



Facing up to Climate Reality: Introduction to the Project

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By Brian Heatley and Rupert Read

At the advent of danger there are always two voices that speak with equal force in the human heart: one very reasonably invites a man to consider the nature of the peril and the means of escaping it; the other, with a still greater show of reason, argues that it is too depressing and painful to think of the danger since it is not in man's power to foresee everything and avert the general march of events, and it is better therefore to shut one's eyes to the disagreeable until it actually comes, and to think instead of what is pleasant. When a man is alone he generally listens to the first voice; in the company of his fellow-men, to the second. (Tolstoy 1849, 886, War and Peace, on the consequences for Russia of the French invasion of 1812)

Introduction

Why isn't more being done about dangerous human-triggered climate change?

Why isn't the world responding adequately to all the warnings from climate scientists and from advocates of the Precautionary Principle?

Why do we find it so hard to think about a world where the climate has changed massively, veering between 'it won't make much difference, everything is going to be fine' to 'it's the apocalypse, the end of the world, there's nothing we can do', but refusing to think about the awful, but more middling realities?

What would truly facing up to the reality of climate change mean in practice?

In this project, we in Green House plan to examine some possible explanations for the overwhelming level of failure to face up to the reality of climate change and to act accordingly, including:

- Concern that responding adequately to human-induced climate change would make current patterns of economic growth & 'development' unravel – and that 'we can't let that happen';
- A mismatch between the climate crisis and the political institutions and ideologies being looked to for solutions, especially under neoliberalism: above all, the rising star of 'freedom' and the (correct) perception that libertarian-style freedom for capital is incompatible with the kind of concerted action that would make climate-sanity and climate-safety possible;
- The deceptive self-interested role played by the fossil fuel industry (and by various other high-emissions industries); and
- The feeling that climate change remains remote, abstract, diffuse & and in the (relatively far off) future.

In fact, it is happening now, and the level of persistent greenhouse gases currently in the atmosphere already guarantees that it will worsen for a long period of time. The election of President Trump has put a climate-change denier in charge of the nation responsible for more emissions historically than any other (and still the second-biggest emitter). The effects thus far of those greenhouse gases already in the atmosphere continue to exceed the worst expectations of modelers. 2016 is – *for the third year running* – the hottest year ever recorded (Guardian, 14/11/16).

Climate scientists anticipate at least a 2°C increase by the end of the century, and many believe that this is in fact a conservative projection, with the increase likely to be at least in the 3-4°C range and possibly (especially if recent trends extrapolate) much higher. Indeed the continuing exploitation of fossil fuel deposits, and especially the massive increase in hydraulic fracking anticipated over the next fifteen years, suggests that the latter figure is probably more accurate, as a likely *minimum*.

But policies promoting economic growth remain hegemonic (accepted from Trump to Clinton to Sanders, from Farage to May to Corbyn). Serious doubts surround the efficacy of so-called 'green growth' and the projected increase in global aviation (and in intensively-reared industrial meat) where renewable energy options are not an option and where eco-efficiency has highly limited impacts. Against this background, there is very little prospect indeed of any of this changing anytime soon.

This highlights one aspect of the problem that we believe is so very difficult: truly accepting the reality of self-imposed deleterious climate change, and accepting that this supertanker is going to take a very long time to turn around, involves accepting the *end*, for the foreseeable future, of the dream of endless human 'progress'.

Virtually all treatments of climate-change (notably the much-discussed 'Stern Report') pretend that one can have endless economic growth while preventing climate-catastrophe. And virtually all treatments similarly pretend that our lives are going to get better and better, as we grow the economy forever and rein in human-caused climate change.

Instead, things are on balance going to get worse. And virtually no-one wants to admit this.

In this crucial sense, virtually the entire world, by our lights, is engaged in climate-denial.

This project, *Facing Up to Climate Reality*, will seek to manifest *climate-honesty*; to talk about why we won't face it, and to think honestly about what it inevitably will be like.

It is the sequel to our previous collective project, *The post-growth project*, which sought to begin the challenging process of getting countries like the U.K. to face up to the need for, and to the reality of, the ending of 'economic growth'. In this new project, we seek to begin the perhaps equally challenging (and clearly connected) process of facing up to the brutal, present, enduring reality of long-term levels of rising climate-damage.

In *this* project, we will suggest that real climate-honesty is the necessary prequel to *effective* climate action. We will discuss how a programme of *transformational adaptation* might enable us, collectively, to do something which as yet hardly anyone has managed: to take seriously, as very few do, that we are now as a species and a planet *committed* to some degree of escalating climate chaos, already, and that the world is going to worsen, for some considerable time to come...*and yet*, at the same time, not to give up, but to contin-

ue and indeed step up – taking far more seriously – efforts to mitigate/prevent. There are very very few voices that fully accept the reality of a deteriorating climate while not in one way or another giving up on transformatively adapting so as to save ourselves.

We want to investigate, in effect, *why so few people have managed yet (even to try) to do what we are setting out to do*. i.e. Why are people either in denial about how bad things are / are going to get, or in a state of despair / cynicism / resignation. And this denial has another consequence; it means very few serious accounts of what a climate changed world will be like, outside that is some pioneering fiction. We plan to extend the excellent and copious work about what the climate will be like to try to work out its biological, economic, political and social implications, and how our ways of thought may be affected.

There is an enormous wealth of work already out there on climate. We do not seek, obviously, to replicate it. We seek to complement it. We build on ideas such as those of George Marshall and the Climate Psychology Alliance in relation to the psychology of the situation, of *Climate Code Red* (website at <http://www.climatecodedred.org>) in relation to public policy, of John Foster (Foster 2015) and 'Dark Mountain' (website at <http://dark-mountain.net>) in relation to the counter-productivity of narratives of 'sustainable development' in the current context,. What we seek to *add* is perspectives from philosophy, political economy, history, practical experience, the arts and more which absolutely rigorously and deeply aim for climate-honesty without counselling despair. We are determined to be honest, while being determined not to give up on politics and policy, without either optimism of the intellect or pessimism of the will.

This is our 'USP' in this crucial but crowded field.

There is much moreover that we won't try to do at all, even if we were competent to do so, as it is largely already done very well by others:

- we will not engage in the scientific projection of global temperature rises, already well covered by the IPCC etc etc.
- we will similarly not engage in predictions of overall climate both globally and regionally, taking the work of others (eg IPCC) as given, but recognising the importance of the fact that uncertainty increases the further we look ahead;
- we will not look at current climate changes such as melting ice caps or changing ocean currents, as once again others are doing plenty of this;
- we will not discuss current technologies (mainly renewable energy technologies) for mitigating climate change;
- we will not consider the shorter term economic effects and costs of transition to a greener economy, covered for example by Stern, so we will not debate whether net green growth is possible (at least, in 'developed' countries); we don't think it is.

We turn now to detail our first assumption: that 'dangerous climate change' will now inevitably happen - that dreams of 2 or 1.5 degrees are now basically untenable, within most of our lifetimes.

Dangerous Climate Change is now inevitable

Our first assumption will be that dangerous climate change involving a temperature rise of at least 4°C by 2100 is now inevitable, despite the Paris Agreement and talk of 2°C. The purpose of this section is to persuade you of that.

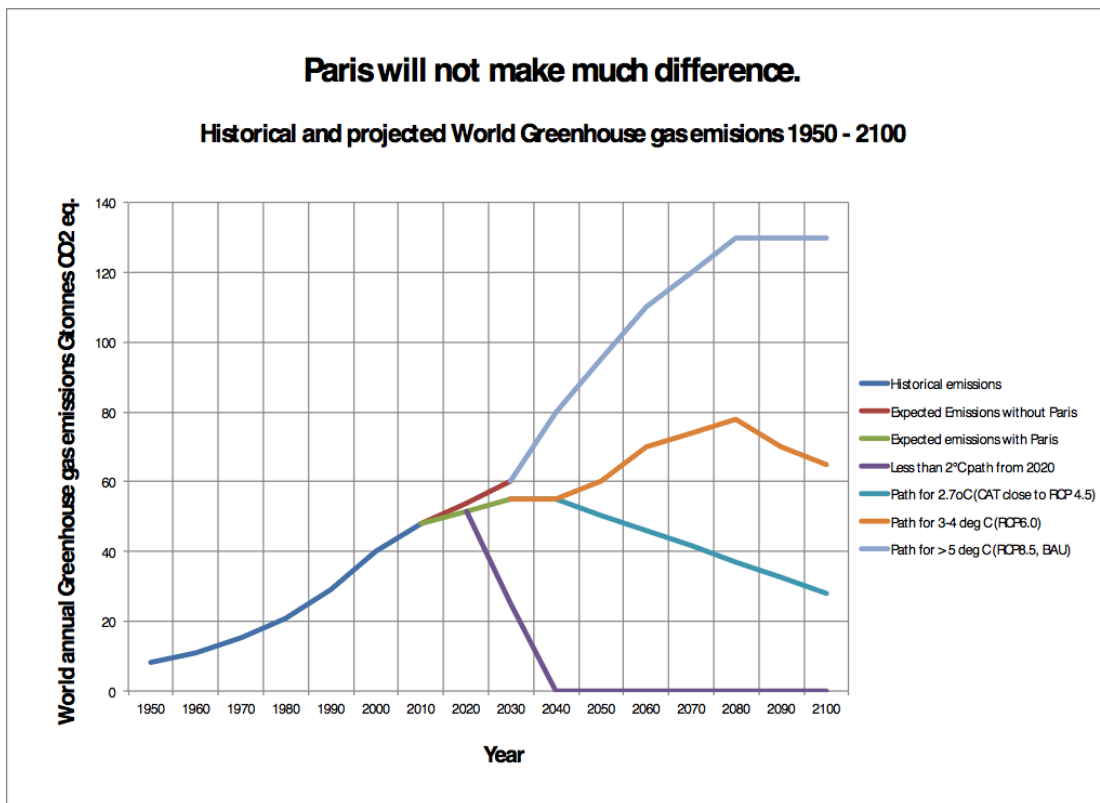
It is not just the election of a climate change denier to the US Presidency that persuades us of this. Quite independent of Trump, and the way that other big emitters like the Chinese react to a potential US-prompted free for all, or whether the UK post Brexit will abide by EU targets, the Climate Agreement signed in Paris at the end of 2015 would not anyway have saved the world.

The headlines said that at Paris the world's nations had agreed to limit climate change to 2°C, and even recorded an aspiration to keep it within 1.5°C. 1.5°C is plainly impossible; global average temperatures are now already 1°C above pre-industrial levels (Guardian 09/11/15), and further warming to 1.5°C is now very likely indeed even if, *per impossibile*, no further greenhouse gases were emitted (King 2016).

A global rise of 2°C is not at all a satisfactory place to be; it is simply the level that a majority of scientists see as possibly safe, in that it is *perhaps* unlikely to lead to further runaway climate change based on feedback effects. It would nevertheless lead to substantial harmful climate change, and even the total inundation of some low-lying island countries.

But Paris will not contain the rise to 2°C, even if President Trump were to turn out to be a fervent environmentalist. To see this we have to see what the substance of the Paris Agreement actually was. Paris amounts to a series of unilateral 'Intended Nationally Determined Contributions' (INDCs) by individual countries. The EU countries (including the UK) for example have promised collectively a 40% reduction in domestic green house gas emissions by 2030. China says that its emissions will peak in 2030 at the latest, and that it will lower the carbon intensity of GDP by 60 - 65% below 2005 levels by 2030. The US has undertaken to reduce net green house gas emissions by 26–28% below 2005 levels in 2025. And so on. In total 185 countries covering around 94% of world emissions made such promises (ClimateActionTracker 2015).

The small effect of Paris can be seen in the graph below. The blue line on the left shows what has happened up until 2010. The short red line from 2010 to 2030 shows what was expected to happen without Paris. The still rising green line shows what is expected if Paris were fully implemented. No, it's not very different.



Source: Authors' construction based on (UNCC 2015, 11) combined with (IPCC 2014)

To see that the 2°C target is now impossible, we can use the IPCC's estimate that to stay within 2°C no more than 1000 gigatonnes of CO₂ equivalent could be emitted after 2010 (IPCC 2014, 10). We now add to that stock at a rate of about 50 gigatonnes a year (see graph). Even with the Paris pledges we will go on emitting over 50 gigatonnes a year for the next 20 years, or a total of 50 times 20 which equals 1000 gigatonnes. It defies everything we know about the longevity of energy infrastructure investments and how the economy works to suppose that emissions will just stop altogether in the 2040s, especially in growing economies. So 2°C must inevitably be substantially breached.

Even if in 2020 a radical programme of reduced emissions was started, and one that went far beyond the Paris Agreement, it would need to achieve zero emissions by 2040 to stay within the 2°C limit (the purple line on the graph). This is because by 2020 there will have been a further 10 years of emissions after 2010 at 50 gigatonnes per year making 500 gigatonnes. So after 2020 there are only 500 gigatonnes in total left (1000 – 500 = 500 gigatonnes). If we were to reduce to 0 emissions by 2040, we'd have 20 years with average emissions of 25 gigatonnes (because we start at 50 gigatonnes a year in 2020, and reduce to 0 in 2040). Then 20 years times 25 gigatonnes a year equals this 500 gigatonnes. Zero emissions by 2040 is simply not going to happen.

So what will happen? Surely the *very most optimistic* assumption we are entitled to make based on current political agreements and actions across the world is that emissions will continue to rise after 2030, hopefully leveling off later in the century – though this is more hope than experience to say the least. This is broadly represented by the orange curve on the graph, which is associated with a 3-4°C rise. This is endorsed by a recent (November 2016) UN Environment Programme report which estimates that we are actually on track for global warming of up to 3.4 degrees Celsius' on the basis of the Paris Agreement being implemented (UNEP 2016, pg xi) – which one of the authors of this report predicted

as the Paris Agreement was reached in late 2015 (Heatley, 2015). More *realistically*, we might instead expect the future simply to reflect the past, and follow the top light blue line, which is the IPCC's 'Business as Usual' case, where the temperature rise is in the range 4-5°C.

So we must assume that the level of global temperature rise associated with carrying on as we are with emissions limited to broadly current levels – at the very least a 3 - 4°C rise by 2100, and more likely a 4 - 5°C – will now happen. This estimate is *strongly biased on the side of optimism*:

- it's based on cautious, consensus IPCC estimates. Many individual experts are far more pessimistic, or are more pessimistic about the effects of a particular temperature rise, for example on sea level rise (see below);
- it depends on countries sticking to Paris. Following Trump's election, and an uncertain future for the EU, this looks increasingly improbable;
- it assumes that after 2040 emissions will begin to take a downward path, even though - even with Paris - emissions will have risen steadily until then;
- it only takes us to 2100, and it will continue to get hotter after that, even if there were no further emissions. The deep ocean may take centuries to fully respond to a warmer earth;
- it takes no account of highly-likely feedback effects, such as
 - the consequences of the release of methane trapped in the tundra or beneath the oceans caused by warmer temperatures, or
 - the loss of carbon to the atmosphere now stored in peat and soils due to lower rainfall,
 - the fact that as Arctic ice melts the resulting ocean absorbs more heat rather than reflecting it back;
- it assumes that our climate models are accurate, yet they have only been tested in a relatively narrow range. Any complex non-linear situation of this type can throw up surprises, including sudden very rapid changes, and changes in the opposite direction to that expected. We must expect 'unknown unknowns,' and under such conditions of extreme uncertainty be prepared to take exceptional measures to avoid the worst case.

Nevertheless we use a central 4°C estimate for what follows because we do not want any of these uncertainties to be used to undermine the central but we think irrefutable conclusion that climate change of at the very least this order will now inevitably occur, and we need to get used to the idea. It is simply too late for the temperature rise to be any less.

Economic growth will not save us

Our second assumption in this project, beyond the assumption that we are heading for an at least 4°C rise by 2100, will be that we are living in a post-growth world. For detail on this, we refer the reader to Green House's Post-Growth Project (Blewitt and Cunningham, 2014).

In very brief: we hold that further net growth, at least in countries like the UK, is neither *necessary*, *desirable*, nor *possible* (ibid., Chap 1):

- It is not *necessary* because we already have enough, if only we share it out between us. And because we can run our affairs in a way that doesn't depend on continual growth, if we are willing (for instance) to share around the work that there is. (Our Project sets out in some detail how a post-growth world, and especially a post-growth U.K. or similar 'developed' country could *work*. Cf. also Tim Jackson's (Jackson 2009) and Peter Victor's (Victor 2008) work.)
- It is not *desirable* for multiple reasons, including: because further growth now is uneconomic (Wikipedia 2016, Uneconomic Growth); because the dirty secret of growth is that it excuses inequality: it is an *excuse* for not sharing (Guardian 2015, "Let go of Trickle down"), in that everyone is promised jam tomorrow; and because growth is increasingly a matter now of a dangerously destabilising financialisation.
- It is not *possible* because we are breaching the planet's boundaries. Or rather, it is possible now only at the cost of being *much more clearly undesirable*.

Economic growth should be understood at best as the (from the point of view of the long term of hundreds of years, the '*longue durées*' of the French *Annales* historians) transitional stage between one steady state and another. Either that second steady-state is at hand, or we are going to face an uncontrolled collapse: at least an economic collapse, possibly a civilisational collapse, conceivably a complete collapse of complex life on Earth. These outcomes would probably produce a new steady-state in due course: one far less hospitable to human life as we currently know it.

Climate-catastrophe is only one possible mode in which such collapses might be engendered. But it is, we are saying here, an alarmingly likely one.

'Green growth' is widely touted as the answer to the problem that we've just set out here. It is a fallacious one, as we set out in detail in the Post-Growth Project (see especially the summary at "Why not just embrace 'green growth'?", (Blewitt 2014,183)). In very brief: there is no successful historical instance *nor even any successful economic model of net green growth* (as opposed to simply green growth in specific economic sectors, such as renewables, which is of course something to be aimed for and applauded) that has us meeting the kind of climate targets aimed for in the Paris Agreement, let alone sounder targets.

Moreover, as should be obvious, setting growth targets is simply bound to make the task of hitting climate targets harder. For every additional scintilla of growth, one needs to make the carbon de-intensification of economic activity that bit deeper, that bit harder to attain.

Assuming growth has come to an end has a devastating effect on one of the main arguments for effectively ignoring climate change, or at least doing nothing to mitigate it. For some economists, the question of what to do about climate change is largely a matter of comparing the costs of mitigation with the costs of adaptation. If mitigation costs *more* than adaptation, then don't bother to mitigate (Lawson 2008, Lomborg 2001). However, this compares costs separated by a long period of time; we have to mitigate now, while our successors will be adapting tens and hundreds of years later. If one assumes extensive economic growth in the interim, then the proportion of national income taken up by even quite extensive costs of much later adaptation is considerably reduced in comparison to the costs of mitigation now measured the same way - simply because the denominator, the national income, is *assumed* to have grown massively in the intervening period. Put more simply: because of growth, our successors will be so much richer than us that they will have to expend relatively little effort in clearing up the mess. This argument – if it ever

really worked morally at all, since it's quite different people who bear the costs – simply doesn't work *arithmetically* without assuming substantial growth.

Economic growth will not save us. We come most certainly not to praise it, but to bury it. Otherwise, it will bury us.

The future will be post-growth. Either by design (as we would prefer), or by accident (i.e. by way of 'nature' forcing upon us all a massive 'correction'). But here we reach a dilemma. For this, our second assumption, is not at all widely shared. Worse: it is openly rejected, or simply 'framed out': not even allowed to enter into consideration.

As we mentioned earlier, the unsavoury truth is that one key reason why collectively we are unwilling to face up to the reality of man-made dangerous climate change is precisely that doing so requires us to face up to the need for a shared and urgent post-growth project. Some have argued that it is not just a matter of post-growth, but that the wealthier nations have to embrace de-growth, or contraction (Anderson 2013). 'We' refuse to face up to climate reality – we are, almost all of us, in 'soft' climate denial (as opposed (sic.) to the 'hard' climate denial of Trump et al) – because we worry that it will make growth, and with it, we worry, the story of unending human progress, unravel.

This places *us* in a difficult position. The way we propose to 'resolve' this difficulty is: by way of achieving a mutual honesty about our species's shared predicament, willing readers to join with us in accepting our second assumption. Like it or not, we are living in what is fundamentally, one way or another, a post-growth world.

But we are the first to admit the extreme difficulty of this task, at least if it is supposed to convert the whole world...! In other words: this is part of *why* the 'Facing up to climate reality project' is so necessary. Because, as a species, we are *not* going to embrace post-growthism in good time (which would be, basically: now (or, better still: two or three decades ago...)). It is going to take a long time to turn the hegemonic supertanker of growthism around, and deflate it into a saner alternative. We can only hope that this will happen prior to *runaway* climate change taking hold (i.e. prior to the most likely route, so far as one can at present tell, by means of which the Earth may cause societal *collapse* or worse). The wonderful thing about human beings is that we have *in theory* the capacity to engage in extremely rapid change, once we realise that there is a serious problem at hand. But anyone who is betting the farm on that happening *vis a vis* the 'wicked' problem of global over-heat will soon no longer be a farmer...

What we have already said here makes clear that it is unreasonable to suppose that the kind of transformation that we really need will happen overnight; and that means that the pretty dire climate scenarios outlined above are, unfortunately, more likely.

The consequences of climate change

Thinking about the consequences of an average global temperature rise of 4°C means thinking about the future, and the future a bit beyond next week or even the next several years, which is the 'medium term' to which current economic policy in particular confines itself. We need to think in terms of the '*longue durée*,' a span of maybe a hundred years or more.

Thinking about the future in this way is hard, not least because such a lot of doing so in the past has turned out to be clearly and demonstrably wrong. We are largely not, as Keynes thought we might in the 1930s, living in a future where what to do with our vast leisure time is our principal preoccupation – many of us are working longer and more frantically than ever. Nor are we all buzzing around in personal aircraft living off nutrition tablets as some of the science fantasists would have had us do. To take another prophet, the rate of profit has not fallen so low that the inevitable final crisis of capitalism has led to socialist revolution.

So one embarks on talking about what might happen in the rest of this century with some humility and considerable apprehension. Most people avoid it altogether. Some do think about the future, probably most particularly the military authorities of the leading powers, and some corporations, behind closed doors. If it were not so certain that the world faces very considerable change, it might be entirely reasonable to adopt as the default assumption the usual one, that the future, in most respects, will be very much like the past, improved by the almost universal assumption of perpetual progress. That's how most of us conduct our daily lives, and in the short to medium term it has worked very well.

But we do inevitably face serious climate change, in a world where economic growth, at least in the rich world, is halted, and we have to begin to think about it. To *face up* to it. We will almost certainly get quite a lot of it wrong, but if we make the alternative assumption, that is the one above, that the future, in most respects, will be very much like the past, we know pretty much for certain that that will be wrong.

And there is a fairly firm place to start. The cautious climate scientists at the IPCC have spent a lot of time and trouble assessing the climate consequences of an average 4°C rise for all of the different regions of the world, and coming to a consensus view, much hedged about with phrases like 'highly probable' or 'more likely than not' but a view nevertheless (IPCC 2014). And they tend to avoid those points – like the speed of melting of the Greenland ice cap and its implication for sea level rise – where there is any scientific controversy.

So we can begin with the consequences, for real human beings in different parts of our world, of a 4°C rise by 2100 according to the IPCC (and bearing in mind again therefore that this is a conservative assessment, possibly a dangerously conservative one). It is insufficiently appreciated that damaging climate change will affect different parts of the world unequally. Broadly the tropics will suffer far more than the higher latitudes. Climate change will be *deeply unfair*, the countries and regions least to blame historically for climate change, and least able to adapt to it (that is the poorer countries) will generally fare worse than the very countries responsible for causing it (that is the richer countries). This very broad picture will be our jumping off point, where we begin.

The plan for the project

So what is it that we are actually going to do? Our plans at this point are tentative; part of the excitement and difficulty of a project like this is that it is hard to predict where it is going to take us. But here are some headings we would like to explore:

- why is it that we are so resistant to thinking about climate reality? Partly it is simply resistance to changing what we are doing now, or unwillingness to think about anything unpleasant. But it may be more, and we will explore more subtle ideas, such as the notion that climate change is something both distant and affecting everything, what one of us (Rupert Read) calls a 'diffuse object';
- this might include the social and individual psychology of mass unwillingness to address the issue;
- we want to explore responses from art and literature, and their potential to unlock psychological resistance to engaging with climate reality;
- IPCC and others have done a lot of work (rather little known) on the consequences for the climate of an average 4°C rise for different parts of the world. We will want to engage in some exploration of the different material consequences of climate change for people in different parts of the world, that is the human geography of all this for the main regions of the world, concentrating in particular on agriculture and food, population, epidemics and the likely social and economic effects;
- we will absolutely not give up on the prospects for mitigation, and making Paris work better. We will ask what further international proposals might work in the light of Paris;
- is it the current economic system, capitalism, that is making serious mitigation impossible? Does an economic system fuelled by the profit motive mean that mitigation will inevitably fail? What's the minimum change needed to address this?
- similarly, will the effects of the climate and environmental crisis cause a systemic crisis in the capitalist or more widely the industrial mode of production (despite techno-optimism, nano-technology, etc) and which ends the capitalist system of social relations?
- is a change of scale implied - localisation rather than globalisation? Either as an approach to mitigation or as a response to climate change?
- what political world order will this produce? What happens to national borders: from both the angle of climate justice and expediency, what needs to change in terms of migration policy and capital flows? What will happen to the great powers – how does this affect the widely held presumption that China will rise and the US and Europe relatively decline?
- what will happen to political ideas in a ravaged world? What are the consequences of the collapse of the idea of progress? Can materialism be transcended? Will nationalism increase and internationalism decline? Can democracy, such as it is, survive?
- what will be the specific effects of climate change on a post growth UK, operating within a radically changed world? As a contribution to this we plan to include a case study of a small-scale climate disaster, drawing on the floods in Lancaster in the winter of 2015-16;

- we will ask whether history can help, and make a historical comparison of an earlier human experience of climate change. A candidate is the rather mild climate change associated with the Crisis of the Late Middle Ages in Western Europe.
- we will consider the issue of geoengineering and precaution. There will be a strong push for geoengineering when people start to realise that what we are saying in this project is true and that push needs to be faced up to, and questioned; and
- we will want to think about framing, in relation to the 'pessimism of the intellect' recommended in this project.

In the UK, and more widely internationally, no one has done more up until now to get us to face up to climate reality than Kevin Anderson, Professor of Energy and Climate Change at the University of Manchester. We are therefore delighted that Kevin has agreed to contribute a Foreword to kick off our project.

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