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KEVIN ANDERSON
AND ALICE BOWS

A 2°C target? Get real, because 4°C is on its way

This time last year political leaders from across the globe prepared to embark on an historic round of negotiations that ultimately led to the Copenhagen Accord. Whilst this non-binding agreement was met initially with widespread criticism, it nevertheless has since proved an amenable vehicle for bringing nations together. To date, the Accord has around 140 national signatories 'pledged' to make reductions to 'hold the increase in global temperature below 2 degrees Celsius, and take action to meet this objective consistent with science and on the basis of equity'.

Although the scale of international engagement is certainly to be welcomed, the sum of national emission reductions falls far short of what is necessary for holding global temperature rises below 2°C. Recent estimates suggests that current pledges are more in line with a 4°C rise — an increase the UK's Committee on Climate Change considers to be extremely dangerous and incompatible with the contemporary framing of society and development.

Climate change is a problem of emissions accumulating in the atmosphere. In recent decades emissions have risen relentlessly and consequently the remaining 'carbon budget' for 2°C has inexorably dwindled. With little emission space remaining, low carbon energy, though a prerequisite of dealing with climate change, cannot deliver the rapid and immediate reductions necessary though certainly in the longer term, low and zero carbon energy are both viable and affordable.

The central issue is that emissions continue to correlate highly with GDP. If global GDP growth is to return to rates of four per cent to five per cent per annum and even if recent trends of reducing carbon intensity were to be immediately doubled, net emissions would still continue to rise. However, as it stands, there is good reason to assume global carbon intensity will not continue to reduce, it may even increase as industrialising nations, fuelled principally by coal, become a still larger part of the global economy. This is a highly challenging and numerically irrefutable problem that no amount of eloquent dismissal and head shaking can overcome.

Despite commitments by some industrialised nations to decarbonise, the unprecedented emissions growth of the past decade has been underpinned by the process of globalisation. During this time, increasing demand for manufactured goods has been met through the rapid industrialisation of highly populous nations. Whilst a significant proportion of these emissions relate to exports, the subsequent income is contributing to dramatic increases in indigenous consumption within these emerging economies.

If the five billion population of such industrialising and other poor nations become locked into fossil-fuelled consumption, their cumulative emissions will overshadow those that were released by today's rich nations as they industrialised. Indeed the impact on emissions of the recent global economic downturn was tempered considerably by continued economic buoyancy in nations such as China and India.

In relation to 2°C, the implications of globalisation, as a driver of emissions, are uncomfortable for all. Only if emissions from industrialised nations reduce immediately and at unparalleled rates and only then if less well-off nations begin a rapid transition to low-carbon development with emissions declining from 2025, is there any reasonable probability of not exceeding the 2°C 'guard-rail'.

Yet despite the best efforts of engineering, business and policy, the only historical precedent for reducing emissions in line with the Copenhagen Accord's, EU and UK commitment to 2°C, is a reduction in the overall size of the global economy. This is a universally unpopular conclusion which puts the messenger at risk of being shot for commu-

nicating what many concede privately, but publicly consider unacceptable. However, given the seriousness of the issue at hand, it is incumbent on scientists to stand up and be open and candid about their analyses and for policy makers to have the courage to respond (or not) with equal candour.

Moreover, as equity is a central tenet of the Copenhagen Accord, radical and immediate de-growth strategies in the US, EU and other wealthy nations are necessary to compensate for economic growth and increasing emissions in the poorer nations. In the medium-to longer-term, as zero carbon energy supply comes to dominate, the role of economic growth could, from a climate change perspective, be revisited; whether any such return could be sustainable is another question.

Whatever we choose we need to be clear and candid about the situation we have got ourselves into and plan accordingly. Currently, we're heading for the worst of all worlds, aiming for 4°C whilst planning for 2°C. In 2010 and with the worlds great and good of climate change converging on Cancun, now is the time to acknowledge openly that the mitigation Emperor remains naked.

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For information underpinning this piece see:

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- Bows, A. and Barrett, J. 'Cumulative emission scenarios using a consumption-based approach: a glimmer of hope?', *Carbon Management*, 2010. (www.future-science.com/doi/pdf/10.4155/cmt.10.17)
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