute to work and get around our local communities to completely decarbonising even aviation and shipping, which are the most polluting and fossil fuel dependant modes. (Some key points for addressing transport's place in delivering a zero carbon plan for the local economy are described by Joseph and Todd 2019.)

The rest of this section outlines some of the wider transport challenges that need to be addressed to decarbonise the economy as a whole:

- **Reverse the normalisation of hyper-mobility**. It is not sustainable for workers to commute from Bangladesh to the Middle East, or from Poland to the UK. It is not sustainable for long-distance commuting from across the UK for work in London (requiring additional rail capacity, such as provided by

HS2). It is not sustainable for the better-off to fly regularly on business, to see family and for holidays across continents and around the world. We need to shift the focus from how to continue these stretched-out interactions to how to recreate a stronger sense of place – where our family and friends, home and work are closer to each other, and more of our journeys occur within a local area, strengthening our web of community connections, which also increases local economic resilience.

- **Reverse the continued growth of long-distance transport.** Long-distance passenger and freight transport are both growing at a faster rate than everything else, increasing international trade, also known as globalisation. The UK's production-based emissions have been falling at 4% a year since 2010 but the consumption emissions (including our net imports) have only fallen at around 1.5% a year – a tenth of that required to stay in our fair carbon budget (Jackson 2019). Allwood et al (2019) conclude that we must plan for a reduction in demand and complete decarbonisation of aviation and shipping, just like every other part of the economy. Eliminating fossil fuel-powered travel will require a rapid reduction in flying and long-distance shipping as alternatives are not yet technically feasible or commercially ready to be mainstreamed. This will require significant changes in our industrial production and local reuse of resources.

- **Climate emergency actions must be planned with a short payback – so stop investing in transport infrastructure to drive growth.** This removes justification for the likes of HS2: what we do must be justified on the basis of what is needed now to shift is to zero carbon. Long-term is a luxury to consider after we have eliminated carbon worldwide, which will result in a different palate of materials and energy sources with which to plan further changes. Whilst HS2 may have long-term payback, putting the climate emergency first will change what governs investment decisions.

  All strategic economic plans should be carbon-proofed. Carbon emissions and wider environmental and social and public health co-benefits of reduced air pollution, improved road safety and co-location must be considered in place of narrow cost benefit analysis and economic comparative advantage used to justify investments that lock-in future carbon emissions. We must shift away from investments that are carbon intensive in construction and use (*e.g.* road building) to transformative changes that are people, not technology, led.

  For example, the Dutch cycling culture followed a long process whereby changes to legislation, habits and infrastructure became self-reinforcing. Only investing in new infrastructure that generates a positive 'carbon return on embodied carbon invested' would mean far less new transport infrastructure and *instead* more investment in renewable energy. And we need to redefine productivity to reflect the climate emergency.[20]

[20] The UK government's current definition of productivity measures energy and material intensive (thus carbon intensive) activities in the economy as highly productive (see assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/443897/Productivity_Plan_print.pdf). This needs to change.

- **Redefine how we plan transport systems, starting with demand reduction.** Proposals range from a 10% modal shift to reduce transport demand (Committee on Climate Change, 2019), 20% reduction of road mileage by 2030 (Hopkinson and Sloman, 2019) and 60% overall reduction in road use (Allwood et al, 2019) to meet the government's 2050 target. Similarly, the Centre for Alternative Technology's target of zero carbon by 2030 requires a 78% reduction in transport demand (Allen et al 2019). The clearest framework for delivering this is that set out by the Partnership on Sustainable, Low Carbon Transport: 'Avoid, Shift and then Improve'.[21] First, we need to end predicting the need for, and then providing, ever more transport. Instead we must manage and reduce the amount of travel required – including for international travel and freight – and both bring production closer to where it is consumed and use spatial planning and economic planning to co-locate where we work and live. Second, demand reduction requires a modal shift from private motor vehicles to increased walking, cycling and public transport use. As well as reducing carbon emissions this modal shift reduces the road space required, removing the need for additional infrastructure (because walking, cycling and public transport take up less space than normal mixed traffic – see Figure 9.48, Ribeiro 2012). Finally, the remaining transport should be powered by either renewable-energy-generated electricity or hydrogen, so it is all zero carbon.

3.2. Reconnecting us to the Land and Local Food Production: Planning that Prioritises Climate Action

A climate emergency plan will also need to rethink our relationship to the land, and be reflected in land-use planning. Currently we plan new development, but do little to plan how we use the rest (most) of our natural environment. Land, food, energy use, infrastructure and livelihoods should all be considered together. However, the private ownership (and little planned change of use) of large amounts of land currently constrains efforts for transformative change, such as in:

- Food and farming practices;

- Delivering mass-retrofit of existing homes and other buildings (noting the different ownership and occupancy of homes on most streets); and

- The inter-relation between different (now privately owned) infrastructure systems. Changes to one (*e.g.* increasing the flood protection of a road or runway) can have knock-on effects on others (*e.g.* flooding of farmland, housing or an electrical substation downstream).

Changing our farming and land-use practices in ways that minimise overall energy use (whilst eliminating carbon emissions) will require localised and smaller scale production. This could be thought of as trade subsidiarity (Scott-Cato 2003). The current coronavirus pandemic has exposed the fragility of the UK's food security,

[21] For example, see https://unfccc.int/sites/default/files/resource/196_SLoCaT-PPMC%20-%20Talanoa%20Dialogue%20Submission_HDWGT.pdf.

reliant on a web of just-in-time global supply chains, as over half of our food is imported (Lang 2020). Localising farming practices, renewable energy production and sustainable sourcing of building materials will increase community resilience and local character, as reflected in geographical (and seasonal) differences in diet and building materials. Minimising expenditure of energy will be helped by a grounding in the ideas of permaculture as far as practical: less use of artificial fertilisers and less intensive production of meat in which grain is fed to animals.[22] Such changes will require a plan for land-use changes across the UK, linked to delivery of a zero carbon economy, as explored by Chapman *et al* (2018), Figure 2. For example, we could plan to plant orchards to grow more apples in the UK, removing the need for imports (in 2019 the UK imported over 300,000 tonnes of apples). This will undoubtedly affect our view not just of the natural environment, but also our built environment and overall values. A desire to increase biodiversity alongside more local and sustainable agriculture will encourage rewilding (see Tree 2018) and reforestation, including upland planting that increases the resilience of watersheds. We will revalue nature and its biodiversity, investing more in making our agricultural and other land a place rich in wildlife. We will change to manage our water, energy, food and land together, as interconnected systems.

Alongside land-use planning that relocalises our food production and better values nature, we need to consider how a climate emergency plan can bring about a zero carbon built environment. This should start by ensuring any new development does not further increase our energy and carbon footprint. But our planning system currently fails to account of climate change. The UK's national planning system does not even require (or allow local authorities to require) new homes and other buildings to be zero carbon. Instead each local council produces plans for ever more new homes, retail, industry, waste and quarrying (but not renewable energy), at different times, on a fifteen-year cycle. But the climate emergency cannot wait for each local plan to be updated at different times over the next decade. We need an emergency planning process to be put into place across the UK now, through recognition of the climate emergency in the UK's national planning policy framework, as well as in all plans led by central government. Ideally, all proposed new developments should produce more energy through renewables than they consume.

But an even bigger challenge is about how we transform what exists already – to transform all existing buildings and infrastructure to become zero carbon in use and to be maintained with sustainable (and ideally local) materials. We should better appreciate the value (in resource and embodied carbon terms) as well as the character and history of what we have already. Focusing on retrofit of existing buildings first (rather than building new ones) will reduce the carbon emissions embodied in materials, as the materials required will be limited to items such as insulation and solar panels. However, an even greater challenge is the upskilling and mobilising a new workforce across the UK to enact a climate emergency plan.

[22] Growing grains and other feed for cows, pigs and sheep is exceptionally inefficient, as up to 80 times more grain is required to create the same calories for a meal of meat as for a meal made from the original grain (Allwood et al 2019).

3.3. Transforming the Economy Through the Creation of Climate Jobs: The Resilient Alternative to Automation

So where, geographically, should the efforts to deliver climate emergency plans be focused? Research undertaken by Green House (Chapman *et al*, 2018) shows the distribution of 'climate jobs' that both help to bring about the transition to zero carbon and, in the long-term, are more equally distributed across the UK than the current economic strategy, focused as it is on expanding the major cities. This suggests that the zero carbon transition will necessitate a change in the UK economy, and hence political power, away from capital spending on infrastructure focused on London and big cities, and shift spending from a national to local level.

This will likely move the focus of the economy to invest in more sustainable and resilient town-scale communities (neighbourhoods within urban areas alongside a shift to a more rural economy overall). Encouraging a flourishing of rural productivity and self-reliance will enable a culturally more fulfilling flourishing of 'bioregional' economies (Scott-Cato 2013).

The shift to more rural and community-scale investment will strengthen local economies and be socially useful too. It will let loose a just transition from carbon intensive industries – embodying craft instead of carbon – as we fashion ourselves a new future that regenerates ex-industrial areas stuck with intergenerational unemployment. Farm-to-shop initiatives will help regenerate run-down 'market' towns.

Whilst the processes of product specialisation and substitution of energy for labour created monopolies and a global consumer culture, the process of localisation will not be automated. Recreation of local distinctiveness and culture requires people. Reducing the current global separation of production and consumption will help reconnect us with each other and our local environment. Instead of seeking ever more 'comparative advantage'[23] we will shorten supply chains and increase local economic connections, building up cooperation and community and economic resilience. This could be viewed as a cooperative advantage of co-location and collaboration, particularly as transport and energy costs drive different longer-term decision-making norms. Industrial ecology will increasingly co-locate different productive processes to maximise co-benefits, such as paper production's waste being used to make low-temperature-fired clay blocks (instead of bricks), smaller scale anaerobic digestion being linked to agriculture and surplus wind generation being turned into hydrogen to meet needs locally.[24]

Local economies will again produce for local needs first, by shifting from globally embedded and linear 'take, make, break and throw away' journeys of stuff to locally circular and regenerative economies that first remake and repair, reuse and share what we already have. This will help us slow down and relax more as we shift from the just-in-time global dash for growth to have space and time to reconnect to what builds a quality of life without such a quantity of stuff. We will retrofit existing buildings

[23] See https://www.investopedia.com/terms/c/comparativeadvantage.asp, which points to David Ricardo's 1817 work: *On the Principles of Political Economy and Taxation*.
[24] For example, see https://www.theguardian.com/environment/2019/jan/20/orkney-northern-powerhouse-electricity-wind-waves-surplus-power-hydrogen-fuel-cell.

and repurpose existing products before rushing for whatever is new. We will plan to use less and share more.

Making getting to zero carbon fast our societal priority will mean more people working to make it happen. Many claim the future will involve more automation so fewer jobs. But perhaps one of the biggest distinguishing features of automation is that it is a top-down, often infrastructure-heavy response, whereas a typical emergency response is reliant on a groundswell of activity. We have don't have sufficient time for top-down infrastructure-led solutions, and they often lock-in existing patterns of behaviour rather than inspire the changes in lifestyle needed right now. In contrast, after a disaster event those who are there before any emergency support arrives are neighbours and the like, showing a reliance on the pre-existing resilience of communities. Similarly, retrofitting every building in the UK, relearning how to travel together and work and live more locally cannot be automated – nor can local organic food production, caring for the old or the sick, or repairing and reusing. These require us to work together locally, relying less on global supply chains, let alone robots, to provide our security and wellbeing.

Some aspects of technology will surely be useful, but more as tools to support a people-led transition rather than being the mainstay of the system. For example, mobile apps will make public transport more accessible by foot, bicycle and e-bike. But whilst we need to vary demand to create a more resilient electricity grid this may not require all electrical devices to be connected to the internet. Furthermore, technology's effects are not always beneficial.

And crucially, in relation to the climate emergency, behaviour change can 'take back' energy efficiency savings, reducing carbon reductions (Brockway et al 2017). For example, increases in fuel efficiency of cars tend to increase miles driven, reducing the expected benefit (Herring and Sorrell, 2009). Similarly, savings in home heating and car ownership for residents at the BedZED ecovillage in London were largely offset by increased overseas holidays (Hodge and Haltrecht 2009). These direct and indirect 'rebound effects' show just how hard it is to decouple energy use from economic growth (Sorrell and Ockwell 2010). Technologies must be part of a wider plan that transforms behaviour not just at a household level but shifts cultural norms, and be coupled with international agreements that keep fossil fuels in the ground.[25] But increasing automation and technology-led changes can both increase embodied carbon and lock-in current patterns of consumption. Wider changes that unlock full decarbonisation of our economy require us to instead deconstruct the ways in which expanding infrastructure, industrial capacity and levels of consumption each drive growth in the other two (Essex 2014).

It is also unlikely that the future will necessarily have single technology 'winners' due to resource constraints. For example, there are not enough rare earth metals for either hydrogen fuel cell or electric batteries to power the current number of vehicles worldwide. Complexity going forward is more likely to be in how different parts fit together – this is more about how culture and different elements of our society work

[25] This is a key argument made by Mike Berners-Lee (in Berners-Lee, 2019 and 2013): gains from efficiency are generally more than wiped out by the rebound effect, and what we need is a global deal to keep fossil fuels in the ground.

together, than seeking a techno-fix. It is not simple enough for that, and in any case there is not enough time.

The zero carbon transition will create new meaningful work in place of high-carbon and bullshit jobs (Chapman et al 2018, Graeber and Cerutti 2018). For example, home energy makeovers will free up the wasted effort in extracting fossil fuels and clear-cutting forests. We will surely need to multi-task as some jobs, such as crop harvesting, are seasonal but should increase community resilience, rather than extend the precariousness of work under the gig economy. Naomi Klein describes this as a Green New Deal that moves us from the 'dig and gig' to the 'care and repair' economy (Klein, 2019). More regional and local autonomy will increase local distinctiveness (*e.g.* different building vernaculars reflecting the different traditional, renewable and low-impact building materials that can be sourced locally) and seasonal change (*e.g*. change the food we eat, clothes worn and how spaces are used according to the time of year). Work that cares and sustains – not just caring for people but the 'caretakers' of our buildings, repairers and those who tend our land – must be valued more. As demonstrated by earlier research by Chapman et al (2018), these jobs will most likely be more in rural areas. So, rather than a trend to urban living for all but those who secure the resources on which our lives depend, the climate emergency economy will most likely revalue and consider as 'key work' the livelihoods of rural communities worldwide.

3.4. Creating a New Normal Now: Emergency Planning, Resilience and Empowerment

Emergency planning is completely different from business as usual. It is an opportunity to create something different, popularised in the phrase 'build back better' to describe how to respond to natural (including climate-induced) disasters in ways that increase resilience. The best way to respond to a disaster is with hindsight, and to build in a reduction to the potential risk of future disasters: disaster preparedness. But for climate change the only way to reduce long-term risk is to match adaptation to the already inevitable increases in climate shocks and stresses (storm surges and sea level rises, droughts and floods, and the knock-on impacts on food supplies, *etc.* - see for example Essex and Gallego-Lopez 2014) and rapidly decarbonise now. We must do this, and it is the stated aim of almost every government worldwide to avoid, not prepare for, the apocalyptic potential of runaway, dangerous climate change. Yet that is the future that our collective ways of living are hurtling us towards.

So our emergency planning needs to not just be fundamentally different from business-as-usual plans but better than the best emergency planning, applied together as a co-created and enacted plan for the planet. Together we must 'bounce forward', building both resilience and the ability to sustain a way of living without carbon emissions, within our planetary limits, with quality of life equally available for all. Yet we should not balk at the size of this challenge, but draw on the only way that humanity can sufficiently respond. There is not a single technology that will solve this problem, instead it requires our shared intelligence and innovation, courage and honesty to not just respond, but change how we live as we do so. We must *act now and act together*, and take collective responsibility for meeting the challenge that defines our generation.

This means our task is not only to envisage a future community, country and world that is zero carbon in the near future, and then planning how to reach that target; it also entails transforming how we live *now* that enables that plan to be successful from the outset. Action and planning must happen together, interweaving policy and practice, finance and expertise as we set out to create a different, possible future.

Imagine that we need to rebuild the town where you live – but we cannot simply start with a blank canvass and start again. We need to transform *your* town, from how it is today, with as little additional energy and resources as possible, quicker than anyone believes possible, involving all of the current residents. What does the collective intelligence of your community look like? All communities? What might governments (ours and all) do to remove the obstacles that hinder us? And what might it look like for them to do *everything possible* to ensure our collective endeavours are neither held hostage by anyone nor leave anyone behind.

4. A Plan to Face Reality

The climate emergency requires plans that are sufficient, people-led and economy wide.

1. A Plan that is Sufficient

- **Start Now**. We cannot afford to plan first, to the extent that this delays actions, as there is precious little time left to act as it is. Strategic changes must incentivise demand reduction, making space for economy-wide transitions. There is no blueprint written already, yet we must start now and augment the plan as the process, the pathway and the journey unfolds. There is no need for a perfect plan for it will change and evolve. It must build policy into practice and vice-versa, in real time. Planning and doing are joined, not separate. Yet it must be far sighted by recognising where we are and where we are heading, and start by changing direction. Our plan must span from the immediate to the very long term. Planning for the emergency and planning for the future are now one and the same.[26]

- **Zero Carbon Sooner**. It should aim to stay ahead of the climate science, and consider both production and consumption emissions in the UK. This is means a zero carbon deadline between 2025 and 2030 at the latest.

- **Be Adaptive.** We need to be flexible and adapt to climate and ecological stresses and disasters that are already inevitable as we drop our emissions to zero.

2. A Plan that is People-led

[26] As that most unlikely of climate emergency thinkers, Niccolò Machiavelli, wisely noted, ‘Make no small plans, they have no power to stir the soul’.

The plan must replicate and scale-up as an action-and-learning process that spans places and cultures.

- **Be Inclusive and Cooperate.** This needs to include both those most affected by extreme climate chaos and those whose livelihoods are currently wedded to industries that obstruct transition. This requires an honest debate about the major changes required to our economy and society to confront the climate emergency. Willis (2020) says this requires us to build a confident climate politics: that speaks out, engages in meaningful dialogue and appeals to the head as well as the heart.

  We need to be the glue and grease to bring people and actions together into one plan. We must respect difference with dignity; build diversity and biodiversity, culture and sense of place; empower all, like letting a thousand seeds of hope grow. Public and private sectors, individuals and communities must all take part together. Not waiting for each other, but coordinating. Winning strategies should be freely shared, replicated and rewarded. The plan should welcome all and have no barriers to entry. Everyone can change their own ways of living, and push for change. This means the plan, and how to get involved, must be easy to understand.

- **Be Creative and Learn**. We need to explore and reimagine how we change from where we are now with what we already have – with a minimum of time, materials and energy. How can the plan function as a process of learning that builds and reflects citizen participation and empowerment? Engagement and participation will bind together plan-making with delivery, in ways that are both iterative and interactive. Discovering and replicating the collective intelligence of communities will be a crucial part of deepening cultural shifts and radical transformation. The process of learning will help bring about a more sharing society that, through changing our interactions from global transactions to more personal relationships, will help unlock the potential for transformative change and more rapid decarbonisation across the wider economy.

3. A Plan that is Economy-wide

- **Essential Needs Come First.** The resilience of communities and the overall systems that meet basic needs come first. In this case our climate and biodiversity, equality and wellbeing are equal priorities. Instead of social and environmental priorities being traded off against each other they must be delivered together. Focus on the wider economy (development, production and consumption) is then secondary to these shared social and environmental aims.

- **Reduce Scale and Rethink Systems.** This will be a complex interwoven process, across sectors, across places, not a step-by-step one. We have only so many resources to utilise for the response. Energy use needs to be limited as carbon emissions are eliminated. Our scale of production and consumption, and links to the process of economic development, must be replaced by a localisation and selective deglobalisation. Energy and carbon we use along the way must be included. We must reduce the scale of both production and

consumption. This will lead to a rethinking of global economic systems and how trade, transport, investment and industry link production and consumption. This emergency is recognised as an economy-wide and planetary-sized shift in our worldview that will also be reflected in individual- and community-scale shifts in how we live.

- **Shift Investment: Blocking** business-as-usual carbon emitters and **enabling** only critical investments that align to the climate emergency. The plan must equally stop business-as-usual activities and investment. The whole economy, the whole world, needs to shift to an emergency footing, as a new normal. This must be regulated and enforced. We should act as if this is a climate emergency now, whilst planning for a different future. We must move from investments that increase how much we produce and consume, to those that facilitate rapid demand reduction and shifts in ways of living. Finance needs to be reregulated and redirected to serve the real economy as it transitions beyond carbon, globalised free trade and orthodox economic growth. This will mean more renewable energy capacity, whilst other infrastructure requirements reduce. This is critical as our current investments and behaviours will determine when carbon emissions peak and how fast they then decline. Long-term planning will be about ensuring equal access to the far more scarce resources in our 100% renewable-powered economy. Just like in the COVID-19 crisis the we need to recognise the value of essential goods and key 'care' workers (see section).

- **Create its Own Momentum and Workforce.** As mentioned already, in an emergency response that is people-led it is more likely the focus will shift from investing in infrastructure to enterprises that employ people (climate jobs) working to transform demand and the systems that define how we live, together. Active participation, including through co-creating these new local 'climate jobs' will realise the hope that a different future is indeed possible, and requires us to take an active role in bringing it about. Thus the plan will accelerate itself the more people get involved in co-creating it, which is indeed the same as making it happen.

Conclusion: Our Journeys Co-create our Destination

As stated above, firstly, a climate emergency plan must be sufficient: starting now, as a journey, and reaching zero carbon far sooner. It will flexible and adaptive, linking actions and strategies to decarbonise in ways that also help us better respond to climate disasters that are now already inevitable. Secondly, it must be people-led, based on the principles of inclusivity and cooperation. It will be creative and learn as it progresses, so we can envision whilst enacting a zero carbon future. Finally it must be economy-wide. This means we will prioritise our essential needs as we shift to living in ways now that reflect the climate emergency. The shift in investment from things that block to those which reinforce the shift to zero carbon will change economic systems and create the workforce that will make it happen.

Bringing about this change in sufficient time will be affected by what *all* of us do. The sum total of our personal journeys from high carbon to zero carbon will help

define when and if we reach that target – not just because the sum of our collective actions have significance (although not significant enough on their own, because top-down systemic changes are also vital) but because individual and local-level actions open up the possibility of the wider changes being realised.

Similarly, from a social perspective we need to accept the current cultural resistance to making this journey to zero carbon; this resistance means that leadership requires more participation and planning, energising and empowerment, to actively involve as many people as possible. Changes can generate momentum of their own once a critical mass of committed action is reached (three out ten people doing something in one area, such as having milk delivered in glass bottles, makes something normal. See Gladwell 2000). This collective action is expressed by Joanna Macy as active hope (Macy and Johnstone 2012).

This means that the climate emergency plans we create today – which are our 'best possible vision-and-action-plan' for the change that is needed and indeed is possible – should, hopefully (with the Deep Hope envisioned by Foster 2017), be deepened in the future. There will remain a tension between the need to make plans that we can deliver now and the need to reflect the dates and carbon budget, which define the true emergency that we find ourselves in. This tension requires us to refine and update our plans as we implement them, to bridge the potential gaps between emergency response actions, strategic planning, cultural shifts and infrastructure investments. Plan-making is thus not separate from the task of getting on with remaking and mending our economy. Fairness and sustainability are similarly interwoven, such that as we decarbonise and localise we must share resources as we share the values such that no one is excluded or left behind. As we reconnect our economy to a way of living within our planetary boundaries, we define our culture as one where we reconnect not just to nature but also to each of us.

This points to the need to quickly set out and start to act on climate emergency plans now. These suggestions of what a climate emergency plan that faces up to climate reality might look like could be seen as a version 1.0. This will surely miss areas of importance and be quickly surpassed in others. But it is more important that we get on and put our emerging plans into action than attempt to the write the perfect plan first. There is not time for that. We just need to both plan and put into practice all that we can. Including, most importantly, stopping what we can no longer afford to do. Starting now.

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