



Combating climate change, by the books

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■ REVIEW ESSAY

Combating climate change, by the books

Why are we waiting? The logic, urgency, and promise of tackling climate change

Nicholas Stern, MIT Press, Cambridge, MA, USA/London, UK, 2015, 448 pp, \$27.95/£19.95, ISBN 9780262029186

This changes everything

Capitalism vs. the climate

Naomi Klein, Simon & Schuster, New York, NY, USA, 2014, 576 pp, \$16.99, ISBN 9781451697391

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Two well-written, insightful books present different but ultimately complementary perspectives on the climate crisis and what needs to be done. Nicholas Stern, who revolutionised the economics of climate change with the Stern Review in 2006, presents an updated overview of climate science, economics, ethics, and international diplomacy, aimed at the Paris negotiations in late 2015. Naomi Klein, a leading anti-corporate activist and journalist, focuses on the economics of the fossil-fuelled status quo and the growing signs of militant grassroots resistance, emphasising experience in North America.

The years since the Stern Review have seen a vast expansion of knowledge about the risks of inaction. To retain even a 50% chance of limiting warming to 2 °C, worldwide emissions will have to drop sharply, starting promptly and continuing to drop for decades. Stern's new book describes the recent declines in the cost of renewable energy, and reprises the economic and ethical arguments for immediate action. The newest part of his diagnosis addresses the limitations of standard economic analyses.

Economists have often minimised the expected impacts of climate change, due to lagging behind the frontiers of climate science. A similar result arises from a technical choice embedded in economic models: conventionally, climate

damages are treated as affecting current output, leaving capital stocks and productivity unchanged. Yet climate change appears likely to damage capital stocks and reduce productivity. Recent research (Dietz & Stern, 2015, among others) shows that this reframing of climate impacts leads to more ominous forecasts of damages, and more aggressive 'optimal' strategies for mitigation.

Naomi Klein shares Stern's urgency, but not his diplomatic optimism about mainstream initiatives. In Klein's view, America's climate deniers, claiming that climate policies would be the end of capitalism as they know it, are partly right. Public policies, regulations, and planning of clean energy investments are needed, and this will constrain the operations and limit the profits of companies that produce and use fossil fuels. Klein favours major institutional changes, such as municipal or other public ownership of energy systems, and challenges to fossil fuel development based on indigenous rights, as counterweights to the power of carbon-based capitalism.

Both Stern and Klein mention, but perhaps understate, the potential of anti-coal initiatives, based largely on the 'co-benefits' of reducing air pollution. The use of coal routinely fails cost-benefit calculations due to the number of people who are killed by air emissions from coal combustion.

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If (non-carbon) externalities are internalised using conventional cost–benefit valuations, then coal-fired power plants in the US have negative value added (Muller, Mendelsohn, & Nordhaus, 2011). For similar estimates of coal externalities in Europe, see Health and Environment Alliance (2013).

The corresponding political reality is that anti-coal measures are popular, on the basis of health benefits alone. Rising opposition to urban air pollution is driving China's initial steps away from coal. In the US, health-based pollution control requirements have eliminated the former economic advantage of coal-fired power, stopping the growth of carbon emissions.

For emerging coal-dependent economies such as India, access to low-cost clean energy technologies combined with enlightened self-interest may be enough to achieve the first stages of carbon reduction. The subtleties of international negotiation, burden-sharing, and free rider problems may not be crucial until a later stage: in a healthier, post-coal world, carbon emissions might be lower than today, but still not nearly low enough to stabilize the climate. And local benefits would no longer provide an obvious path forward.

Two prescriptions for progress

When it comes to prescriptions for combating climate change, Stern offers a detailed review of recent negotiations, putting the best possible face on the limited successes to date. Developing countries have done more than is often recognised; high-income countries have a mixed record, with some taking important steps forward but others doing less or even moving backward. There is little hope for a new binding treaty to replace the Kyoto Protocol – if, for no other reason, the chances of formal ratification in the US are nil. Stern calls for an international framework that encourages and rewards countries for setting ambitious, credible national targets for emission reduction. Progress in the Paris negotiations and beyond will require joint leadership by China, the US, and the EU, the top three carbon emitters.

The guiding principle of international equity, in Stern's view, should be 'equitable access to sustainable development', a phrase based on India's climate proposals. Technology, aid, and investment from rich countries will be needed to achieve this goal. Pursuing formulas for the allo-

cation of emission rights is mistaken, according to Stern. It mis-states the goal, which is equitable development, not equitable emissions. Moreover, serious application of ethical principles to the allocation of emission rights would call for massive transfers of wealth to developing countries. High-income countries have declined to make such transfers in foreign aid and other existing programmes, and will not be tricked into doing so by new carbon allocation formulas. It is better, instead, to pursue more feasible paths forward.

It is hard to decide whether this is brilliant or infuriating. Should we ignore broad ethical principles for now, because it is politically impossible to act on them? Neither answer is entirely satisfying. Stern's critique of proposals for zero growth in high-income countries is similar. On the one hand, stopping growth in the developed world is neither necessary nor sufficient for climate stabilization; on the other hand, if asked to choose between economic growth and climate protection, rich countries might not pick the climate. Through all this realpolitik, the big question remains unanswered: is there a path through the diminished world of post-Kyoto negotiations to a viable climate solution?

Klein explores a parallel world of climate activism, in which popular uprisings challenge oil companies in Nigeria and Ecuador, community groups oppose fracking throughout the US, and blockades confront new coal mines, pipelines, and fuel exports everywhere. The land of these protests, which she calls Blockadia, shows up around the world, wherever the fossil fuel economy encroaches on ordinary lives and livelihoods. Indigenous communities, especially (but not only) the First Nations of Canada, have proved effective in stopping mines, pipelines, and other insults to their traditional lands.

As seen from Blockadia, international climate negotiations, and even mainstream environmental advocates, are only occasionally visible in the background. Klein's brief mentions of good deeds of America's 'Big Green' groups are overshadowed by her extended account of the Nature Conservancy allegedly allowing and profiting from oil drilling on a parcel of land it owns. Klein says too much about this sordid, atypical story, and next to nothing about the many people in major environmental groups who have devoted their careers and their extraordinary energies to fighting coal and climate change.

Blockadia has an indispensable part to play in combating climate change (about which, more in a moment), but it

runs the risk of developing a parochial, rigid outlook, which Klein unfortunately reinforces in at least two respects.

First is the overemphasis on one study finding that fugitive methane emissions make natural gas from fracking worse than coal in terms of GHG emissions per unit of energy (Howarth, Santoro, & Ingraffea, 2011). By contrast, coal is usually estimated to be about twice as bad as natural gas. It is not easy to measure fugitive emissions from gas wells; the published literature contains wildly differing estimates. And there is a clear incentive for drilling companies to capture fugitive emissions, as they represent natural gas that could be sold. Why pin a long-term critique on one early, high estimate of fugitive emissions?

A better critique could highlight another study, showing that large increases in natural gas supplies would have almost no effect on global GHG emissions (McJeon et al., 2014). Gas can displace either coal – with double the emissions of gas – or nuclear energy, renewable energy, or efficiency measures, with no emissions. If gas displaces roughly equal amounts of coal and zero-carbon resources, the net result is roughly nothing. Explicit policies are needed to promote and protect efficiency measures and renewables, even as gas and clean energy continue to replace coal.

Second, Klein repeatedly cites the work of Mark Jacobson and Mark Delucchi (J&D) as the essential blueprint for a carbon-free energy system (Jacobson & Delucchi, 2011; Delucchi & Jacobson, 2011). J&D claim that a transition to 100% renewable energy is feasible with current technology, within 20 years. Critics object that J&D ignore the risks of long cloudy, windless periods when wind and solar power are not available, and that the J&D scenario is hopelessly expensive (Trainer, 2012).

An alternative study shows that a 90% renewable electricity grid is relatively inexpensive (Budischak et al. 2013). Keeping gas-fired generation available for the last 10% allows far lower costs than the J&D plan. This would meet near-term climate targets, while buying time to develop affordable bulk energy storage, the missing link in a 100% renewable system. Note that this approach implies reduction, not expansion, in current use of natural gas.

Educational campaign or civil war?

Both books conclude with analogies to past campaigns for social change, neither of them quite on target. Stern com-

pares the needed mobilisation for climate protection to the movements against smoking or drunk driving, among others. Advocacy and education based on public health research led to rejection of formerly common, destructive practices. This makes it sound too easy: tobacco is a powerful but isolated industry, without close links to other sectors and technologies; drunk driving benefits no important interest or industry. Klein compares the struggle against fossil fuels to the abolition of slavery. That was a fundamental redefinition of capitalism and private property that faced massive resistance – but it was settled by levels of death and destruction that do not seem likely or desirable in the pursuit of a stable climate.

Is there an appropriate, imaginable model of success, a far-reaching restructuring of society that overcame entrenched resistance without a civil war? The social movements that began in the 1960s and 1970s provide possible templates: struggles against the war in Vietnam, and for racial and gender equality, achieved hard-fought, sweeping changes in American society. My recollection, largely from the anti-war movement, is that militants and mainstream advocates, Blockadia and Negotiastan¹, need each other more than either acknowledges. Militants raise public awareness, making extreme demands, allowing mainstream advocates to look reasonable by comparison. Mainstream efforts are more likely to win in the short run, and create an environment in which militants are less isolated, allowing the full spectrum of opinion to flourish. Neither could accomplish as much on their own – even if neither acts appreciative of the other's efforts in the heat of the moment.

Nicholas Stern and Naomi Klein have written excellent guides to the two faces of the movement for climate protection. Both argue persuasively that the time for action is now. This changes everything – what are we waiting for?

Note

1. My invention, not found in Klein's or Stern's writing.

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