

Climate Scientists Demand Radical Change

By Renfrey Clarke

“Today, after two decades of bluff and lies, the remaining 2°C budget demands revolutionary change to the political and economic hegemony.” That was in a 2013 blog posting by Kevin Anderson, professor of energy and climate change at Manchester University. One of Britain’s most eminent climate scientists, Anderson is also deputy director of the Tyndall Centre for Climate Change Research.

Or, we might take this blunt message, from an interview in November: “We need bottom-up and top-down action. We need change at all levels.” Uttering those words was Tyndall Centre senior research fellow and Manchester University reader Alice Bows-Larkin. Anderson and Bows-Larkin are world-leading specialists on the challenges of climate change mitigation.

During December 2013, the two were key players in a *Radical Emission Reduction Conference*, sponsored by the Tyndall Centre and held in the London premises of Britain’s most prestigious scientific institution, the Royal Society. The “radicalism” of the conference title referred to a call by the organizers for annual emissions cuts in Britain of at least 8%—twice the rate commonly cited as possible within today’s economic and political structures.

The conference drew keen attention and wide coverage. In Sydney, the Murdoch-owned *Daily Telegraph* described the participants as “unhinged” and “eco-idiots,” going on to quote a “senior climate change adviser” for Shell Oil as stating:

This was a room of catastrophists (as in “catastrophic global warming”), with the prevailing view... that the issue could only be addressed by the complete transformation of the global energy and political systems... a political ideology conference.

Indeed. The traditional “reticence” of scientists, which in the past has seen them mostly stick to their specialties and avoid comment on the social and political implications of their work, is no longer what it was.

Angered

Climate scientists have been particularly angered by the refusal of governments to act on repeated warnings about the dangers of climate change. Adding to the researchers’ bitterness, in more than a few cases, have been demands placed on them to soft-peddle their conclusions so as to avoid showing up ministers and policy makers. Pressures to avoid raising “fundamental and uncomfortable questions” can be strong, Anderson explained to an interviewer in June 2013.

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translate commitments “to stay below [warming of] 2°C” into a 60 to 70% chance of exceeding 2°C.

Anderson and Bows-Larkin have been able to defy such pressures to the extent of co-authoring two remarkable, related papers, published by the Royal Society in 2008 and 2011.

In the second of these, the authors draw a distinction between rich and poor countries (technically, the UN’s “Annex 1” and “non-Annex 1” categories), while calculating the rates of emissions reduction in each that would be needed to keep average global temperatures within 2 degrees of pre-industrial levels.

The embarrassing news for governments is that the rich countries of Annex 1 would need to start immediately to cut their emissions at rates of about 11% per year. That would allow the non-Annex 1 countries to delay their “peak emissions” to 2020, while developing their economies and raising living standards.

But the poor countries too would then have to start cutting their emissions at unprecedented rates – and the chance of exceeding two degrees of warming would still be around 36%. Even for a 50% chance of exceeding two degrees, the rich countries would need to cut their emissions each year by 8–10%.

As Anderson points out, it is virtually impossible to find a mainstream economist who would see

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annual emissions reductions of more than 3–4% as compatible with anything except severe recession, given an economy constituted along present lines.

Four degrees?

What if the world kept its market-based economies, and after a peak in 2020, started reducing its

emissions by this “allowable” 3–4%? In their 2008 paper, Anderson and Bows-Larkin present figures that suggest a resulting eventual level of atmospheric carbon dioxide equivalent of 600–650 parts per million. Climate scientist Malte Meinshausen estimates that 650 ppm would yield a 40% chance of exceeding not just 2 degrees, but 4.

Anderson in the past has spoken out on what we might expect a “four-degree” world to be like. In a public lecture in October 2011 he described it as “incompatible with organized global community,” “likely to be beyond ‘adaptation’” and “devastating to the majority of ecosystems.” Moreover, a four degree world would have “a high probability of not being stable.” That is, four degrees would be an interim temperature on the way to a much higher equilibrium level.

Reported in the *Scotsman* newspaper in 2009, he focused on the human element:

I think it’s extremely unlikely that we wouldn’t have mass death at 4C. If you have got a population of nine billion by 2050 and you hit 4C, 5C or 6C, you might have half a billion people surviving.

No wonder intelligent people are in revolt.

Market methods?

Anderson has also emerged as a powerful critic of the orthodoxy that emissions reduction must be based on market methods if it is to have a chance of working. His views on this point were brought into focus last October in a sharp rejoinder to United Nations climate-change chief—and market enthusiast—Rajendra Pachauri:

I disagree strongly with Dr Pachauri’s optimism about markets and prices delivering on the international community’s 2°C commitments,” the British Independent quoted Anderson as saying. “I hold that such a market-based approach is doomed to failure and is a dangerous distraction from a comprehensive regulatory and standard-based framework.

Anderson’s critique of market-led abatement schemes centers on his conclusion that the two degree threshold “is no longer deliverable through gradual mitigation, but only through deep cuts in emissions, i.e., non-marginal reductions at almost step-change levels.

By contrast, a fundamental premise of contemporary neo-classical economics is that markets (including carbon markets) are only efficient at allocat-



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ing scarce resources when the changes being considered are very small—i.e. marginal.

“For a good chance of staying below two degrees Celsius,” Anderson notes, “future emissions from the EU’s energy system ... need to reduce at rates of around 10% per annum—mitigation far below what marginal markets can reasonably be expected to deliver.”

If an attempt were made to secure these reductions through cap-and-trade methods, he argues, “the price would almost certainly be beyond anything described as marginal (probably many hundreds of euros per tonne) – hence the great ‘efficiency’ and ‘least-cost’ benefits claimed for markets would no longer apply.”

At the same time, the equity and social justice implications would be devastating. Anderson points out:

A carbon price can always be paid by the wealthy. We may buy a slightly more efficient 4WD/SUV, cut back a little on our frequent flying, consider having a smaller second home...but overall we’d carry on with our business as usual. Meanwhile, the poorer sections of our society...would have to cut back still further in heating their inadequately insulated and badly designed rented properties.

Energy agenda

In the short-term, Anderson argues, a two degree energy agenda requires “rapid and deep reductions in energy demand, beginning immediately and continuing for at least two decades.” This could buy time while a low-carbon energy supply system is constructed. A “radical plan” for emissions reduction, he indicates, is among the projects under way within the Tyndall Centre.

The cost of emissions cuts, he insists, needs to fall on “those people primarily responsible for emitting.” As quoted by writer Naomi Klein, Anderson estimates that 1–5% of the population is responsible for 40–60% of carbon pollution.

While not rejecting price mechanisms in a supporting role, Anderson argues that the required volume of emis-

sions cuts can only be achieved through stringent and increasingly demanding regulations. His “provisional and partial list” includes the following:

- Strict energy/emission standards for appliances with a clear long-term market signal of the amount by which the standards would annually tighten; e.g. 100gCO₂/km for all new cars commencing 2015 and reducing at 10% each year through to 2030.
- Strict energy supply standards; e.g. for electricity 350gCO₂/kWh as the mean emissions level of a

supplier's portfolio of power stations; tightened at ~10% per annum.

- A program of rolling out stringent energy/emission standards for industry equipment.

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- Stringent minimum efficiency standards for all properties for sale or rent.
- World leading low-energy standards for all new-build houses, offices etc.

Enforcing these radical standards, he argues, "could be achieved, at least initially, with existing technologies and at little to no additional cost."

Economic growth

For a reasonable chance of keeping warming below two degrees, Anderson maintains, wealthier countries would need to forgo economic growth for at least 10 to 20 years. Here, he bases himself on the conventional wisdom of "integrated assessment modelers"—and arguably gets things quite wrong. Leading US climate blogger Joseph Romm last year came to sharply different conclusions:

The IPCC's last review of the mainstream economic literature found that even for stabilization at CO2 levels as low as 350 ppm, "global average macro-economic costs" in 2050 correspond to "slowing average annual global GDP growth by less than 0.12 percentage points." It should be obvious the net cost is low. Energy use is responsible for the overwhelming majority of emissions, and energy costs are typically about 10% of GDP.

At a time when jobless workers abound, and large amounts of industrial capacity lie unused, mobilizing resources and labor to replace polluting equipment could sharply increase gross domestic product. Moreover, account needs to be taken of the absurdities of GDP itself—as a measurement tool that counts as useful activity building prisons and developing weapons systems. Anderson senses some of these contradictions when he states:

Mitigation rates well above the economists' 3 to 4% per annum range may yet prove compatible with some form of economic prosperity.

Indeed, reconstructing our inefficient, polluting industrial system could allow the great majority of us to lead richer, more rewarding lives.

Reprisals

Where Anderson is not wrong is in anticipating, at various points in his blogging and interviews, that any serious move to cut emissions at the required rates will encounter fierce resistance. Huge industrial assets, primarily fossil-fuelled generating plants, would be "stranded." Already-proven reserves of coal, oil and gas would need to be left in the ground.

Like the scientists accused in 2009 in the spurious "Climategate" affair, the people who spoke out

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at the Radical Emission Reduction Conference can now expect to feel the blow-torch of conservative reprisals.

Along with Anderson and Bows-Larkin, a particular target is likely to be Tyndall Centre Director Professor Corinne Le Quéré, who presented the scientific case for rapid emissions reduction. Four Australian academics who contributed via weblink, including noted climate scientist Mark Diesendorf, have already come under venomous personal attack in the *Daily Telegraph*.

The "offense" committed by the Tyndall researchers is much greater than the loosely phrased e-mails that were seized on as the pretext for "Climategate." With others in the climate-science community, these courageous people have shredded the pretence that polluter corporations and their supporting-act governments care a damn about preserving nature, civilization and human life.

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