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# Act Macro: Technological Alternatives to Green Austerity

By James Woudhuysen

The emerging capitalist War On Global Warming concentrates on adapting technology and behaviour – particularly other nation-states’ – to mitigate environmental damage. Transformative technological and social innovation is better than meddling micro-action, argues James Woudhuysen

Angela Merkel is chancellor of Germany, a Christian Democrat and a physicist. She also believes in ‘outreach’. Germany’s outreach programme with China, India, Mexico, Brazil and South Africa, she says, allows it to sound out these nations about their ‘general readiness to act’ about climate change. Merkel warns Beijing not to put economic growth ahead of climate change, she warns Russia to let EU energy firms get firmer roots on to its soil. She insists that globally tradable emissions trading certificates are the ‘most sensible instrument’ to cut CO<sub>2</sub> and ‘a very-market friendly one’. She wants a December 2007 UN conference in Bali to begin the 1-2 year process of drawing up a treaty on climate change to succeed the December 1997 Protocol to the United Nations Framework Convention on Climate Change – the Kyoto Protocol, which will expire in 2012. Invoking the Stern report on the economic impact of climate change as her ‘main paradigm’, she argues that ‘whatever happens’, the cost of ‘inaction’ on climate change will be higher than just muddling through.<sup>1</sup>

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It is nice to know that nation states’ invention of a market for a particular kind of molecule is a market-friendly move and a fine example of the ‘action’ that is now required on climate change. It is also nice to hear Germany and the EU lecture the developing world about how they should develop. But in fact lectures come very easily to Greenish governments. Even environment minister David Milliband, relatively an extremist among ministerial carbonistas, has felt called upon to warn Greens – and perhaps himself – not to be ‘bossy’.

In fact all-round economic development and all-round technological innovation are the only actions that can deal properly with mankind’s problems – of which global warming is one among many. The actions that Merkel proposes are about clipping coupons and austerity, especially in what used to be called the Soviet bloc and the Third World. If Germany gets its way, coal-dependent Poland and China will both suffer. Indeed, Clean Green Angela wants Europe to export, to these countries, the Clean Green technologies in which Germany specialises, and which it believes will be Good For Them.<sup>2</sup>

To raise the share of renewable resources in Europe’s energy mix to 20 percent by 2020 is now the EU’s highest goal. Yet the innovations with which the Brussels Commission proposes to meet that goal are not very ambitious. Its Energy Policy for Europe mentions wave and tidal power just once: the costs of photovoltaic, solar thermal power, and wave and tide power are, it opines sagely, ‘projected to decrease from currently high levels’. It believes that all new coal-fired plants in the EU should to be fitted with CO<sub>2</sub> capture and storage, and that ‘existing plants should then progressively follow the same approach’. When by? Oh, maybe by 2020 again.<sup>3</sup>

There is some money going into Green innovations. Not just the Toyota’s hybrid Pious car, but also cars made by Ford and other major manufacturers, are becoming ever more energy-efficient. But generally Merkel’s oh-so-activist, insurance-policy approach to climate change can only make commitments to high-tech environmentalism falter. If Battersea is ever revived with all-green

technology, Greens would still object to the scale and urban location of the endeavour. We should, equally, never imagine that restrictions on car and airline use – road pricing, taxes on those stag-night flights to Tallinn – will lead to more investment and technology in public transport, and in particular, on the railways. After all, Mike Mitchell, the director-general of the Department for Transport's rail group, has told the House of Commons public accounts committee that peak-time rail commuters should expect to stand on their journeys for up to 30 minutes at a go.<sup>4</sup>

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The evidence is that corporations and governments are only belatedly, and in a very narrow and leisurely manner, investing in relatively small projects to advance Green technologies; technologies that are more about raising awareness and controlling consumer behaviour than they are about fulfilling the world's need for more energy and less carbon. But there is a wider perspective that is needed here. If modest, behaviourist technological development – metering your every use of energy every minute of the day, for example – eludes the capitalists, how much more tentative will they be about the comprehensive programme of technological innovations needed to raise Africa from famine and Indonesia from disasters? Solve those truly colossal problems in a spirit of adventure rather than insurance, and global warming will be solved in the process.

What are the main outlines of such a programme? What we need is progress across both the energy sector and beyond.

In energy, we need to give up on micro-generation – the subject of a princely £50m from Gordon Brown in his March 2006 Budget – and instead move toward macro-generation. That means large-scale wave, tidal and off-shore wind. It means large-scale cultivation of biofuels, and perhaps genetically modified biofuels, too (though we all know someone who has died because of these). It means city-wide schemes for Combined Heat and Power. In the longer term, we need to make fewer sneers about the possibility of nuclear fusion: an international budget 10 times the Iter organisation's £7bn for demonstration fusion in the south of France shouldn't be too much to ask. And right now, we need a 'can do' attitude to nuclear power and nuclear waste.

Wind, solar, wave and tidal energy are intermittent sources of power, and need clever geographical dispersal, mutual complementarity and large-scale back-up power sources if they are to provide energy on any kind of reliable basis. As the science writer Joe Kaplinsky points out, it is true that other scale technologies generate more energy – Drax, the largest coal power station in the UK, makes four Gigawatts of electricity, and the Itaipu dam in Brazil and Paraguay boasts 11 Gigawatts. But at 1 GW, a typical nuclear power station easily beats the 310MW of electricity made by the largest solar installation in the world (over seven sites in the Mojave desert, California), and also exceeds the 735MW racked up by the largest wind farm in the world (Horse Hollow Wind Energy Center, Texas).

Nuclear power isn't a silver bullet. No doubt it will take its place among other energy technologies, old and new. But in terms of output and in terms of familiarity, it has a lot going for it. The next ('Generation IV') nuclear systems may, too, finally prove fully economic to run.

Turning now to nuclear waste: The UK has a historic legacy of high and intermediate level nuclear waste that, in volume terms, is estimated to total 475,000 cubic metres of the stuff.<sup>5</sup> But how much is 475,000m<sup>3</sup>? Take the cube root of that, and it's 78 metres. In other words, all the existing bad and really bad nuclear waste in the UK, generated over more than 50 years, occupies a volume well under 100x100x100 metres.

And the new waste that an ambitious nuclear programme would generate is pretty modest too. Modern nuclear plants produce significantly less waste than earlier types. The UK's official Committee on Radioactive Waste Management suggests that if the current level of nuclear capacity were replaced with new-build, existing waste stocks would increase by about 10 percent by volume. The UK would have to add a 36x36x36 metre cube of nuclear waste – divided up, to be sure – on top of its existing 78x78x78 one.

To store this very modest amount of nuclear waste should not be beyond even British engineers. Are we saying that, in the 21st century, handling these amounts of waste is beyond the wit of man? And there are other possibilities. At Ruhr University in Bochum, Germany, Professor Claus Rolfs has begun experiments in cooling the products of fission in metal, so as to encourage them to accelerate their rates of radioactive decay, and so lower radioactive half-lives.<sup>6</sup>

Beyond energy, we need to tackle the root causes of backwardness around the world, and not get hung up on how climate change supposedly makes them worse. Was it really climate change that led to massacres in Darfur, or the plight of the Palestinians? Or are there more fundamental injustices at stake here, which an obsession with carbon will do little to relieve?

In agriculture the starving countries need mechanisation, not what junk-mail inserts in British magazines tell us they need – ploughs, donkeys, hand-drawn wells. In hydrology we need to save more than Venice, and do it with more than a charitable donation at Pizza Express. Among older people we need to build on the way the US firm iRobot has sold more than two million floorcare robots. We need to think about how today's manufacturing techniques, which allow Boeing to make planes on a moving assembly line, can also help meet the UN's estimate of the 100,000 new homes the world needs to build every day to meet popular demand.

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Image: iRobot's floor care robot

By thinking big and having faith in our talents, a programme of transforming the planet in the direction of humanism could do much for energy supply and carbon reduction. But can US, Chinese or Indian capitalism really deal with this kind of challenge?

The evidence is that they cannot. In fact, as we have seen, they have taken a cautious, gingerly attitude even to Green technologies, let alone transformational ones.

Since the end of the Cold War and 9-11, the capitalists have lost their nerve. But that's their problem, not ours. Mao Tse Tung's dumbed down slogan, 'Serve the people' has been transformed into 'Slave for the planet' – walk everywhere, consume less, don't overpopulate the land, reduce your footprint, bend over and grow your own food. Everywhere in energy innovation there is minimal impact and maximum regulation.

These are dark days. Happily, though, it will be up to us, not governments and imperialist NGOs, to do the big stuff that tomorrow's youthful billions will demand.

## Footnotes

1

'German chancellor lays out roadmap to follow-up treaty on climate change', Financial Times, 7 March 2007.

2

'Merkel to press for EU deal on climate', Financial Times, 7 March 2007.

3

Brussels Commission, 'An Energy Policy for Europe', 10 January 2007, on [http://ec.europa.eu/energy/energy\\_policy/doc/01\\_energy\\_policy\\_for\\_europe\\_en.pdf](http://ec.europa.eu/energy/energy_policy/doc/01_energy_policy_for_europe_en.pdf)

4

Robert Wright, 'Row as commuters told: don't expect a train seat', Financial Times, 18 January 2007.

5

DTI, 'Energy Review: the Energy Challenge', 11 July 2006, p.118, on <http://www.dti.gov.uk/energy/review/index.html>

6

Institute of Physics, 'Cool Solution to Waste Disposal', Press release PR22(06), 1 August 2006, on [http://www.iop.org/Media/Press%20Releases/press\\_6762.html](http://www.iop.org/Media/Press%20Releases/press_6762.html) . Professor Rolfs: 'We are currently investigating radium-226, a hazardous component of spent nuclear fuel with a half-life of 1600 years. I calculate that using this technique could reduce the half-life to 100 years. At best, I have calculated that it could be reduced to as little as two years. This would avoid the need to bury nuclear waste in deep repositories — a hugely expensive and difficult process.'

### **Biog**

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