
Review Essay

Capital and Climate Change**Larry Lohmann**

Nicholas Stern, *The Global Deal: Climate Change and the Creation of a New Era of Progress and Prosperity*. New York: Public Affairs, 2009. 246 pp. £15.99

Peter Newell and Matthew Paterson, *Climate Capitalism: Global Warming and the Transformation of the Global Economy*. Cambridge: Cambridge University Press, 2010. 205 pp. £17.99

Anthony Giddens, *The Politics of Climate Change*. Cambridge: Polity Press, 2009. 264 pp. £12.99

Mike Hulme, *Why We Disagree about Climate Change: Understanding Controversy, Inaction and Opportunity*. Cambridge: Cambridge University Press, 2009. 392 pp. £16.99

Kolya Abramsky (ed.), *Sparking a Worldwide Energy Revolution: Social Struggles in the Transition to a Post-Petrol World*. Oakland, CA and Edinburgh: AK Press, 2010. 668 pp. £18.00

If capital could speak, what would it say about climate politics? Probably one of the first noises it would make at the moment would be a complaint about the diverse pressures mounting to keep fossil carbon in the ground and out of the atmosphere (Bassey, 2010; Cooke, 2010; Martinez, 2010; Walsh and Stainsby, 2010). As several contributors (Caffentzis, 2010; Keefer, 2010) to Kolya Abramsky's important collection remind us, coal and oil have been crucial for at least a century and a half to accumulation and to corporate control over workers and the land. They fuel the machines that increase labour productivity, break worker resistance, and enable trade to span the world. They have been fundamental to the growth of urban industry and to the suburbanization that later became a sponge for absorbing surplus capital, as well as to the construction of the 'machines on the land' — vast industrial monocultures — that feed cities and factories alike. Underpinning the price stability of nearly every other commodity, fossil carbon is indispensable to the military forces, 'economies of scale', and long supply chains that characterize centralized control over resources. Fossil fuels' high energy

content allows both rapid expansion of production and the predictability that is needed in a competitive environment; cheap oil, Timothy Mitchell (2009) argues, even helped make possible the whole twentieth century conception — beloved of governments everywhere — of ‘the economy’ as an object that could grow without limit. The distribution of fossil fuel deposits, meanwhile, helps some companies monopolize access to them and pocket huge rents. Keep oil in the soil and coal in the hole? Not an easy sell to interests that have repeatedly proven their willingness to go to war to keep the black stuff coming out of the ground. Far better, they would say, to continue fossil fuel use while opening new frontiers to ameliorate its effects — re-engineer microbes, the oceans or rock formations to absorb the waste carbon dioxide, for example, or seize forests to keep at least a few above-ground carbon sinks intact.

But corporate concerns about climate politics do not end there. Suppose a time does come when fossil carbon can no longer be taken out of the earth. By then business will need to have established control over any substitutes it can find (wind, biofuels, solar) that might perform at least a few of the same political and economic functions — as well as whatever land is required to maintain them. Equally, while the climate catastrophes that now seem inevitable may open business opportunities in construction and real estate, they are bound to spell trouble for the insurance industry and its beneficiaries as well as pose unprecedented challenges to agricultural production, prices, the security of private property and the policing of migrants. Worse, such difficulties are arising at a time when capital accumulation is already demanding stupendous reserves of creativity. Neoliberal globalization and ‘accumulation by dispossession’ — David Harvey’s (2003) term for enclosure of commons, seizure of distressed assets, plunder of public property and a variety of other legal and illegal means of appropriation — cannot always find new objects for their violence. The latest attempt to keep things moving by expanding credit has meanwhile led to an unlimited, and ultimately catastrophic, expansion of risk. Exotic new avenues of investment — dotcom enterprises, biotech, repackaged mortgages, complex derivatives and so forth — have filled up with traffic only to prove ultimately to be leading nowhere in particular. The last thing capital needs, it would seem, is yet more trouble in the form of a climate crisis.

Yet trouble has always been capital’s middle name. And if the neoliberal experience of the last three or four decades has shown anything, it is that new assets and opportunities for investment can be conjured up out of anything. An expanding class of economists, ideologues, lawyers, policy entrepreneurs and PhDs of all kinds has gone to work helping to fashion new commodities out of genes, ecosystem services, radical uncertainty and the prices of prices. Experts who in another era might have been regarded as mere theorists have become agents of startling new forms of mass production and dispossession. Physicists formulating Gaussian copula models are employed on Wall Street as ‘quants’ to speed up the manufacture of structured finance deals, molecular biologists investigating DNA sequencing techniques go to

work at biotech firms (Lohmann, 2009c). As such neoliberal projects have gained momentum, they have naturally cultivated their own origin myth: that everything is in fact already an implicit commodity,¹ so that bringing it to market should in principle require little more effort than flipping a switch. This origin myth has been particularly successful in instilling a sense of limitless horizons among intellectual bystanders who do not have to engage in the grubbier aspects of commodity construction themselves. Today, the ‘quantist’ ideal of market creation enjoys a credibility among governments, banks, corporations and university economics departments that has barely been dented by the financial crisis.

Applied to climate, this ‘quantism’ has given capital — and governments — their biggest break so far when it comes to global warming, building a market already valued at well over US\$ 100 billion. The idea has been to turn climate benefit into small, measurable units that can be exchanged in a market, and then distribute and create demand for those units through government regulation. Presto — a new economic sector, enhanced GDP, new opportunities for profit-taking by banks and other financial institutions, and the appearance (at least) of global warming action into the bargain. Assembled from a range of fields from chemistry and economics to law and forestry, the quants have gone to work. First, the climate goal — embarking on a historical trajectory away from fossil fuels (a complex type of social action that can’t be chopped into quantified little tradable units) — has been replaced by the goal of placing progressively stricter measurable limits on emissions. (This is the ‘cap’ in ‘cap and trade’.) Next, a large pool of abstract, ‘equivalent’, tradable ‘emissions reductions’ has been created through regulatory means by stipulating that a reduction in emissions of a certain number of molecules achieved at one place or time by one technology is climatically ‘the same’ as a reduction of an equivalent number of molecules of the same or other pollutants by another technology at another place or time. This laborious process of commensuration is the stage-setting work that makes a liquid market possible — the optimizing ‘trade’ of ‘cap and trade’.

This pool of marketable ‘emissions reductions’ is then expanded even further (making still more cost savings and speculative opportunities possible) by the addition of a class of divisible, quantifiable climate-benefit units called ‘offsets’. These are manufactured by projects that are claimed to result in less greenhouse gases accumulating in the atmosphere than would be the case in the absence of carbon finance. For example, schemes that burn methane accumulating in coal mines in China can be licensed to produce ‘emissions

1. Ahmed Djoghlaif, the Executive Secretary of the Convention on Biological Diversity, stated in 2008, for example, that the ‘largest corporation in the world is not Walmart. It is nature’. The CBD newsletter *Square Brackets* glossed this as follows: ‘Just like Walmart delivers American consumers the “stuff of life” at cutthroat prices, so too does biodiversity. We just don’t recognise it as such’ (Dempsey, 2010).

reductions' for sale to polluters in Europe on the ground that they convert methane that 'would otherwise have been released to the atmosphere' into carbon dioxide, which (according to a contested and shifting conversion factor provided by a compliant Intergovernmental Panel on Climate Change) is only around 5 per cent as dangerous to climatic stability as methane over a 100 year time horizon. Other projects destroy the potent greenhouse gas HFC-23 at factory sites in India, Korea, Mexico and elsewhere, licensing the release of over 10,000 CO₂ molecules for every HFC-23 molecule. Still other schemes claim that hydroelectric dams or wind farms displace more fossil fuel-generated electricity 'than would have been displaced otherwise' or save more forests 'than would have been saved otherwise'. Every offset project, in other words, commensurates 'avoided emissions' with 'emissions reductions'. In addition to providing further growth opportunities for the financial sector, the pollution rights manufactured by such projects allow industry in industrialized countries to delay long-term investment in no-carbon infrastructure.

Offsets take the 'spatial fix' of cap and trade (which moves pollution around the landscape depending on where it is cheapest to abate) one step further, to territories not covered by caps, notably the global South, where carbon clean-up is even cheaper (Bond, 2010, 2011). Indeed, offsets allow investment not only to shift physical location in order to raise profit rates, but also to beam itself up into a fifth dimension of 'hypothetical worlds'. By channelling capital to 'avoided emissions', offset investors make money by, in effect, cleaning up non-existent worlds and taking credit (literally) for their dirt not having become reality. The dirtier these counterfactual worlds are, the richer the investment opportunities they offer. Offset investors thus have an interest in encouraging the regulators and private firms who measure greenhouse gas pollution in hypothetical worlds to certify that they are maximally filthy. Perhaps only in Hollywood is more capital currently being invested in imagining disaster scenarios.

In a final step of commodity construction, the clouds of diverse items that that have been made equivalent in order to form carbon commodities (carbon dioxide emissions reductions in UK power plants, 'avoided' nitrous oxide emissions in Korean factories, methane capture in Brazilian landfill sites, hypothetical carbon in trees in Indonesia in 2040, and so forth) are in turn commensurated with more conventional commodities traded in London, Chicago and New York. Securitized and bundled into index funds together with oil and wheat, the carbon commodity becomes even more intricately entangled with the computer programmes of Wall Street.

Each equation developed in the construction of the carbon commodity has a political meaning. For example, the equation 'decarbonization = tradable emissions reductions' requires that governments create and distribute lucrative property rights in the earth's carbon cycling capacity and set up extensive measurement agencies to ensure that the ensuing property transactions proceed smoothly. The equation 'emissions in place A = emissions in

place B' leads to pollution and clean-up responsibilities being concentrated in poorer societies. The equation 'offsets = emissions reductions' sanctions land grabs, destruction of knowledge, the entrenchment of fossil fuelled industries in the global North, and the development of dirtier industries in the global South (Lohmann, 2008). The equation 'actual emissions = hypothetical emissions' encourages erosion in the rule of law (Docena, 2010). All these developments foster a dynamic of resistance and reaction. Police detachments get involved, together with troops of economists, lawyers, regulators, development experts and compliant NGOs, who are called upon to give legitimacy to the idea that the new carbon capital flows constitute 'sustainable development'. As always, commensuration, dispossession, increasing physical throughput and spatial, temporal, and other fixes form a pulsating whole embodying the drive for accumulation.

All of the books under review were written in response to this general background. Three of them — two by former advisers to the British government, Sir Nicholas Stern and Baron Anthony Giddens, and one by academics Peter Newell and Matthew Paterson — advocate various business-friendly climate change strategies. The fourth, by climatologist Mike Hulme, questions the premise that climate change is a 'problem' awaiting an economic (or technical, scientific, political or ethical) 'solution'. A final volume — by a group of scholar-activists assembled by energy specialist Kolya Abramsky — looks at issues of ownership, labour, land and livelihood in the course of analysing possibilities for an 'accelerated transition to a decentralized, equitable and ecologically-sensitive energy system' oriented toward the commons rather than toward capital accumulation.

Stern, an academic, ex-World Bank chief economist and carbon businessman, steps forward in fighting style ostensibly to try to convince sceptical business and government planners that the 'new technologies and investment opportunities of low-carbon growth will be the main drivers of sustainable growth in the coming few decades . . . These investments will play the role of the railways, electricity, the motor car and information technology in earlier periods of economic history' (p. 207).

Delaying such long-term investments for even a few years, Stern warns, will mean 'sharply greater costs as we try to act in a rushed and ill-considered way later' (p. 207). Stern calculates that 2 per cent of GDP is 'worth paying now to reduce the chances of temperature increases above 5 degrees Celsius from around 50 per cent to around 3 per cent' (p. 54). The longer structural low-carbon investment is put off, 'the more high carbon sources of electricity will be locked in and the greater the cost of trying later to do too much too quickly' (p. 45).

As Mike Hulme points out, numbers like Stern's settle few arguments, either among business or the general public. Even those among Stern's fellow neoclassical economists who might agree (on some days) about how to compare the costs and benefits of building a bridge will never come to a consensus about the most profitable timing for a remedy for a climate

change ‘externality’ that, in Stern’s own words, ‘is long term . . . is global . . . involves major uncertainties, and . . . is potentially of a huge scale’ (p. 11). As Stern is aware, his use of cost–benefit analysis to press his case for climate action is essentially a literary gamble, not to be ‘taken too seriously’, as all the numbers are ‘very sensitive to assumptions’, ‘leave out conflict’, and are ‘weak on risk and biodiversity’ (p. 101).

What most strikes the eye about Stern’s book, however, are not his rhetorical cost–benefit numbers, but rather what they are used to justify. In a seeming paradox, this is not low-carbon investment, as Stern misleadingly claims, but rather high-carbon investment. Although Stern does call for cutting subsidies for conventional energy development (p. 113) and for using German-style government price controls to support the development of wind energy (pp. 115–16), his ‘global deal’ is designed in a way that entrenches fossil fuel consumption, especially in the North, at least through the medium term. Three elements are central: worldwide carbon trading; anti-deforestation programmes; and carbon capture and sequestration and other technical fixes.

As Stern is unquestionably aware, carbon markets necessarily discourage the immediate front-loaded investment in low-carbon technology he is ostensibly calling for. Both emissions trading (Driesen, 2008; Lohmann, 2006) and carbon offsets (p. 156) select for delay in the Northern-based industries where investment is most urgent, for example electricity generation, steel and cement. Offsets do not even provide capital for a transition away from fossil fuels in the global South (Gilbertson and Reyes, 2009; Sovacool and Brown, 2009). For example, although Stern assures readers that ‘technologies and financial flows from carbon trading’ will largely take care of the 95 per cent reduction in carbon intensity he sees as necessary for China’s industry (p. 188), in fact the 2000 Kyoto Protocol offset projects already operating or in the pipeline in that country are doing little or nothing to decarbonize Chinese industry (Brett, 2010; Environmental Investigation Agency, 2010; Schneider, Lazarus and Kollmuss, 2010). The simplification and expansion of carbon offset trading that Stern proposes (pp. 110–11, 160–63) would only further undermine the possibility of early structural low-carbon investment.

Stern’s proposal to pour US\$ 15 billion of public money yearly into anti-deforestation programmes — on the ground that to do so would be a ‘very good deal’ in terms of cost savings (p. 166) — also flies in the face of his advocacy of immediate investment in a low-carbon future. Stern’s forestry idea would, again, delay industrial and social change in the North, this time through shifting the waste burden of the high-carbon fossil economy to the biota of the South (Cabello and Gilbertson, 2010). When all the necessary qualifications have been made, this is a land grab (or more specifically a grab of largely indigenous territories by industrial interests), and a particularly pointless one from a scientific perspective, for two reasons. First, the equation ‘saving trees = reducing smoke’ that Stern relies on conceals

the fact that keeping biotic carbon out of the atmosphere for short periods can never compensate climatically for the permanent injection into the biosphere and atmosphere of the much larger reservoirs of fossil carbon formed underground over millions of years (Dukes, 2003; Haberl, 2006). Second, throwing money at deforestation without confronting its underlying causes is likely to be counterproductive (World Rainforest Movement, 2002). As Giddens points out in criticizing Stern, '[d]eforestation sounds like a unitary activity, which therefore admits of a unitary solution, but such is not the case' (p. 225).

Stern's other principal proposal of carbon capture and sequestration (CCS), too, would entrench high fossil fuel use by extending its 'waste frontier' into new territories. This time the idea is to take fossil-origin carbon directly from the smokestacks of coal-fired plants, liquefy it and pump it underground. Requiring several decades just to test, this scheme would wind up using even more pipes and other infrastructure than is now used to get oil out of the ground (Revkin, 2010; see also LaPlaca, 2010). Stern's other suggestions for technology development — scattershot subsidies for nuclear fusion development, 'enhanced photosynthesis' (p. 114) and second generation biofuels (p. 171) — are for the most part equally ill-considered. Stripped of camouflage, then, Stern's is a conventional strategy of continued fossil fuel exploitation, with new above- and below-ground enclosures and a new derivatives market tacked on. 'Analysis matters', Stern urges, but analysis of how low-carbon growth could be achieved is precisely what his book lacks.

Replace the apparent cynicism of a Stern with the wide-eyed innocence of academics who work at a distance from the rough ground of lobbying, the markets, or grassroots politics, and you get something like Newell and Paterson's *Climate Capitalism*. Like Stern, Newell and Paterson hoist the banner of 'accumulation by decarbonization'. Unlike Stern, they actually take the banner seriously. 'A form of climate capitalism that combines decarbonization with a fair way of managing that transformation globally and a well-governed system of carbon markets seems to us possible', they assert bravely (p. 183). Indeed, they suggest, we are seeing the 'early stages' of this transformation in the EU Emissions Trading Scheme (EU ETS), which has 'created a cycle of economic growth which can (in principle) promote decarbonization' and stimulate a 'genuine economic-technological transformation within Europe' (p. 105).

No evidence is presented for this extraordinary claim — which is perhaps not surprising, since no such evidence exists. Not only has the EU ETS failed to reduce structural dependence on fossil fuels in Europe (de Bruyn et al., 2010; Gilbertson and Reyes, 2009; Kanter, 2010; Stoczkiewicz, 2010) or to spur research and development on low-carbon alternatives (Helm, 2010). It has not even slowed the growth of Europe's emissions (Brinkley and Less, 2010; Helm, 2010; Monbiot, 2010; Sandbag, 2010). More than a decade of Kyoto carbon markets, meanwhile, 'might so far even have contributed to increasing global emissions' (Helm, 2010: 189).

Newell and Paterson's indifference to the empirical realities of carbon trading is reflected by an unwillingness to analyse the market structure from which they flow. The complex, composite entity that is traded on the carbon markets becomes a simple commodity 'like any other' (p. 86). The contested political and technical work that goes into its construction and maintenance, and the deleterious results for the climate, disappear into a black box. For example, although Newell and Paterson mention in passing that there exists a 'tension between wanting to stimulate a transformation in the European economy towards decarbonization and wanting to pursue abatement as cost-effectively [read: cheaply] as possible' through carbon trading (p. 154; see also pp. 165, 173), they accept carbon markets' false equation between CO₂ molecule reductions and structural change away from fossil fuel dependence (pp. 34, 126, 148–49). Like Stern, Newell and Paterson also acquiesce in the markets' equation of offsets with emissions reductions (pp. 81, 146) despite acknowledging that the equation is unverifiable (pp. 134, 139, 150, 158), even 'ludicrous' (p. 137).

Similarly, by presenting carbon commodities as unproblematic units whose production and exchange will automatically favour greater climatic stability, Newell and Paterson are able to argue that financial market dominance of the trade is not a sign of trouble, but rather a virtue. After all, they reason, once powerful speculators in New York, Chicago and London are in on the carbon game, they will surely work to help overcome resistance to climate action 'from big coal and big oil' (which Newell and Paterson, like Stern, strangely single out as if they constituted the only dedicated corporate blockers of effective climate action) and from governments (pp. 10, 28). This argument obscures the role that speculative finance exerts in structuring and modifying carbon commodities in ways that, again, make carbon markets a threat to decarbonization (Chan, 2009, 2010; Gilbertson and Reyes, 2009; Kill and Pavett et al., 2010; Lohmann, 2010; Suppan, 2009, 2010), as well as the benefits that the banking sector gains (pp. 163, 171) by combining continued fossil-fuel lending with speculation in a market that supposedly 'cleans up' the resulting mess (Redman, 2008; Sierra Club and Oilchange International, 2010).

This elision of politics makes it seem as if the technical failures and social conflicts that characterize carbon trading are residual, caused less by the economists, traders and politicians who set up the system than by pesky 'cowboys' who ride onto the scene afterwards eager to rustle up some illicit profit (p. 142). The implication is that the contradictions embedded in the carbon commodity can be purified away by 'regulation' and 'learning by doing' (pp. 31, 33, 118–124, 136, 141–160). Is carbon trading effective? Is carbon trading colonialist? In Newell and Paterson's vision, these are 'essentially questions of the process of governance' (p. 156, see also p. 147). So what if no one can prove that offset projects would not have gone ahead without finance from carbon markets (pp. 115, 134, 139)? Someday better rules will take care of the problem (pp. 149, 160). So what if rampant rent-seeking has

led to lax caps on emissions and huge windfalls for dirty industries (Coelho, 2010; Helm, 2010)? It's only a temporary lapse in regulation. Phase I of the EU ETS was a failure? Maybe Phase II will be better (pp. 102–03, 143, 152). (It's not.) Speculation-induced volatility in carbon prices? Maybe someday governments can 'act to limit speculation' (p. 173) — despite the fact that two years after the onset of one of the worst financial crises in history they have made few and inadequate inroads into the problem.

Newell and Paterson likewise assert that voluntary standards such as the Gold Standard and the Voluntary Carbon Standard could conceivably someday 'close down' the space for unacceptable offsets (174) — ignoring the fact that since this space covers the entire offset field, the pretence of 'governance' can only make things worse (Lohmann, 2009b, 2009d). (Not that business has ever taken much interest in such standards anyway; as of September 2010, only 97 out of 5,443 offset projects in the Kyoto Protocol carbon market pipeline were approved by the Gold Standard.) In one remarkable passage, the two authors even praise proposals to allow more 'land-based' (read plantation, forestry and soil) projects onto the Kyoto offset assembly line on the ground that they would give Africa a crack at hosting more offsets. These proposals, they say, constitute 'exactly the sort of quality control which is required to manage a global system: making sure that, as far as possible, fair play prevails' (p. 159, see also pp. 174–75). Such claims appear to emanate from another solar system. On Planet Earth, the 'quality control' Newell and Paterson refer to is stirring enormous outrage in countries such as Nigeria, South Africa, Papua New Guinea, Mexico, India, Peru, Guyana and Liberia, whose president issued a statement in October 2010 demanding the extradition of a British carbon businessman on charges of bribery in connection with a deal to lease one-fifth of the country as carbon offsets worth up to US\$ 2.2 billion (Carus, 2010). As Bolivian president Evo Morales charged in a recent statement, what Newell and Paterson call a 'governance' measure would mean that 'the South will once again fund the North'. Northern interests 'will not only have cheated their commitments to reduce emissions, but they will have also begun the commoditization of nature . . . We cannot accept . . . any mechanism of carbon markets or "incentives" that may lead to the commoditization of forests and rainforest' (Morales, 2010).

No less remarkable is Newell and Paterson's *bien pensant* belief that the World Bank is ideally suited to help 'fix' the troubled carbon markets since it 'is funded with public money and operates according to a public mandate to alleviate poverty' (p. 159). Back in the real world, many Southern countries as well as social movements and NGOs are engaged in a determined campaign to keep the Bank entirely out of climate finance because they know from hard experience that it would simply make things worse.

Like many other Northern intellectuals, Newell and Paterson imagine that peasants, indigenous peoples, workers, environmentalists and others who concern themselves with climate change face an abstract, dualistic choice:

they must either commit themselves to ‘abandoning capitalism’ or — provided that they admit that capitalism’s demise is ‘unlikely in the short term’ — help try to ‘find a way for it to grow while gradually replacing coal, oil and gas’ (pp. 8–9). The contemptuous implication is that the growing number of movements and networks working against carbon trading — for example, Via Campesina (2010), Indian forest activists (*Mausam*, 2008, 2009), waste picker alliances, Friends of the Earth International, or the thousands of protesting villagers who crowded the streets of Bangkok and Cancun in 2009 and 2010 — are making an elementary ‘mistake’ (p. 143). Once they grasp that the ‘carbon economy is already highly governed’ (p. 143), such misguided opponents will see that their objections to carbon trading are really only just disguised calls for improved regulation.² Accordingly, they will come to embrace openly the role to which they have unwittingly been destined all along — that of advisers on market reform.

If this scenario seems far-fetched, it’s because it is a version of a script that business often tries out on the middle classes in its perennial (if quixotic) efforts to obscure the central battlefield of modern politics, where commodification is constantly, creatively contested through concrete, bricolaged struggles over precisely such unmanageable conflicts as those thrown up by carbon trading. Instead of empirically investigating the diverse ways in which (with scarcely a mention of global socialist upheaval) communities throughout the world are patiently working against the marketization of carbon-cycling capacity, Newell and Paterson simply fall in with the ‘revolution-or-Wall-Street’ false dichotomy. In so doing, they ensure their own ignorance not only of the nature of resistance to carbon markets but also, equally importantly, of the strategies that market architects, agents and regulators adopt in reaction. ‘We must understand how capitalism works’, Newell and Paterson exhort us (p. 183), but lacking an adequate grasp of the commodity form, they themselves have little clue. This is political economy ‘lite’.

Academic and UK Labour Party policy adviser Anthony Giddens, in *The Politics of Climate Change*, is more sceptical of carbon markets than Stern or Newell and Paterson, and of the fetish of target-setting that accompanies them. Climate action, he warns, is ‘not the same as setting targets for some distant date in the future and then sitting back and relaxing . . . targets function best where a clear and known mechanism exists for reaching the desired outcome . . . The “how” matters more than the “what”’ (pp. 83, 92, 116).

All the same, Giddens shares many of the confusions about carbon markets propagated by Stern and Newell and Paterson. For example, he claims incorrectly that the US’s sulphur dioxide trading scheme ‘helped produce quick

2. The delusion that Newell and Paterson attribute to carbon market opponents would indeed constitute a remarkable act of forgetfulness, given that critics have never doubted that pollution markets are themselves a form of government regulation (Stewart, 1990) and accordingly have always directed most of their fire precisely at the ‘governance’ that helps create, distribute and market the climate commodity.

and effective technological innovations in key parts of the industry' (p. 198), and, like Newell and Paterson, seems to think that the Kyoto Protocol offset market might someday be fixed (p. 220). While he appreciates better than Stern or Newell and Paterson that emissions targets by themselves cannot distinguish the most effective trajectory away from fossil fuel dependence, he too tends to fall into the assumption that a policy of emissions reductions is automatically one of long-term investments in low-carbon technology, seeing, for example, energy efficiency as the 'lead principle' and success story in climate action (pp. 107, 137).

Yet unlike the other authors, Giddens is clear that the EU ETS 'has been ineffective for the purposes for which it was set up' (p. 199), that Kyoto offsets are essentially a 'face-saving' device (pp. 189–90), and that 'it will not be through Kyoto-style agreements that most progress will be made' (p. 192). Rather than putting too much faith in carbon markets (or, for that matter, 'sustainable development'), Giddens favours a 'return to greater state intervention' of other kinds (p. 96). The state, he writes, 'retains many of the powers that have to be invoked if a serious impact on global warming is to be made': the ability to plan for the long term (pp. 98–99), to institute a 'thorough clean-out of anti-environmental subsidies' (p. 140), to subsidize innovation (p. 130) and renewable technologies (p. 89) instead, to undertake a carbon audit of the tax system while shifting taxes from labour to energy in a way that would protect the underprivileged (p. 145), and so forth.

Whether and how this would be enough for the 'new industrial revolution' that he and Stern both favour is less clear. Giddens notes that over the past two decades carbon taxes have achieved incremental results in Finland, Sweden, Norway, Iceland and especially Denmark (pp. 150–54) and praises policies that guarantee good prices for renewable energy,³ but observes correctly that 'there is no nation that gets even close to what might be regarded as an effective performance in terms of reduction of greenhouse-gas emissions' (p. 74). He also cites examples of cities, states and regions in the global North that have moved ahead of international agreements in reducing emissions, limiting car traffic, and cultivating 'cityscapes that existed before the invention of the car' (pp. 126–8, 158–60). But, he suggests, there are limitations to dealing with climate change issues 'piecemeal and primarily from the bottom up' (p. 128).

Giddens's own analysis of how the type of progressive initiatives he lists might be supported and integrated is crippled by his attachment to the

3. As Preben Maegard points out in the Abramsky volume under review, 'Three countries in Europe — Spain, Germany, and Denmark — represent 90 percent of all wind energy on the continent, and the sector's expansion in these countries has taken place on the basis of government-guaranteed prices. The result of these policies was that, in 2006, 20 percent of the electricity consumption in Denmark came from wind and 8 percent in Germany, the world's third largest economy. In contrast, countries like the UK and Ireland, with by far the best wind resources in Europe, do not have a wind power development of any real significance' (p. 580).

dogma that climate change, like other major questions, 'is not a left-right issue' (p. 7) and must be addressed by a Tony Blair-esque 'radical centrism'. Not only does this ideology entail that Giddens has no analysis of the role of fossil fuels in industrial societies (instead we get psychological musings about why the 'intangible' dangers posed by global warming fail to stir middle-class SUV owners into action [p.1–7]). Equally significantly, it leaves him with no effective strategy for breaking dependence on them. 'We have to work with the institutions that already exist' (p. 4), Giddens urges. But of what those institutions are, and which of them might lead the way in bringing about needed changes, Giddens appears to have a very limited idea. After reviewing the failure to date of Northern governments to fulfil what he sees as the state's potential for effective action, he cites a survey finding that it is people in the global South who 'are the most concerned about climate change' (103). Yet he assumes throughout the book that it will be the enlightened presidents and prime ministers of industrialized nations (pp. 4, 7) who will 'take the lead' (p. 91), rather than the short-sighted general public of the North or anyone in the global South. Ignoring what Joan Martinez-Alier (2003) calls the 'environmentalism of the poor', as well as the organizing work around climate change being done by labour unions and grassroots activists in both North and South, he appears to rely for his conception of ecological politics almost entirely on a handful of Northern academics such as the philosopher Robert Goodin (1992) and the brilliant but increasingly erratic US legal scholar Cass Sunstein (2005). This leads to a number of cringe-inducing misunderstandings and oversimplifications, including the bizarre assertion that according to 'greens', 'what makes something valuable is that it has been created by natural processes rather than by human beings' (p. 53). More important, it hides from view some of the most crucial 'institutions that already exist' in the realm of climate politics, including commons regimes, whose caution about commensurating subsistence and safety with accumulation (Gudeman, 2001; Lohmann 1995; Scott, 1976; Thompson 1990) is typically inadequately translated into the English of industrial capitalism as 'the precautionary principle'. The result is a string of howlers such as the claim that '[t]he opposite of precaution is boldness and innovation — taking the plunge' (p. 57) or that '[i]n assessing risks, no matter how catastrophic, some form of cost-benefit analysis of possible forms of action is nearly always involved' (p. 60) (cf. Lohmann, 2009a).

It comes as no surprise, then, that Giddens is as dismissive as Newell and Paterson of popular institutions and networks being built in the global South — showing no awareness, for example, of the North's need to learn from the technologies of the South (p. 220). Like Stern, he is reduced in the end to endorsing CCS (pp. 134–35) as well as such fossil-oriented policies as exports of natural gas technologies to China (p. 220). Operating under the false assumption that 'replacements' for oil, gas and coal are both technically possible and socially desirable (p. 133), he also advocates nuclear development (pp. 132–38).

The Politics of Climate Change, like *The Global Deal* and *Climate Capitalism*, is clogged in every chapter, sometimes on every page, with inconsistencies, evasions and inaccuracies. For example, Giddens, like Stern, makes a *de rigueur* reference to the well-known need to make at least a rough distinction between risk (where possible outcomes and their probabilities are known) and uncertainty (where probabilities are unknown) (Knight, 1921). Yet, like Stern, he abandons this important distinction as soon as it becomes inconvenient for his purposes, floating the specious idea that computer models, if fed enough uncertain data together with all the scenarios scientists can think of at the moment, will someday bridge the gap. (As Mike Hulme points out, while some uncertainties about climate may 'be reduced over time . . . other sources of uncertainty emerge' both from the 'innate unpredictability of large complex and chaotic systems such as the global atmosphere and ocean' and from unpredictable future 'collective human choices' [p. 83].) While Stern uses this sleight of hand to crank out welfare economics calculations about climate change (p. 39), Giddens deploys it in the service of the claim that insurance companies will soon be able to 'distinguish probabilities' of climate catastrophes well enough to relieve the state from the burden of disaster relief (pp. 174–75).

Giddens, like Stern and Newell and Paterson, also extols Wal-Mart's decision to put pressure on its suppliers to reduce their carbon footprint as a sign of the way forward in climate politics (Giddens, p. 121; Stern, p. 134; Newell and Paterson, p. 52) — a particularly flagrant instance of sidestepping structural analysis in favour of vacuous anecdote. As is well known, Wal-Mart functions partly to preserve labour peace among a US population whose wages have been depressed, partly by the deployment of new fossil-fuelled technologies. By making available cheap wage goods produced with coal-fired electricity in China and then shipped in oil-fuelled container ships across the Pacific, Wal-Mart helps keep underpaid US workers relatively docile at the cost of outsourcing production — and carbon emissions — to Asia. Any serious analysis of climate politics would have to confront what has made the Wal-Mart phenomenon possible — and what can be done to contest it — before praising the company as a global warming leader.

Giddens's grand promise to try to provide 'a developed analysis of the political innovations that have to be made if our aspirations to limit global warming are to become real' (p. 4) thus comes by the end of the book to seem absurd. The unelaborated Third Way homilies that fill his book — 'governments acting together with enlightened corporate leaders' (p. 93) to cultivate an 'advance guard of entrepreneurs', 'NGO–business partnerships' (p. 123), cultural 'foregrounding' of climate change, and so on — belong more in a company brochure or politician's stump speech than in a serious work of scholarship.

Mike Hulme, a veteran climatologist and geographer with strong interests in history, religion, policy and science studies, reckons he may have an explanation for why the climate debate continues to throw up such weak

interventions and why, even after two decades of effort, no global deployments of ‘science, economics, international diplomacy and politics have yielded the [climate policy] prize being sought’ (p. 332). Climate change, Hulme writes, is ‘not a problem that can be solved in the sense that, for example, technical and political resources were mobilized to solve the problem of stratospheric ozone depletion’ (p. 326). In treating it as such, economists, environmentalists and governments not only fail to realize that ‘the discoveries of science’ cannot provide a ‘mobilizing narrative’ (p. 325) but also ‘overestimate the abilities of economics, politics or technologies to tame and master our changing climate’ (p. 336) and rely ‘too heavily on either rational choice theory in economics, regime theory in politics, social coercion in behaviour management, or control engineering in the implementation of technology’ (p. 336). The ‘solutions’ they come up with ‘either act as attractors for vigorous disagreement or else simply transfer the problem somewhere else’ (p. 334). Examples include the effort to establish a universal greenhouse gas target which ‘putatively avoids “dangerous” climate change’ and then set up a ‘single carbon market with worldwide trading’; the attempt to re-engineer the earth to absorb less solar radiation or control carbon dioxide levels; crash programmes to ‘minimize poverty worldwide’ in order to reduce climate vulnerability, social injustice and political instability (p. 335); and even the attempt to use, as a means to a climate end, a bottom-up social revolution that questions consumption, growth and capitalism.

‘Rather than placing ourselves in a “fight against climate change”’ (p. 361), Hulme urges:

we need to approach climate change as an imaginative idea ... an intellectual resource ... that we employ to fulfil a variety of tasks for us [and] to stimulate new thinking ... [and] around which our collective and personal identities and projects can form and take shape ... Solving climate change should not be the focus of our efforts any more than we should be ‘solving’ the idea of human rights or liberal democracy ... We need to ask not what we can do for climate change, but what climate change can do for us. (pp. 326, 363, 364)

For Hulme, however, liberating the concept of climate change from a technocratic or ‘governance’ approach does not mean treating it politically (Hulme appears to have a conception of politics as a practice of problem-solving initiated by individuals aiming at advantage or ‘justice’), but rather recognizing as individuals that the ‘sources of our disagreement about climate change lie deep within us, in our values and in our sense of identity and purpose’. While ‘[c]limate change opens out for us new ways of understanding the wilful and structural causes of inequality and injustice in the world’, Hulme insists, it also shows us how our ‘instinct for justice clashes with the structures that hem us in’ and ‘reveals the limits of our individual moral agency’ (p. 358).

This is surely to stop the investigation too soon. The realization that climate change is not a technical problem with a neat solution, that the dichotomy between ‘scientific fact’ and ‘policy judgement’ is false (p. 104) and that many of the interests and conceptions at work in the climate debate are

incommensurable, should, on Hulme's own analysis, spur rather than discourage efforts to engage with the politics of class, race, gender and imperialism. To vary Hulme's title, why *shouldn't* we disagree about climate change, and then take that disagreement as a starting point for transformational struggles, rather than treating it merely as a matter of unchanging 'foundational human instincts' (p. 358)? Although a figure like Nick Stern may well insist in public that the world can rally around his 'global deal,' everybody knows that at bottom this claim is only a polemical moment in the advocacy of a particular set of interests. Northern environmentalists, too, are presumably aware deep down that appeals to 'peer-reviewed science' as a basis for climate policy are not by themselves going to carry the day either.

Yet Hulme's book sometimes seems coloured by a nostalgia for an age that never was, when the smooth convergence of human beliefs and hopes seemed an attainable goal and science had a pure, 'autonomous heartland' that held it together, making it seem as if a sharp line could be made out between 'expanding the choice of options for policy makers' and 'acting as an issue advocate' (pp. 92, 99). Despite his respect for science studies, Hulme also still resorts to quaint dichotomies between 'objective' and 'constructed', 'material' and 'spiritual' that discourage a view of the future as dynamic and open-ended — a view that he clearly values. By expanding his scope of inquiry a little further, for example through consideration of the role of community struggles for livelihood in the climate controversy, Hulme might well find that the conflicts associated with global warming are neither as new nor as threatening or limiting as he perhaps still thinks.

Among those who will be unperturbed by the idea that climate change is an arena of political struggle are the contributors to Kolya Abramsky's edited volume about energy politics, *Sparking a Worldwide Energy Revolution*. Nor will this fifty-strong group of seasoned activist-scholars from five continents be reluctant to choose sides in the continuing debate. As Abramsky puts it, 'affected communities and workers must lead the discussion of how to bring about . . . rapid and extensive reductions in CO₂ emissions' as well as collective efforts 'to ensure that the globally-expanding renewable energy sector contributes to a positive shift in power relations, and does not provide a new basis for exploitative ones':

There is an urgent need to . . . take steps towards equalizing access to energy, [to] reduce the structural dependency that high-energy-consuming regions have on regions that are net exporters of energy, [and to find] energy and climate solutions that contribute to, and speed up, a wider process of long term emancipatory social change in the face of the current world financial-economic and political crisis. (pp. 655–56)

Far from being fixated on social conflict, however, the authors are clear that their main task is movement-building and what Ewa Jasiewicz, in a fascinating chapter on Iraqi oil workers' movements, calls the 'creation of a space' for 'coherence and cooperation' among social movements and networks that business and governments are typically eager to divide from

each other. Examples of such movements and networks include, for example, oil and coal workers in Iraq or Colombia, climate activists in the UK or Spain, energy-starved communities in South Africa or India, conservationists in Iceland or the US, farmers displaced by wind farms in Mexico or India, wind power developers in Denmark or China, indigenous nations fighting oil extraction projects in Canada or Nigeria, and agrofuel plantation workers suffering oppressive labour conditions in Brazil or Indonesia. As Jasiewicz and the other authors know from experience, opening spaces for mutual action among such groups, and keeping them open, ‘demands solidarity’ (p. 227) on a wide range of issues — including fostering the popular control of energy — that can never be reduced to ‘climate change’ as it is usually understood among the middle classes of the global North. If fossil fuels are to be phased out, it can only be through the leadership of, among other groups, the workers who currently depend for their livelihoods on their extraction, production and use.

The authors are thus already acting on Hulme’s injunction to ‘use the idea of climate change — the matrix of ecological functions, power relations, cultural discourses and material flows that climate change reveals — to rethink how we take forward our political, social, economic, and personal projects over the decades to come’ (Hulme, p. 362). Their ambitions for a new politics, moreover, are matched by a deep and informed attention to concrete social and technical detail that is often lacking in the other books under review.

Conrado Moreno Figueredo and Alejandro Montesinos Larrosa, for example, explore how an abrupt reduction in fossil fuel supplies in Cuba spurred beneficial developments in renewable energy and energy savings that other countries could learn from. Preben Maegaard and Jane Kruse look for further lessons in the 110-year history of the relations between wind power, local energy self-sufficiency, community power and national energy policy in the Danish countryside, showing how recent liberalization policies have undermined a history of renewable energy successes. Patrick Bond, Trevor Ngwane and David Hall document resistance to energy privatization in South Africa, Taiwan, Thailand, the Dominican Republic, Australia, Zambia and eighteen other countries, Bond in particular suggesting ways in which campaigns for ‘electricity for all’ might be integrated with global warming struggles.

Other contributors report from the front lines of defence against continued corporate exploitation of energy sources. Nnimmo Bassey, Esperanza Martinez, Shannon Walsh and Macdonald Stainsby analyse different strategies local movements are already using in Africa and the Americas in order to keep oil in the ground, while Sophie Cooke and authors at the China Labour Bulletin provide dispatches from the coal frontier. Camila Moreno, Tatiana Roa Avedano, Jessica Toloza, Monica Vargas Collazos, Helena Paul, Les Levidow and others meanwhile describe in detail the links among global agrofuel crops, fossil fuels, dispossession, militarization and the ecological debt in Colombia, Brazil, Argentina, Paraguay, Tanzania and elsewhere.

In several invaluable chapters on the political economy of oil, George Caffentzis offers a reminder of the pitfalls of assuming an easy identity between ‘renewable energy’, decentralization and human liberation. ‘The period when capitalism was operating under a renewable energy regime in the sixteenth through most of the eighteenth century,’ he notes dryly, ‘was hardly an era of international peace and love’ (p. 567). Bringing this story up to date, Sergio Oceransky tells the story of how indigenous communities in Southern Mexico are resisting Spanish and Mexican ‘renewable energy’ projects that privatize their region’s strong winds. A further three dozen insightful chapters cover topics ranging from peak oil to the need to confront the resurgence of nuclear power, the economics of accelerated renewables development, the complexities connected with democratic sharing of renewable technologies, and the importance of communal ownership of energy sources.

As this short survey suggests, Abramsky’s volume grapples with a wide range of experience and analysis, and, as an attempt to integrate painstaking research with democratic climate action, is more a beginning than an end. But it is a beginning that already addresses the substantial questions of climate change politics in a more focused and responsible way than the amateurishly conceived books of Stern, Giddens, and Newell and Paterson. Attentive to the nuances and unexpected shifts of contemporary power conflicts, its authors help to rejuvenate an old and honourable tradition in leftist thought to try to hold within the same vision the ‘low politics’ of struggles over commons and commodification and the ‘high politics’ of finance, war, diplomacy and catastrophe. While Hulme’s book contains many indispensable insights, *Sparking a Worldwide Energy Revolution* will be top of this particular list for serious students of climate change politics.

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Larry Lohmann (larrylohmann@gn.apc.org) works with The Corner House, a UK-based advocacy organization. He co-authored *Pulping the South: Industrial Tree Plantations in the Global Paper Economy* (1996) and has published articles in *New Political Economy*; *Accounting, Organizations and Society*; *Bulletin of Concerned Asian Scholars*; *Science as Culture* and many other journals.