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The Trump presidency, climate change, and the prospect of a disorderly energy transition

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Abstract

This article reflects on the implications of the Trump presidency for global anthropogenic climate change and efforts to address it. Existing commentary, predicated on liberal institutionalist reasoning, has argued that neither Trump's promised rollback of domestic climate-related funding and regulations, nor withdrawal from the Paris framework, will be as impactful as often feared. While broadly concurring, I nonetheless also in this article take a wider view, to argue that the Trump administration is likely to exacerbate several existing patterns and trends. I discuss four in particular: the general inadequacy of global greenhouse gas emissions reduction targets and implementation efforts; the inadequacy of contemporary climate financing; the embrace between populist conservatism and opposition to action on climate change; and not least, the current global oil and gas boom which, crucially, is being led by the US. I submit that these patterns and trends, and the Trump administration's likely contributions to them, do not augur well for climate change mitigation, let alone for an orderly transition to a low-carbon global economy. Given current directions of travel, I suggest, this coming transition is likely to be deeply conflict-laden – probably violently so – and to have consequences that will reverberate right across mid-twentieth-century international order.

Keywords: Donald Trump; Climate Change; Energy Transition; Conflict

Introduction

Under Donald Trump's populist, nationalist, personalised leadership, US government policy and practice relating to climate change has simultaneously been all that he promised as a candidate, and far worse. The record from his first 18 months as president speaks for itself. The repeated appointment and nomination of climate change deniers and sceptics to influential climate change-related positions: Scott Pruitt as head of the Environmental Protection Agency (EPA), Rick Perry as Energy Secretary, Jim Bridenstine as head of NASA, Kathleen Hartnett White as chair of the Council on Environmental Quality.[1] The cancellation by Executive Order

[1]On Pruit, see, for example, Alex Guillen and Emily Holden, 'What EPA chief Scott Pruitt promised – and what he's done', *Politico* (19 November 2017), available at: {chiefpolitico.com/interactives/2017/scott-pruitt-promises/}; on Perry: Ian Johnston, 'US Energy Secretary Rick Perry told he lacks "fundamental understanding" of climate science', *The Independent* (23 June 2017), available at: {http://www.independent.co.uk/environment/us-energy-secretary-rick-perry-climate-change-american-meteorological-society-a7804041.html}; on Bridenstine: Dana Nuccitelli, 'We have every reason to fear Trump's pick to head NASA', *The Guardian* (6 November 2017), available at: {https://www.theguardian.com/environment/climate-consensus-97-per-cent/2017/nov/06/we-have-every-reason-to-fear-trumps-pick-to-head-nasa}; and on Hartnett White: Michael Biesecker, '"I am not a scientist": President Trump's pick for environmental advisor is a climate change sceptic', *Time* (9 November 2017), available at: {http://time.com/5018105/kathleen-hartnett-white-donald-trump-environment/}. Hartnett White's nomination was withdrawn after being sent back by the Senate. Scott Pruit resigned from the EPA in July 2018 in the wake of multiple ethics scandals.

of Barack Obama's Climate Action Plan.[2] The commencement of a process to repeal the Clean Power Plan (CPP), the main Obama-era instrument for reducing US carbon emissions, accompanied by a declaration from Pruitt that 'the war on coal is over'.[3] In its place, a proposal for financial guarantees for coal (and nuclear) power plants.[4] The revival of the Keystone XL oil pipeline, to carry oil from western Canada's tar-sands towards refineries in Texas.[5] The opening of part of the Arctic National Wildlife Refuge in northern Alaska and almost all offshore waters, for oil and gas drilling.[6] The announcement of plans to freeze car fuel efficiency standards.[7] Proposed near one-third cuts to the EPA's budget, plus the cancellation of funding for both the international Green Climate Fund, established to assist developing states with climate mitigation and adaptation, and the Intergovernmental Committee on Climate Change, the Nobel Peace Prize-winning body responsible for reviewing evidence and developing scientific consensus on the subject.[8] The decision to withdraw from the Paris Agreement – a decision which, given Nicaragua's and Syria's belated accessions to it, makes the US the only country in the world formally opposed to the current international climate change regime.[9] The removal of climate change from the US's National Security (NSS).[10] And not least, the Trump administration's lamentably slow and racially charged response to the devastation of Puerto Rico by Hurricane Maria – a response that meant that one month on from Maria 80 per cent of Puerto Ricans were still without electricity, and which likely contributed to the 1,000-plus death toll from the storm.[11] In the view of many, under Donald

[2]White House, 'The President's Climate Action Plan' (June 2013), available at: {https://obamawhitehouse.archives.gov/sites/default/files/image/president27sclimateactionplan.pdf}; rescinded by White House, 'Presidential Executive Order on Promoting Energy Independence and Economic Growth' (28 March 2017), available at: {https://www.whitehouse.gov/presidential-actions/presidential-executive-order-promoting-energy-independence-economic-growth/}.

[3]Lisa Friedman and Brad Plumer, 'EPA announces repeal of major Obama-era carbon emissions rule', *New York Times* (9 October 2017), available at: {https://www.nytimes.com/2017/10/09/climate/clean-power-plan.html}; Sam Fleming and Ed Crooks, 'Trump moves to scrap Obama rules on coal-fired power', *Financial Times* (9 October 2017), available at: {https://www.ft.com/content/e9f5b034-ad13-11e7-aab9-abaa44b1e130}.

[4]Ed Crooks, 'US delivers electric shock with coal and nuclear subsidy plan', *Financial Times* (1 October 2017), available at: {https://www.ft.com/content/a5c7c658-a6bb-11e7-ab55-27219df83c97}.

[5]Clifford Krauss, 'US, in reversal, issues permit for Keystone oil pipeline', *New York Times* (24 March 2017), available at: {https://www.nytimes.com/2017/03/24/business/energy-environment/keystone-oil-pipeline.html?rref=collection%2Ftimestopic%2FKeystone%20XL&action=click&contentCollection=timestopics&region=stream&module=stream_unit&version=latest&contentPlacement=10&pgtype= collection}.

[6]Sabrina Shankman, 'Congress opens Arctic Wildlife Refuge to drilling, but do companies want in?', *Inside Climate News* (22 December 2017), available at: {https://insideclimatenews.org/news/20122017/arctic-national-wildlife-refuge-open-drilling-oil-tax-bill-congress-trump}; Oliver Milman, 'Trump administration plans to allow oil and gas drilling off nearly all US coast', *The Guardian* (4 January 2018), available at: {https://www.theguardian.com/environment/2018/jan/04/trump-administration-plans-to-allow-oil-and-gas-drilling-off-nearly-all-us-coast}.

[7]Coral Davenport, 'Trump administration reveals its plan to relax car pollution rules', *New York Times* (2 August 2018), available at: {https://www.nytimes.com/2018/08/02/climate/trump-auto-emissions-california.html}.

[8]Oliver Milman, 'Trump budget would gut EPA programs tackling climate change and pollution', *The Guardian* (16 March 2017), available at: {https://www.theguardian.com/environment/2017/mar/16/trump-budget-cuts-climate-change-clean-up-programs-epa}; Karl Mathiesen, 'Trump budget: US to stop funding UN climate process', *Climate Home News* (16 March 2017), available at: {http://www.climatechangenews.com/2017/03/16/trump-budget-us-stop-funding-un-climate-process/}; Brenda Ekwurzel, 'Donald Trump ends IPCC funding and "abandons global science leadership"', *The Ecologist* (17 August 2017), available at: {https://theecologist.org/2017/aug/17/donald-trump-ends-ipcc-funding-and-abandons-global-science-leadership}.

[9]White House Office of the Press Secretary, 'Statement by President Trump on the Paris Climate Accord' (1 June 2017), available at: {https://www.whitehouse.gov/the-press-office/2017/06/01/statement-president-trump-paris-climate-accord}. The full list of Paris agreement signatories is available at: {http://unfccc.int/paris_agreement/items/9444.php}.

[10]The White House, *National Security Strategy of the United States of America* (December 2017), available at: {https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf}. For comparison, the 2015 NSS is available at: {http://nssarchive.us/national-security-strategy-2015/}.

[11]On the Trump administration's racialised response to Maria and its historical context see, for example, Frances Negrón-Muntaner, 'The crisis in Puerto Rico is a racial issue: Here's why', *The Root* (10 October 2017), available at: {http://www.

Trump the US has moved within the space of a year from full participant to 'rogue state' on global climate change policy.[12]

Yet as clear as this record undoubtedly is, it tells us little in itself about the likely consequences or significance of the Trump administration for climate change and global efforts to address it. To analyse these we need to move away from a narrow fixation with the latest tweet or cringe-inducing nomination process – to venture both beyond Trump and beyond the temptations of presentism. This article seeks to do just this: to reflect on the implications of Donald Trump for climate change and climate politics by situating his administration's actions in this area both comparatively, and with an eye to a series of domestic and international, historical and emergent, contexts.

Though not the first such endeavour, the present article's line of analysis is distinct. Most existing scholarly reflections on the Trump administration and climate change have built on liberal institutionalist premises, to argue that the 'polycentric' or 'transnational' character of contemporary climate governance will operate as constraints on executive power and limit both the impact of withdrawal from the 2015 Paris Agreement, and the ability of the Trump administration to roll back domestic climate-related funding and regulations.[13] By contrast, building on historical materialist and postcolonial thinking – and on what, outside IR, is commonly referred to as research in 'political ecology' – I frame the question of Trump and climate change much more broadly.[14] Instead of focusing principally on *governance* processes and mechanisms, as liberal institutionalist researchers are wont to do, I take my object of analysis to be relations of social, political, and geopolitical *power* and the patterns of ecological and social appropriation and reproduction underpinning them. I thus not only explore the implications of the Trump presidency for climate change policy and regulation, but also reflect on how responses to climate change are both being shaped by, and are likely to accentuate and transform, extant hierarchies and inequalities, and how the Trump administration's actions are likely to feed into these dynamics. More specifically, my argument builds on several recurring motifs of recent historical materialist, postcolonial, and political ecology research: the enduring importance of

theroot.com/the-crisis-in-puerto-rico-is-a-racial-issue-here-s-why-1819380372}; and Pedro Caban, 'Catastrophe and colonialism', *Jacobin Magazine* (12 December 2017), available at: {https://www.jacobinmag.com/2017/12/puerto-rico-hurricane-maria-trump-us-status-history}. On the electricity crisis see, for example, Office of the United Nations High Commissioner for Human Rights, 'Puerto Rico: Human Rights Concerns Mount in Absence of Adequate Emergency Response' (30 October 2017), available at: {http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=22326&LangID=E}; and on the death toll from Maria, Frances Robles et al., 'Official death toll from Maria: 64. Actual deaths may be 1,052', *New York Times* (9 December 2017), available at: {https://www.nytimes.com/interactive/2017/12/08/us/puerto-rico-hurricane-maria-death-toll.html}; and Alexis Santos-Lozada, 'In Puerto Rico, counting deaths and making deaths count', *Health Affairs*, 37:4 (2018), pp. 520–2.

[12]See, for example, Mary Robinson's statement in 'The Elders Condemn US for Quitting Paris Climate Agreement', available at: {https://theelders.org/article/elders-condemn-us-quitting-paris-climate-agreement-no-one-country-can-dismantle-it}.

[13]Explicitly or implicitly liberal institutionalist readings include Joseph Aldy, 'Real world headwinds for Trump climate change policy', *Bulletin of the Atomic Scientists*, 73:6 (2017), pp. 376–81; Elizabeth Bomberg, 'Environmental politics in the Trump era: an early assessment', *Environmental Politics*, 26:5 (2017), pp. 956–63; Peter Haas, 'Parxit, the United States and the world', *Chinese Journal of Population Resources and Environment*, 15:3 (2017), pp. 186–8; Jonathan Pickering et al., 'The impact of the US retreat from the Paris agreement: Kyoto revisited?', *Climate Policy*, 18:7 (2018), pp. 818–27; and Johannes Urpelainen and Thijs van de Graaf, 'United States non-cooperation and the Paris agreement', *Climate Policy* (2017); while Michele Betsill, 'Trump's Paris withdrawal and the reconfiguration of global climate change governance', *Chinese Journal of Population Resources and Environment*, 15:3 (2017), pp. 189–91 draws upon a combination of institutionalist and constructivist premises. Key works on which these commentaries draw include Elinor Ostrom, 'Polycentric systems for coping with collective action and global environmental change', *Global Environmental Change*, 20:4 (2010), pp. 550–7; Robert Keohane and David Victor, 'The regime complex for climate change', *Perspectives on Politics*, 9:1 (2011), pp. 7–23; and Harriet Bulkeley et al., *Transnational Climate Change Governance* (Cambridge: Cambridge University Press, 2014).

[14]On political ecology see, for example, Nancy Peluso and Michael Watts (eds), *Violent Environments* (Ithaca: Cornell University Press, 2001); Paul Robbins, *Political Ecology: A Critical Introduction* (Oxford: Blackwell, 2011); and Richard Peet et al. (eds), *Global Political Ecology* (London: Routledge, 2011).

both North–South hierarchies and geopolitical rivalries within global politics;[15] the social origins of foreign policies and international relations, including in relation to hierarchies of race, class, and gender;[16] conversely, the impacts of international, geopolitical dynamics on 'internal' social processes;[17] the carbon-fuelled foundations of our modern capitalist order;[18] and notwithstanding these materialist emphases, the highly symbolic, performative, and indeed ideological character of much contemporary global, including climate, politics.[19] Without presenting a theoretical framework as such, the analysis herein builds on each of these various emphases.

Substantively, I make three main arguments. First I contend, broadly concurring with institutionalist assessments, that there are definite limits to how much Trump might be able to roll back US or international climate policies and regulations. And yet I also argue, second, that this does not mean the Trump administration's impacts will be negligible. Instead, taking a longer and more contextualised view, I submit that the importance of the Trump administration for climate change and mitigation efforts lies primarily in how it may contribute to and exacerbate existing social, political and geopolitical patterns and long-term trends. Of these, I identify four in particular: the worldwide inadequacy of greenhouse gas (GHG) emissions reduction targets and implementation efforts; parallel to this, the inadequacy of contemporary climate financing; third, the deepening embrace between populist conservatism, nationalism, and opposition to action on climate change; and not least, the current boom in global oil and gas production which, crucially, is being led by the US. I submit that these patterns and trends, and the Trump administration's likely contributions to them, do not augur well for climate change mitigation, let alone for an orderly transition to a low-carbon global economy. This leads me to suggest, third and in conclusion, that the coming transition is likely to be deeply conflict-laden – and probably violently so. Given current directions of travel, I argue, this coming transition will likely have consequences which will reverberate right across mid-twentieth-century global and international order.

The limits to rollback

Donald Trump's personal style and political platforms constitute perhaps the starkest departures from presidential norms in modern US political history. Moreover, on climate change

[15]On the former see, for example, from very different perspectives, Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge, MA: Harvard University Press, 2011); and Jason Moore, *Capitalism and the Web of Life: Ecology and the Accumulation of Capital* (London: Verso, 2015); and in relation to climate change specifically, see J. Timmons Roberts and Bradley C. Parks, *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy* (Cambridge, MA: MIT Press, 2007); and David Ciplet et al., *Power in a Warming World: The New Global Politics of Climate Change and the Remaking of Environmental Inequality* (Cambridge: MIT Press, 2015). On the latter, I draw specifically on those strands of historical materialist IR that insist, in quasi-realist fashion, that geopolitical contestation and 'the international' have not been displaced by predominantly 'transnational' or 'global' forms of politics: see, for example, Alex Callinicos, 'Marxism and global governance', in David Held and Anthony McGrew (eds), *Governing Globalization: Power, Authority and Global Governance* (Cambridge: Polity, 2002), pp. 249–66; and Justin Rosenberg, 'Globalization theory: a post mortem', *International Politics*, 42:1 (2005), pp. 2–74.

[16]On the former, see especially Alexander Anievas et al., *Race and Racism in International Relations: Confronting the Global Colour Line* (London: Routledge, 2015).

[17]See especially Justin Rosenberg, 'International Relations in the prison of political science', *International Relations*, 30:2 (2016), pp. 127–53; and, classically, Peter Gourevitch, 'The second image reversed: the international sources of domestic politics', *International Organization*, 32:4 (1978), pp. 881–912.

[18]See especially Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (London: Verso, 2011); and Andreas Malm, *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (London: Verso, 2016).

[19]See, for example, in relation to climate Chris Paul Methmann, '"Climate protection" as empty signifier: a discourse theoretical perspective on climate mainstreaming in world politics', *Millennium*, 39:2 (2010), pp. 345–72; and in relation to Trump Cynthia Weber, 'The Trump presidency, episode 1: Simulating sovereignty', *Theory and Event*, 20:1 (2017), pp. 132–42.

specifically, since around 2011 Trump has been a consistent critic of 'global warming bullshit'.[20] It is thus readily understandable that there have been such widespread fears – plus in some quarters, hopes – that the Trump administration might oversee a wholesale reversal of policies and regulations relating to climate change, both at home and abroad. Yet in truth this is unlikely, for at least three reasons.

First, the constitutional, regulatory, and political constraints on executive power within the US federal system inevitably limit the Trump administration's freedom of action *vis-à-vis* climate change. Lessons from the Obama administration are instructive here. Opposition to the 2009 Waxman-Markey Bill, Obama's major first-term climate change initiative, which would have established a market-oriented 'cap and trade' system equivalent to the EU's Emissions Trading System (ETS), resulted in the bill not even being brought before the Senate despite the Democratic majority there.[21] Obama's second-term CPP, which would have required all fifty states to reduce power plant emissions, was blocked by the Supreme Court in response to legal actions by utility companies plus 24 of those states (who argued that the Plan exceeded federal jurisdiction).[22] Moreover, Republican opposition led to Obama never even putting the Paris Agreement before Congress, on the constitutionally questionable grounds that it was not a treaty and therefore did not require Senate ratification.[23] Under Obama, Washington 'gridlock' evidently impeded federal action, preventing the adoption of binding federal legislation on climate change.

But by the same token, the famed checks and balances of the US federal system, plus assorted regulatory requirements and internal differences between Washington agencies, are likely to limit regulatory and funding rollback under Trump – and already have been doing so. Thus Rick Perry's proposal to introduce subsidies for coal-fired plant plants was unanimously rejected as market-distorting by the Federal Energy Regulatory Commission, despite its preponderance of Trump appointees.[24] The full repeal of the CPP will take, at minimum, two years. The near one-third cuts to the EPA's budget proposed by Trump in early 2017 did not occur: instead, a Republican-majority Congress approved cuts of 1 per cent only.[25] Trump's December 2017 tax reform bill, which slashed $1.5 trillion from federal taxes, nonetheless retained existing incentives for renewable energy – in part because of support from Republican-led states where wind power generation is booming.[26] And despite climate change's absence from the 2017 NSS, in other areas of government climate change is still viewed as a key threat to US national

[20]See Trump's 15 December 2013 tweet available at: {https://twitter.com/realdonaldtrump/status/412162068989874176?lang=en}; and for a full record of his climate change denialist tweets, Dylan Matthews, 'Donald Trump has tweeted climate change scepticism 115 times: Here's all of it', *Vox* (1 June 2017), available at: {https://www.vox.com/policy-and-politics/2017/6/1/15726472/trump-tweets-global-warming-paris-climate-agreement}.

[21]John Broder, '"Cap and trade" loses its standing as energy policy of choice', *New York Times* (25 March 2010), available at: {http://www.nytimes.com/2010/03/26/science/earth/26climate.html}.

[22]Adam Liptak and Coral Davenport, 'Supreme court deals blow to Obama's efforts to regulate coal emissions', *New York Times* (9 February 2016), available at: {https://www.nytimes.com/2016/02/10/us/politics/supreme-court-blocks-obama-epa-coal-emissions-regulations.html?smid=pl-share}.

[23]For discussion of this contested issue, see, for example, Josh Busby, 'The Paris agreement: When is a treaty not a treaty?', *Global Policy* blog (26 April 2016), available at: {http://www.globalpolicyjournal.com/blog/26/04/2016/paris-agreement-when-treaty-not-treaty}; Sam Mulopulos, 'Why the Paris agreement is a treaty', *Huffington Post* (5 November 2016), available at: {https://www.huffingtonpost.com/young-professionals-in-foreign-policy/why-the-paris-climate-agr_b_9914606.html}; Eugene Kontorovich, 'The US can't quit the Paris agreement, because it never actually joined', *The Washington Post* (1 July 2017), available at: {https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/06/01/the-u-s-cant-quit-the-paris-climate-agreement-because-it-never-actually-joined/?utm_term=.23e18c0f64e3}.

[24]Brad Plumer, 'Rick Perry's plan to rescue struggling coal and nuclear plants is rejected', *New York Times* (8 January 2018), available at: {https://www.nytimes.com/2018/01/08/climate/trump-coal-nuclear.html}.

[25]Mark Hand, 'Climate, environmental programs left mostly untouched in budget deal', *Think Progress* (1 May 2017), available at: {https://thinkprogress.org/climate-environmental-programs-left-mostly-untouched-in-budget-deal-3742f7bad9c5/}.

[26]Georgina Gustin, 'Tax overhaul preserves critical credits for wind, solar and electric vehicles', *Inside Climate News* (22 December 2017), available at: {https://insideclimatenews.org/news/18122017/tax-bill-vote-renewable-credits-solar-wind-clean-energy-jobs-evs-investment-anwr}.

security – whether for good or ill.[27] Such compromises, delays, and inconsistencies will without doubt continue.

Second, most of the significant action in the US to limit carbon emissions is occurring not at federal but at state and local levels. Since 2000, US states and cities have taken a wide array of such steps, including setting state- and city-wide emissions reductions targets; developing emissions reduction strategies; setting state-level fuel efficiency standards; and adopting renewable electricity goals with associated incentives. In addition, many local and state authorities have engaged in extensive inter-governmental coordination – forms of horizontal governance bypassing Washington – and through that have developed or are developing regional emissions reduction and trading systems and trans-municipal climate networks.[28] The result has been a significant, if geographically highly uneven, pattern of subnational action on climate change. California, the country's widely-recognised lead state on climate policy, has legislated to reduce GHG emissions by 40 per cent on 1990 levels by 2030, and is the only US state to operate a cap-and-trade emissions trading system.[29] Texas has taken huge strides in wind power generation, albeit for reasons that have little to do with climate change.[30] Conversely, almost half of all US states have taken no meaningful action climate change mitigation: in 2015, only twenty of the US's fifty states had GHG emission reduction targets, only three more than had them in 2008 (and of these twenty, all but two voted for Hilary Clinton in the 2016 election).[31]

This patchwork pattern is unlikely to change much during the Trump administration; if anything, it may simply become more uneven, and more extreme. Despite concerns that the administration may attempt to roll back state-level environmental regulations, and though it has recently announced plans to revoke California's air quality waiver (which since 1963 has allowed California to set its own, higher vehicle emission standards, which in turn are followed by 15 other states), any such actions would encounter fierce opposition.[32] Moreover, activist states and cities, energised by having a climate change denier in the White House, have been redoubling their mitigation efforts – as symbolically illustrated by the formation of the US Climate Alliance and the 'We Are Still In' network immediately after Trump's Paris announcement, and materially

[27]See, for example, Andrew Holland, 'Congress and President Affirm Climate Change Threatens Security – Asks for Military to Prepare', American Security Project (13 November 2017), available at: {https://www.americansecurityproject.org/congress-climate-security/}. For critical readings of the securitisation of climate change see, for example, Betsy Hartmann, 'Rethinking climate refugees and climate conflict: Rhetoric, reality and the politics of policy discourse', *Journal of International Development*, 22:2 (2010), pp. 233–46; Jan Selby and Clemens Hoffmann, 'Rethinking climate change, conflict and security', *Geopolitics*, 19:4 (2014), pp. 747–56.

[28]See, for example, Barry Rabe, 'States on steroids: the intergovernmental odyssey of American climate policy', *Review of Policy Research*, 25:2 (2008), pp. 105–28; Nicholas Lutsey and Daniel Sperling, 'America's bottom-up climate change mitigation policy', *Energy Policy*, 36:2 (2008), pp. 673–85; Taedong Lee and Chris Koski, 'Multilevel governance and urban climate change mitigation', *Environment and Planning C: Government and Policy*, 33:6 (2015), pp. 1501–17.

[29]Louise Bedsworth and Ellen Hanak, 'Climate policy at the local level: Insights from California', *Global Environmental Change*, 23:3 (2013), pp. 664–77; 'The world is watching as California steps up – again – on climate change', *Washington Post* (25 September 2016), available at: {https://www.washingtonpost.com/opinions/the-world-is-watching-as-california-steps-up–again–on-climate-change/2016/09/25/f5cae480-76d0-11e6-8149-b8d05321db62_story.html?utm_term=.02daffb202ba}; Melanie Mason and Chris Megerian, 'California legislature extends state's cap-and-trade program in rare bipartisan effort to address climate change', *Los Angeles Times* (17 July 2017), available at: {http://www.latimes.com/politics/la-pol-ca-california-climate-change-vote-republicans-20170717-story.html}.

[30]Jorge Amigo, 'Renewable Energy in Oil-Intensive Jurisdictions: A Comparative Study of Wind Energy Growth in Texas and Alberta' (MA thesis, University of British Columbia, 2011).

[31]Lutsey and Sperling, 'America's bottom-up climate change mitigation policy', pp. 675, 683; Center for Climate and Energy Solutions, 'Greenhouse Gas Emissions Targets', available at: {https://www.c2es.org/document/greenhouse-gas-emissions-targets/}. More broadly on the unevenness of US state climate policies, see Kathryn Harrison, 'Federalism and climate policy innovation: a critical reassessment', *Canadian Public Policy*, 39:S2 (2013), pp. S95–S108.

[32]Davenport, 'Trump administration reveals its plan to relax car pollution rules'; Hiroko Tabuchi, 'California administration strikes back against the Trump administration's auto pollution rollback', *New York Times* (7 August 2018), available at: {https://www.nytimes.com/2018/08/07/climate/california-auto-emissions-trump.html}.

by continued state and city leadership on renewable energy.[33] On this crucial subnational level, continuity with the Obama years is much more likely than not.

Third, internationally, the extant international climate regime has already been 'proofed' against US non-cooperation. For, unlike its predecessor, the 1997 Kyoto Protocol, the Paris Agreement was intentionally designed to accommodate both Congress, and the possibility of a climate change denier taking over in the White House.[34] Its innovations were essentially threefold. It established as long-term global objectives limiting average warming to 'well below' 2 °C above pre-industrial levels, and working to 'pursue efforts' to limit this warming to 1.5 °C.[35] It required all states to undertake 'ambitious efforts' towards these agreed goals – though, in recognition of differentiated responsibilities and circumstances, as well as the collective action problems that had plagued the Kyoto Protocol, it did not set national-level targets, instead allowing and requiring each state to set its own emissions reduction objectives in the form of pledges of 'Nationally Determined Contributions' (NDCs). And it established the bones of a long-term system for recording, updating, and reviewing these NDCs, requiring, through what is often referred to as the Agreement's 'ratchet mechanism', states to submit progressively more ambitious NDCs every five years.[36] In keeping with this essentially voluntarist treaty design, the Agreement included no provisions for non-compliance, including no sanctions for failure to achieve promised emissions reductions. Viewed charitably, it established a system of decentralised or shallow policy 'coordination', rather than one of deep multilateral 'cooperation'.[37] Put differently, it was an essentially hortatory, performative political exercise, which, like all such exercises, was high on ambition and process, but distinctly limited in obligations and substantive detail.

Conversely, of course, exactly the same can be said of Trump's withdrawal decision: directly mirroring the Paris Agreement itself, this was as an essentially symbolic gesture that was neither technically nor politically necessary, even for a climate change-denialist administration, and which has few immediate or tangible consequences. Withdrawal from Paris has no direct bearing on domestic emissions; in this respect, federal interest in reviving US coal production and cutting efficiency standards are of far greater import. Trump's Paris decision likewise has no direct impact on other states' mitigation targets and strategies, given that NDCs are voluntary, stand-alone commitments. No doubt the withdrawal decision will, by virtue of its symbolism, have various indirect political repercussions, some of which may be quite significant, as discussed below. But, these possible repercussions are mostly for the long term. And in the meantime, the US cannot yet even withdraw from the Paris Agreement. It can only withdraw from 4 November 2020, four years on from its entry into force, meaning not only that withdrawal may never occur,

[33]On the US Climate Alliance see: {https://www.usclimatealliance.org/}; and on We Are Still In, available at: {https://www.wearestillin.com/about}. See also Bloomberg Philanthropies, *America's Pledge, Phase 1 Report: States, Cities, and Businesses in the United States Are Stepping Up on Climate Action* (November 2017), available at: {https://www.americaspledgeonclimate.com/}; New Climate Institute and Climate Group, *States, Cities and Businesses Leading the Way: A First Look at Decentralized Climate Commitments in the US* (September 2017), available at: {https://newclimate.org/2017/09/13/states-cities-and-businesses-leading-the-way-a-first-look-at-decentralized-climate-commitments-in-the-us/}; the Ready for 100 initiative, available at: {https://www.sierraclub.org/ready-for-100/commitments}.

[34]Luke Kemp, 'US-proofing the Paris climate agreement', *Climate Policy*, 17:1 (2016), pp. 86–101.

[35]UNFCCC, *Adoption of the Paris Agreement*, Report No. FCCC/CP/2015/L.9/Rev.1 (12 December 2015), Annex, Art. 2, para. 1(a), available at: {http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf}. While the 1.5 °C and 'well below' 2 °C objectives were Paris innovations, the goal of limiting warming to 2 °C was not: see Samuel Randalls, 'History of the 2 °C climate target', *Wiley Interdisciplinary Reviews: Climate Change*, 1:4 (2010), pp. 598–605.

[36]UNFCCC, *Adoption of the Paris Agreement*, Annex, Arts 3–4. On the ratchet mechanism see, for example, Sophie Yeo, 'Timeline: the Paris agreement's "ratchet mechanism"', *Carbon Brief* (19 January 2016), available at: {https://www.carbonbrief.org/timeline-the-paris-agreements-ratchet-mechanism}.

[37]Robert Keohane and David Victor, 'Cooperation and discord in global climate policy', *Nature Climate Change*, 6 (2016), pp. 570–5.

but also that, in the event of a change in administration, the US may be outside for only a couple of months.[38]

In short, it seems clear that neither Trump's promised rollback of domestic climate-related funding and regulations, nor withdrawal from the Paris framework, will be nearly as successful, substantive, or impactful as many fear. On this score, liberal institutionalist analysts are surely right. However, this does not mean, in my view, that the Trump administration's impacts will be negligible. Indeed, viewed through a wider optic than that afforded by institutionalist analysis, there are at least four major reasons for concern. The remainder of this article is devoted to exploring these four reasons, starting with the relatively 'technical', and from there moving into progressively more social, political, and geopolitical territory.

Emissions reductions

The first and most obvious cause for concern is that existing emissions reduction pledges and actions are not adequate to preventing warming of 2 °C or higher – and that during the Trump era this 'emissions gap' may widen still further. Global temperatures have already risen by around 1 °C above pre-industrial levels. Global carbon and GHG emissions are still rising – if, since 2010, at a lower rate than during the first decade of the century, when they rose at around 4 per cent annually (mainly because of China's rapid industrialisation).[39] And about two thirds of the available emissions budget if warming is to be kept below 2 °C has already been used up, in the form of cumulative historical carbon and other emissions.[40]

Moreover, it is projected that, even if each and every one of the NDC pledges submitted for Paris were fully implemented, global GHG emissions would still continue to rise through to 2030 (from 49 to around 53 billion metric tonnes of CO_2 equivalent annually).[41] Under this full implementation scenario, the Paris aspirational target of limiting warming to 1.5 °C may be reached as early as 2030, and no later than the 2040s.[42] Indeed, even if all existing NDCs were successfully implemented by 2030, the 2 °C carbon budget might already be virtually exhausted.[43] Considered another way, according to the IPCC, limiting warming to 2 °C will likely require atmospheric CO_2 levels to be kept below 450 parts per million (ppm), or at least to be reduced back down to this level – but Mauna Loa observatory in Hawaii currently records levels of 408 ppm, together with increases of over 2 ppm annually, suggesting that this level will be reached within twenty years.[44] According to recent projections, full implementation of the Paris NDCs suggests average global warming by 2100 of between 2.6 and 3.2 °C.[45] In sum, existing state

[38]Joshua Busby, 'Trump says goodbye to the Paris climate agreement: Here's what that means', *The Washington Post* (1 June 2017), available at: {https://www.washingtonpost.com/news/monkey-cage/wp/2017/06/01/trump-says-goodbye-to-the-paris-climate-agreement-heres-what-that-means/?utm_term=.681f0e49620f}.

[39]See, for example, J. G. J. Olivier et al., *Trends in Global CO_2 and Total Greenhouse Gas Emissions: 2017 Report* (The Hague: PBL Netherlands Environmental Assessment Agency, 2017), available at: {http://www.pbl.nl/en/publications/trends-in-global-co2-and-total-greenhouse-gas-emissions-2017-report}; International Energy Agency, *Global Energy and CO2 Status Report 2017* (Paris: IEA, 2018), available at: {https://www.iea.org/publications/freepublications/publication/GECO2017.pdf}.

[40]Joeri Rogelj et al., 'Paris agreement climate proposals need a boost to keep warming well below 2 °C', *Nature*, 534 (2016), p. 631; Rogelj et al., 'Differences between carbon budget estimates unravelled', *Nature Climate Change*, 6 (2016), pp. 245–52.

[41]Rogelj et al., 'Paris agreement climate proposals need a boost', p. 632.

[42]Ibid., p. 635; also IPCC, *Special Report on Global Warming of 1.5 °C*, Summary for Policymakers, first order draft, p. 4, available at: {https://www.scribd.com/document/371415321/IPCC-special-report-on-1-5C-draft-summary-for-policymakers?secret_password=xlexc6JWYfplQn1LVaDe#fullscreen&from_embed}. At the time of writing, this draft finding was still subject to review.

[43]Ibid., p. 636.

[44]IPCC, *Climate Change 2014*, Summary for Policymakers, p. 10, available at: {https://www.co2.earth/} provides a useful tracking of atmospheric CO_2 concentrations.

[45]Rogelj et al., 'Paris agreement climate proposals need a boost'; Climate Action Tracker, 'Effect of Current Pledges and Policies on Global Temperature', available at: {http://climateactiontracker.org/global.html}.

commitments under the Paris Agreement are not sufficient for the planet to avoid 'dangerous climate change', understood as warming of 2 °C or higher. Absent the future rollout either of more ambitious mitigation policies or of currently unproven 'negative emissions technologies' – that is, technologies that remove CO_2 from the atmosphere and store it underground or at sea – it seems likely that mid- and late twenty-first-century warming will significantly exceed 2 °C, even if the Paris pledges are fully implemented.

And, of course, they are not being fully implemented. Thus despite achieving relatively large emissions reductions so far (by 42 per cent between 1990 and 2016), the UK is off course from its 2023–32 commitments, and its official climate watchdog, the Committee on Climate Change (CCC), has bemoaned the government's failure to translate targets and ambitions into detailed policies and measures.[46] UK transport emissions, to give one specific example, need to drop by 44 per cent between 2016 and 2030 to meet existing emissions targets – but instead they are still rising, and without there being policies in place for encouraging electric vehicles or public transport use.[47] Germany, despite having a 'Climate Chancellor' and having done so much, through its *Energiewende*, to spur global renewables development, nonetheless has higher emissions today than in 2009, has since then witnessed a large rise in coal production, has recently dropped its celebrated 40 per cent by 2020 emissions reduction objective, and now has a coalition government without clear emissions reduction policies.[48] The EU as a whole is not on course to meet its Paris pledge of 40 per cent emissions cuts by 2030.[49] Japan is not on course for 2030 either, despite its much less ambitious target.[50] And the US, despite achieving a noteworthy 12.4 per cent cut in carbon emissions between their 2007 peak and 2015, is nonetheless well short of meeting its 2025 emissions target as submitted to Paris – and was well short even prior to Donald Trump's election.[51] While some states, most notably China, are above target on their Paris NDC commitments (China pledged to peak its carbon emissions by 2030, but may already have reached this point), globally the reverse is true.[52] Hence unless worldwide mitigation policies and implementation efforts are deepened, warming rates are likely to exceed those discussed in the previous paragraph. On this there is no real debate.

Now admittedly, the Paris Agreement's 'ratchet mechanism' not just allows, but is meant to help facilitate, such progressively increased ambition. All parties are due to submit revised NDCs in 2020 (and thereafter every five years), plus a first 'global stocktake' of progress towards

[46]Committee on Climate Change, *An Independent Assessment of the UK's Clean Growth Strategy: From Ambition to Action* (January 2018), available at: {https://www.theccc.org.uk/publication/independent-assessment-uks-clean-growth-strategy-ambition-action/}; Jocelyn Timperley, '"Worrying trend" in UK emissions cuts beyond power and waste, says CCC', *Carbon Brief* (28 June 2018), available at: https://www.carbonbrief.org/worrying-trend-uk-emission-cuts-beyond-power-waste-says-ccc.

[47]Ibid., p. 24.

[48]See, for example, Kerstine Appunn, 'Germany's greenhouse gas emissions and climate targets', *Clean Energy Wire* (1 February 2018), available at: {https://www.cleanenergywire.org/factsheets/germanys-greenhouse-gas-emissions-and-climate-targets}; Paul Hockenos, 'Germany is a coal-burning, gas-guzzling climate change hypocrite', *Foreign Policy* (13 November 2017), available at: {http://foreignpolicy.com/2017/11/13/germany-is-a-coal-burning-gas-guzzling-climate-change-hypocrite/}; Arthur Wyns, 'German grand coalition agrees on climate and energy policy', *Climate Tracker* (6 February 2018), available at: {http://climatetracker.org/german-grand-coalition-agrees-climate-energy-policy/}.

[49]European Environment Agency, 'Greenhouse Gas Emissions across EU Drop Slightly in 2016' (7 November 2017), available at: {https://www.eea.europa.eu/highlights/greenhouse-gas-emissions-across-eu}.

[50]'Japan 2017', *Climate Action Tracker* (6 November 2017), available at: {http://climateactiontracker.org/countries/japan.html}.

[51]Center for Climate and Energy Solutions, 'US Emissions', available at: {https://www.c2es.org/content/u-s-emissions/}; US Environmental Protection Agency, *Inventory of US Greenhouse Gas Emissions and Sinks 1990–2015* (EPA, 2017), available at: {https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2015};'USA 2017', *Climate Action Tracker* (6 November 2017), available at: {http://climateactiontracker.org/countries/usa.html}.

[52]'China 2017', *Climate Action Tracker* (6 November 2017), available at: {http://climateactiontracker.org/countries/china.html}.

implementing NDCs is scheduled for 2023. For its proponents, these and other future 'pledge and review' processes are meant to allow states to increase their ambitions over time as new low-carbon technologies come on line, as the prices of these technologies drop, and as 'norms and expectations of appropriate behaviour' become more firmly established.[53] However, as we know from other experiences of international regimes, the problem with such liberal functionalist-style reasoning is that 'norms and expectations' and the actions that are presumed to follow from them can either ratchet up or down.[54] And herein the Trump administration's disinterest in climate change could have significant repercussions. For, though we cannot know for certain what impacts this disinterest will have on other parties' mitigation ambitions, the evidence so far is not heartening. France's response has been the most ostentatiously activist: witness President Macron's 'Make Our Planet Great Again' slogan and initiatives, his promise to replace US funding for the IPCC, and the French parliament's recent decisions to ban both oil and gas extraction, and diesel and petrol cars, by 2040.[55] However, such minor or over-the-horizon acts aside – which in truth are just as gestural as Trump's Paris decision, and pain-free at that – there is scant evidence so far of increased global action on climate change in response to Trump, and no evidence at all of other states seeking to compensate for Trump by raising their own emissions reduction ambitions. More broadly, it is not difficult to imagine that the presence of a climate change denier in the White House may provide extra reason, or excuse, for other states to submit only the most tokenistic or minimally ambitious NDCs in 2020, especially given that so many are already falling short on their existing pledges. Indeed, given the claimed importance of signalling and norm-building within the Paris framework, it would be surprising – as well as a sad commentary on Paris's value – if the Trump administration's very different priorities and signals had no such negative effects.

Climate financing

The situation in relation to climate financing is similar, but can be dealt with more briefly. Questions of who should bear the financial burdens of reducing GHG emissions and building resilience to climate change have long been at the heart of international climate negotiations, pitting global North against global South in particular – the former as the major historical contributor to climate change and major beneficiary of carbon-fuelled development; the latter as the anticipated major victim of warming, which needs also to pursue an alternative path of low-carbon development. Indeed, in the years running up to Paris these financial questions became increasingly prominent, as northern states, especially the US, started pushing for developing country emissions reductions, and the latter in turn demanded increased financial (and other) support from the global North.[56] At the 2009 UN climate change conference in Copenhagen, developed countries committed to mobilising, by 2020, an annual US $100 billion in climate finance to the developing world, with a 'significant portion' of this to be delivered through a new

[53]See, for example, Fergus Green, 'Why the ratchet mechanism is (almost) everything in Paris', *Inside Story* (11 December 2015), available at: {http://insidestory.org.au/why-the-ratchet-mechanism-is-almost-everything-in-paris/}.

[54]See, for example, Jan Selby, 'The political economy of peace processes', in Michael Pugh et al. (eds.), *Whose Peace? Critical Perspectives on the Political Economy of Peacebuilding* (London: Palgrave, 2008), pp. 11–29.

[55]Sara Stefanini and Nicholas Vinocur, 'Macron's moment to make the planet great again', *Politico* (12 November 2017), available at: {https://www.politico.eu/article/emmanuel-macron-moment-to-make-the-planet-great-again-climate-change-paris-one-planet-summit/}; Markus Wacket, 'France and UK vow to make up for Trump's withdrawal of climate change funding', *Independent* (15 November 2017), available at: {http://www.independent.co.uk/news/world/europe/trump-climate-change-funding-france-uk-vow-make-up-money-paris-agreement-a8057546.html}; Lorraine Chow, 'France approves world's first ban on fracking and oil production', *EcoWatch* (20 December 2017), available at: {https://www.ecowatch.com/france-fracking-ban-2518885658.html?utm_source=CR-TW&utm_medium=Social&utm_campaign=ClimateReality}; Angelique Chrisafis and Adam Vaughan, 'France to ban sales of petrol and diesel cars by 2040', *The Guardian* (6 July 2017), available at: {https://www.theguardian.com/business/2017/jul/06/france-ban-petrol-diesel-cars-2040-emmanuel-macron-volvo}.

[56]See for example, Ciplet et al., *Power in a Warming World*, ch. 3.

Green Climate Fund (GCF).[57] Subsequently incorporated into the Paris framework, this $100 billion annual target has become the central reference point in climate finance debates.[58]

Yet progress has been decidedly limited – or at least contested. While developed states claim to be on target towards the 2020 goal, there is no agreed international understanding of what 'climate finance' is, still less an agreed system or methodology for tracking it; there are deep concerns that much of this funding may be being siphoned off or relabelled from other development assistance; and little attempt has been made to include southern states in climate finance governance.[59] Illustratively, at the 2015 Paris conference the Indian delegation argued that, during 2014, only $2.2 billion of 'new and additional' climate finance had been mobilised, rather than the $62 billion claimed by the OECD.[60] As for the GCF specifically, though expected to handle the lion's share of an annual $100 billion of climate finance by 2020, as of late 2017 it had received pledges of just $10.3 billion in total and had actually dispersed only $52 million to projects.[61]

Viewed in this light, President Trump's decision to stop further payments to the GCF is not nearly as significant a threat as sometimes suggested.[62] For, while the loss of $2 billion US funding (out of $3 billion pledged) is hardly helpful, and further weakens the GCF and climate finance regime, the latter's problems clearly run far deeper. The whole system of climate finance is northern-dominated, fragmented, and much more limited than the Copenhagen and Paris promises suggested. It is noteworthy, moreover, that while European states have been quick to offer replacement funding for the IPCC (a mere $2 million annually, going mainly to northern research institutions), no one has yet volunteered to cover the far larger shortfall created by the Trump administration's cuts to the GCF.[63] Unless these broader inadequacies of the international climate finance regime are addressed, they may soon – given that many developing countries' NDC pledges are explicitly conditional on receipt of climate finance – start to have a significant bearing on emissions reduction (and climate change adaptation) efforts.

Polarisation and denial

Moving onto more sociopolitical territory, the Trump presidency will also likely have impacts in reinforcing the US's internal divides around climate change – with potentially worldwide implications for efforts to address it. Since the late 1990s, American attitudes towards climate change have become more and more polarised, chiefly along partisan and ideological, but also along racial and gender lines. In 1997, there was just a 4 per cent gap between self-identified Republicans and self-identified Democrats on the question of whether global warming had

[57]UNFCCC, Copenhagen Accord, Report No. FCCC/CP/2009/11/Add.1 (18 December 2009), Art. 8, available at: {https://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf}.

[58]UNFCCC, *Adoption of the Paris Agreement*, Art. 115.

[59]*Roadmap to US $100 Billion* (24 October 2016), available at: {https://www.gov.uk/government/publications/climate-finance-roadmap-to-us100-billion}. This report is lead produced by the UK and Australian governments, with input from many others. On the lack of agreement and concerns, see especially J. Timmons Roberts and Romain Weikmans, 'Roadmap to where? Is the "$100 billion by 2020" pledge from Copenhagen still realistic?', *Brookings Institute* blog (20 October 2016), available at: {https://www.brookings.edu/blog/planetpolicy/2016/10/20/roadmap-to-where-is-the-100-billion-by-2020-pledge-from-copenhagen-still-realistic/}; and J. Timmons Roberts and Romain Weikmans, 'Postface: fragmentation, failing trust and enduring tensions over what counts as climate finance', *International Environmental Agreements*, 17:1 (2017), pp. 129–37.

[60]Roberts and Weikmans, 'Postface', p. 130.

[61]GCF, 'Report on Post-Approval Status of Approved Funding Proposals', Document GCF/B.18/08 (14 September 2017), p. 5, available at: {https://www.greenclimate.fund/documents/20182/820027/GCF_B.18_08_-_Report_on_post-approval_status_of_approved_funding_proposals.pdf/100b60e4-b5ce-42a5-ba48-063464aceb2b}.

[62]Urpelainen and van de Graaf, 'United States non-cooperation and the Paris agreement', pp. 5–6.

[63]Wacket, 'France and UK vow to make up for Trump's withdrawal of climate change funding'; Megan Darby, 'Macron summit touts green finance progress – despite Trump', *Climate Home News* (13 December 2017), available at: {http://www.climatechangenews.com/2017/12/13/macron-summit-touts-green-finance-progress-despite-trump/}.

begun. But by 2008, this gap had grown to 34 per cent, with 76 per cent of Democrats and only 42 per cent of Republicans saying that warming was occurring. And since then, the partisan divide has, if anything, continued to deepen, reaching 41 per cent in 2010 and 2015 (linked to public debate around the Waxman-Markey Bill and Paris agreement respectively).[64] Moreover, the gap between self-identified 'conservative Republicans' and 'liberal Democrats' is even wider: in 2016, 72 per cent of the former but only 7 per cent of the latter viewed climate change as exaggerated by the media.[65] Tea Party supporters hold especially strong denialist views (and also express particular confidence in their understanding of climate change).[66] And so, perhaps above all, do conservative white men (especially those who report understanding climate change very well): 48 per cent of 'confident' conservative white men believe that the effects of global warming will never occur, compared to just 7 per cent of non-conservatives.[67] In sum, American society is deeply split on the question of climate change, climate change denial having become, in the US, 'almost an essential component of conservative white male identity'.[68]

To contemporary Republican Party politics the very same applies: as one commentary puts it, 'opposition to any serious action aimed at the US reducing carbon emissions . . . has become a bedrock belief of the modern GOP'.[69] All of the candidates for the 2016 Republican nomination were climate change sceptics or deniers – at worst maintaining that 'there's been zero warming', and that 'climate change is not science, it's religion' (Ted Cruz); at minimum being opposed to the CPP, to supposed unilateral American action on climate change ('American is not a planet', said Marco Rubio), and to any action that would 'destroy the American economy'.[70] The 2016 Republican Party platform on climate change closely mirrored Trump's own stated positions.[71] In turn, withdrawal from the Paris agreement was called for by leading Republican representatives and conservative think tanks just prior to the decision; and was immediately welcomed by, among others, House Speaker Paul Ryan and Senate Majority Leader Mitch McConnell.[72]

[64]Riley Dunlap and Aaron McCright, 'A widening gap: Republican and Democratic views on climate change', *Environment: Science and Policy for Sustainable Development*, 50:5 (2008), pp. 26–35; Riley Dunlap et al., 'The political divide on climate change: partisan polarization widens in the US', *Environment: Science and Policy for Sustainable Development*, 58:5 (2016), pp. 4–23.

[65]Dunlap et al., 'The political divide on climate change', p. 15.

[66]Lawrence Hamilton and Kei Saito, 'A four-party view of US environmental concern', *Environmental Politics*, 24:2 (2015), pp. 212–27.

[67]Aaron McCright and Riley Dunlap, 'Cool dudes: the denial of climate change among conservative white males in the United States', *Global Environmental Change*, 21 (2011), pp. 1163–72.

[68]Ibid., p. 1168.

[69]Andrew Prokop, 'Don't just blame Trump for quitting the Paris deal – blame the Republican Party', *Vox* (1 June 2017), available at: {https://www.vox.com/2017/6/1/15726726/trump-paris-climate-agreement-republicans}.

[70]Tim McDonnell, 'Scientists: Ted Cruz's climate theories are a "load of claptrap"', *Mother Jones* (18 March 2015), available at: {http://www.motherjones.com/politics/2015/03/ted-cruz-seth-myers-climate-change/#}; Samantha Page, 'Ted Cruz: "Climate change is not science: It's religion"', *Think Progress* (30 October 2015), available at: {https://thinkprogress.org/ted-cruz-climate-change-is-not-science-its-religion-70987f13959c/}; Rebecca Leber, 'Marco Rubio is (now) the most dangerous GOP candidate on climate', *New Republic* (7 October 2015), available at: {https://newrepublic.com/article/123051/marco-rubio-now-most-dangerous-gop-candidate-climate}. For an overview of positions see, for example, Emma Foehringer Merchant, 'How the 2016 presidential candidates view climate change', *New Republic* (30 November 2015), available at: {https://newrepublic.com/article/124381/2016-presidential-candidates-view-climate-change}.

[71]Phil McKenna, 'GOP and democratic platforms highlight stark differences on energy and climate', *Inside Climate News* (26 July 2016), available at: {https://insideclimatenews.org/news/26072016/democrat-republican-party-platforms-energy-climate-change-hillary-clinton-donald-trump; the document is available at: {https://www.gop.com/the-2016-republican-party-platform/}.

[72]Julia Jacobo, 'Reactions swift after Trump's withdrawal from Paris climate accord', *ABC News* (1 June 2017), available at: {http://abcnews.go.com/Politics/public-figures-react-trumps-decision-withdraw-paris/story?id=47767113}. On the pre-decision lobbying, see, for example, Tom McCarthy and Lauren Gambino, 'The Republicans who urged Trump to pull out of Paris deal are big oil darlings', *The Guardian* (1 June 2017), available at: {https://www.theguardian.com/us-news/2017/jun/01/republican-senators-paris-climate-deal-energy-donations?CMP=twt_gu}.

Just three of 52 Republican senators, and four House representatives publicly backed remaining in the Paris agreement.[73] Moreover, Vice President Mike Pence's views on climate change are no more progressive than Trump's: Pence has called global warming 'a myth', and during his time as Governor of Indiana refused to implement the CPP.[74] Hence the impeachment or indictment that many on the left still hope for would in all likelihood change little in US climate change policy. On climate change, within the Republican Party, Trump is not an outlier.

In these patterns the US is unique among northern states. Others of course have their share of climate change scepticism: Germany's AfD favours leaving the Paris agreement and opposes 'discrimination' against diesel engines; Norway's Progress Party pledges to 'bring up every drop' of oil; and the prevailing climate change-scepticism of leading Brexit campaigners has often been noted.[75] Moreover, cross-national studies have consistently found correlations between climate change scepticism on the one hand, and conservative political orientation, gender (men), and also high carbon emissions, on the other.[76] However, the depth of the US's political and cultural divisions around climate change, and the impacts that these have had, make it a case apart. In Canada and Australia, while conservative governments have opposed action on climate change, this has been against the backdrops of relatively high public support for climate change mitigation and much more limited traditions of political polarisation.[77] In the UK and Norway, meanwhile, the relatively ambitious mitigation targets adopted under former Labour governments have at least been maintained by subsequent Conservative administrations. Among developed states, only the US has a major political party committed to preventing, and rolling back, all domestic federal action on climate change; only in the US is there such a large and corporate-backed 'denial machine', combined with 'a level of politicization of [climate] science reminiscent of the Soviet Union's Lysenko era'.[78]

This deepening and exceptional level of climate change scepticism appears rooted in at least four things. One is certain long-established traditions of American thought and practice: its traditions of political and economic liberalism (and now neoliberalism), and accompanying distrust of especially federal government regulation and intervention; and its history of frontier settler-colonialism, wherein nature and its resources are perceived as boundless opportunities for

[73]Zack Colman, 'Republican "climate caucus" offered little support for Paris deal', *Climate Home News* (2 June 2017), available at: {http://www.climatechangenews.com/2017/06/02/republican-climate-caucus-offered-little-support-paris-deal/}.

[74]Ryan Schleeter, '5 Real Things Mike Pence Has Said About Climate Change', Greenpeace (15 July 2016), available at: {http://www.greenpeace.org/usa/5-real-things-mike-pence-has-said-about-climate-change/}.

[75]Jocelyn Timperley, 'German elections 2017: Where the parties stand on energy and climate change', *Climate Brief* (21 September 2017), available at: {https://www.carbonbrief.org/german-election-2017-where-parties-stand-on-energy-climate-change}; Jon Henley, 'Norway goes to the polls with the future of its oil and gas industry in play', *The Guardian* (10 September 2017), available at: {https://www.theguardian.com/world/2017/sep/10/norway-goes-polls-future-oil-gas-industry-green-party-kingmaker}; 'Where Brexit and climate-change scepticism converge', *The Economist* (22 March 2016), available at: {https://www.economist.com/blogs/buttonwood/2016/03/economics-and-politics}. See also Matthew Lockwood, 'Right-wing populism and the climate change agenda: Exploring the linkages', *Environmental Politics* (online first, 2018).

[76]Steven Brechin, 'Public opinion: a cross-national view', in Constance Lever-Tracy (ed.), *Routledge Handbook of Climate Change and Society* (London: Routledge, 2010), pp. 179–209; James Painter and Teresa Ashe, 'Cross-national comparison of the presence of climate scepticism in the print media in six countries, 2007–10', *Environmental Research Letters*, 7:4 (2012); Nathan Young and Aline Coutinho, 'Government, anti-reflexivity and the construction of public ignorance about climate change: Australia and Canada compared', *Global Environmental Politics*, 13:2 (2013), pp. 89–108; Bruce Tranter and Kate Booth, 'Scepticism in a changing climate: a cross-national study', *Global Environmental Change*, 33 (2015), pp. 154–64.

[77]Young and Coutinho, 'Government, anti-reflexivity and the construction of public ignorance about climate change'.

[78]Riley Dunlap and Aaron McCright, 'Organized climate change denial', in John Dryzek et al. (eds), *The Oxford Handbook of Climate Change and Society* (Oxford: Oxford University Press), pp. 144–60; Aaron McCright and Riley Dunlap, 'Anti-reflexivity: the American conservative movement's success in undermining climate science and policy', *Theory, Culture and Society*, 27:2–3 (2010), p. 101. It should be noted, though, that on some scores the US is not such an extreme outlier: see, for example, Jacob Poushter and Dorothy Manevich, 'Globally, People Point to ISIS and Climate Change as Leading Security Threats', Pew Research Center (1 August 2017), available at: {http://www.pewglobal.org/2017/08/01/globally-people-point-to-isis-and-climate-change-as-leading-security-threats/}.

extraction and exploitation, not scarce or fragile materials demanding economic constraint.[79] Intersecting with this, second, are various corporate and elite interests, especially in the fossil fuel and financial sectors and mainstream media, which, as numerous studies have shown, have together been instrumental in fuelling anti-regulatory attitudes and politics, including in relation to action on climate change.[80]

Beyond this, however, two key features of the current conjuncture seem particularly important. On the one hand, contemporary US climate change denial and its consequent politicisation are clearly – like the broader rise of the Tea Party and alt-right movements – in part responses to the huge economic transformations that have swept through the US since the 1990s.[81] Sociological studies have already pointed to this, characterising both American conservatism and climate change denial specifically as forces of 'anti-reflexivity', which have emerged in response to processes of 'reflexive modernisation' and to 'reassert the certitude of the industrial capitalist social order'[82] Yet a more political reading of these changes and pressures is also warranted. Approached thus, the predominantly conservative white male social profile of climate change denialism, its valorisation of mining and traditional manufacturing – of coal and cars – and its rhetoric of reversing economic decay all suggest it to be a defensive reaction against the waning of long-entrenched class, racial and gender privileges and hierarchies, rather than a response to 'reflexive modernisation' per se. This much has been widely recognised in research on American conservatism, if not yet specifically in relation to attitudes to climate change.[83]

Last, climate change denial in the US is on some level also a by-product of the country's changing position in the world. Existing studies of climate scepticism consistently overlook this – a result of operating with methodologically nationalist and internalist frameworks and assumptions.[84] Yet, viewed with an eye to international contexts and 'outside-in' dynamics, the linkages are difficult to miss. Donald Trump's announcement on the Paris agreement, for example, was primarily framed around the theme of 'making America great again', mainly in relation to other countries. During the speech, Trump condemned the Paris agreement as 'less about the climate and more about other countries gaining a financial advantage over the United States' and as 'simply the latest example of Washington entering into an agreement that disadvantages the United States to the exclusive benefit of other countries', and memorably insisted that he 'was elected to represent the citizens of Pittsburgh, not Paris'.[85] Trump's most famous tweet on climate change – that '[t]he concept of global warming was created by and for the Chinese in order to make US manufacturing non-competitive' – is similarly focused on the US's

[79]On the former see, for example, Yuko Heath and Robert Gifford, 'Free-market ideology and environmental degradation: the case of belief in climate change', *Environment and Behavior*, 38:1 (2006), pp. 48–71; and Naomi Oreskes and Erik Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (London: Bloomsbury, 2010); on the latter see, for example, Tom Griffiths and Libby Robin (eds), *Ecology and Empire: Environmental History of Settler Societies* (Keele: Keele University Press, 1997).

[80]See, generally, for example, Jane Meyer, *Dark Money: The Hidden History of the Billionaires Behind the Rise of the Radical Right* (London: Penguin, 2016); and Nancy MacLean, *Democracy in Chains: The Deep History of the Radical Right's Stealth Plan for America* (London: Scribe, 2017); and in relation to climate change specifically, for example, Naomi Klein, *This Change Everything: Capitalism Versus the Climate* (London: Penguin, 2015).

[81]On the roots of the Tea Party movement, see especially, Theda Skocpol and Vanessa Williamson, *The Tea Party and the Remaking of Republican Conservatism* (Oxford: Oxford University Press, 2012).

[82]McCright and Dunlap, 'Anti-reflexivity', p. 105

[83]See, for example, Michael Kimmel, *Angry White Men: American Masculinity at the End of an Era* (New York: Nation Books, 2013); William Parkin et al., 'Tea Party mobilization and power devaluation', *Sociological Spectrum*, 35:4 (2015), pp. 329–48; Earl Gammon, 'Narcissistic rage and neoliberal reproduction', *Global Society*, 31:4 (2017), pp. 510–30

[84]On methodological nationalism, see especially, Herminio Martins, 'Time and theory in sociology', in John Rex (ed.), *Approaches to Sociology: An Introduction to Major Trends in British Sociology* (London: Routledge and Kegan Paul, 1974), pp. 246–94; and Andreas Wimmer and Nina Glick Schiller, 'Methodological nationalism and beyond: Nation-state building, migration and the social sciences', *Global Networks*, 2:4 (2002), pp. 301–34. I discuss this issue in relation to other aspects of climate change research in Jan Selby, 'Positivist climate conflict research: a critique', *Geopolitics*, 19:4 (2014), pp. 829–56.

[85]White House Office of the Press Secretary, 'Statement by President Trump on the Paris Climate Accord'.

position in the world; and while it may have been a joke, as he has subsequently claimed, the sublimated rage at US decline is clear enough, and recurs throughout his and many other climate change sceptics' political discourse.[86] Unless we are to dismiss such framings as mere rhetoric, it is hard but to conclude that conservative America's opposition to concerted action on climate change is, in part, one of many domestic sociopolitical consequences of the erosion of US hegemony.

The above suggests that present-day attitudes and politics towards climate change in the US are hostage to uniquely powerful crosswinds: debates and divisions relating to class, race, gender, corporate power, media influence, liberalism, state intervention, de-industrialisation, and US decline. The implication of the above, moreover, is that the existing high level of polarisation and denial around climate change in the US – what may be thought of as a particular variant on 'American exceptionalism' – is unlikely to dissipate anytime soon. Attitudes are, of course, not wholly determined by structural forces. It is eminently possible, for example, that elements within American conservatism may start embracing the idea of addressing the climate change 'threat' on nationalist, anti-immigrant grounds, as has to a degree already occurred in France.[87] Dramatic falls in the cost of renewable energy may also come to the rescue, reducing the need for enforced decarbonisation through federal regulation, and to a degree depoliticising the climate change issue within American society (this, for instance, is the premise underpinning Dieter Helm's much more positive take on the US's place within the coming energy transition).[88] However, the recent pattern within the US is one of steadily increasing polarisation around climate change, paralleling its broader social divisions. If the latter continue to grow, then the climate change divide will probably do likewise. Of course, Donald Trump is not the sole or even main reason for America's divides. But his presidency has both emboldened the alt-right and resulted in a strengthening of various liberal positions, with implications that stretch well beyond 2020. All in all, this suggests that, in the absence of a cheap renewables-induced techno-fix, a radical shift within the US towards more consistently progressive climate change attitudes and policies is at best unlikely. Matters could, however, get far worse than that. The question of how to respond to climate change could quite conceivably become a major cause of deepening social divisions and conflict within the US.

The shale revolution and resurgence of energy geopolitics

The current shale oil and gas revolution in the US is a crucial additional factor here. For, US oil and gas production are currently booming. Between 2008 and 2015, US oil production increased by 74 per cent and gas production by 37 per cent, primarily because of new hydraulic fracturing ('fracking') and horizontal drilling techniques, and initially high global prices. Global oil and gas production are also rising steadily, if not nearly at these rates. Already the number one producer of both oil and gas in the world, the US is projected to become the world's leading exporter of Liquefied Natural Gas (LNG) by the mid-2020s and a net oil exporter by the late 2020s, and to account for around 80 per cent of the increase in global oil supply over the next decade.[89]

[86]Colin Campbell, 'Trump: I was joking when I said the Chinese "created" the concept of climate change', *Business Insider* (18 January 2016), available at: {http://uk.businessinsider.com/donald-trump-china-created-climate-change-2016-1?r=US&IR=T}. The tweet in question is available at: {https://twitter.com/realDonaldTrump/status/265895292191248385} (6 November 2012).

[87]Kate Aronoff, 'Donald Trump, Marine Le Pen, and the dangers of "eco-nationalism"', *In These Times* (11 December 2015), available at: {http://inthesetimes.com/article/18676/trump_le_pen_front_national_paris_climate_change_talks_and_econationalism}.

[88]Dieter Helm, *Burnout: The Endgame for Fossil Fuels* (New Haven: Yale University Press, 2017), ch. 4.

[89]Figures calculated from the US Energy Information Administration's 'International Energy Statistics', available at: {https://www.eia.gov/beta/international/data/browser/}. The projections are from International Energy Agency, *World Energy Outlook 2017* (IEA, 2017): available at: {https://www.iea.org/weo2017/}.

Admittedly, these recent expansions in US oil and gas production need setting against a parallel decline in the US coal industry (which has in large part occurred because of the shale revolution and consequent use of cheap gas in electricity generation). Nonetheless, even allowing for this and for coal's far higher carbon intensity, the US's total extractive contribution to climate change (that is, the total emissions associated with and generated by US-extracted fossil fuels) has been steadily increasing.

The Trump administration is not responsible for this oil and gas boom, of course; rather, it began on Barack Obama's watch, and was facilitated and lauded by his administration. Obama approved the expansion of offshore drilling; approved the construction of major new pipelines and oil and gas terminals; lifted a forty-year ban on oil exports (immediately on returning from the Paris climate summit); and approved every single LNG export licence put before him.[90] Moreover, he took credit, in his 2012 State of the Union address for example, for opening up 'millions of new acres for oil and gas exploration', and advocated 'an all-out, all-of-the-above strategy that develops every available source of American energy'.[91] In truth, Obama's powers in this area were quite limited, not least because the 'Halliburton loophole' of the 2005 Energy Policy Act – so-named for the prominent support it received from Vice-President Cheney, former CEO of the energy services company Halliburton – precluded the federal government from using existing environmental laws to regulate fracking. Yet neither the Obama administration, nor Congress during the Obama years, took any major action to change this.[92] Instead the Obama administration's strategy – if 'strategy' is the appropriate word: a Faustian bargain may be more appropriate – was to push for significant domestic and global cuts in carbon emissions, while simultaneously acquiescing to popular and corporate interests in fossil fuel extractivism, and overseeing the single biggest rise in oil and gas production in American history. With the Trump administration dedicated to simultaneously opening up new oil and gas fields and ending the 'war against coal', this trend of rising fossil fuel production is doubtless set to continue.

Though gas is often lauded as a clean alternative to coal that can enable substantial carbon emissions reductions – as it has in both the US and UK in recent years – overall the shale revolution is clearly antithetical and regressive to the cause of climate change mitigation. The rapid post-2008 rise in US oil and gas production has been the key factor in the relatively low global prices, which already appear to have had a negative impact on much-needed investment in renewables.[93] The expansion in oil and gas production, and the capital investment this requires, inevitably strengthens (and creates new) economic and political constituencies for further extraction, which is in turn bound to multiply the political obstacles to future decarbonisation. Recent research also suggests that the claimed climate benefits of gas production through fracking are far less than is often claimed, and are perhaps negligible.[94] And most importantly, as prominent analyses by Christophe McGlade and Paul Ekins have shown, absent the large-scale use of carbon capture and storage technologies, the development of unconventional oil and gas

[90]'US spending bill lifts 40-year ban on crude oil exports', *BBC News* (18 December 2015), available at: {http://www.bbc.co.uk/news/business-35136831}; Hogan Lovells, 'LNG exports – a rare case of policy continuity from Obama to Trump', *Lexology* (8 May 2017), available at: {https://www.lexology.com/library/detail.aspx?g=c5630c16-16b2-48d3-8d18-d60880c109b7}.

[91]President Obama's 2012 State of the Union address (24 January 2012), available at: {http://www.nytimes.com/interactive/2012/01/24/us/politics/state-of-the-union-2012-video-transcript.html}.

[92]Barbara Warner and Jennifer Shapiro, 'Fractured, fragmented federalism: a study in fracking regulatory policy', *Publius: The Journal of Federalism*, 43:3 (2013), pp. 474–96; Barry Rabe, 'Shale play politics: the intergovernmental odyssey of American shale governance', *Environmental Science and Technology*, 48:15 (2014), pp. 8369–75.

[93]IEA, *World Energy Investment 2017* (2018), available at: {https://www.iea.org/wei2018/}; Adam Vaughan, 'IEA warns of "worrying trend" as global investment in renewables falls', *The Guardian* (17 July 2018), available at: {https://www.theguardian.com/business/2018/jul/17/iea-warns-of-worrying-trend-as-global-investment-in-renewables-falls}.

[94]Ramón Alvarez et al., 'Assessment of methane emissions from the US oil and gas supply chain', *Science* (2018).

resources from shale, tar sands, and deep water is simply incompatible with the goal of limiting global warming to below 2 °C.[95] Meeting this internationally agreed goal requires US shale oil and gas reserves to be treated as un-burnable, and to be 'kept in the ground'.[96]

These economic and direct environmental repercussions aside, the current oil and gas revolution also has significant geopolitical consequences, which may in turn affect future carbon emissions reduction efforts. Ever since Nixon's launch of 'Project Independence' in response to the 1973 oil crisis, US policy – or at least its policy discourse – has been obsessed with reducing dependence on imported oil. But now that the US is both the leading oil and gas producer globally, and on the verge of becoming a net exporter of both, this dependence, and the actual or perceived vulnerabilities that follow from it, are being fundamentally transformed. The Trump administration's promise, in the 2017 National Security Strategy, of future American 'energy dominance' is a clear marker of this.[97] If this document is any guide, the US's abundant oil, gas, and coal resources will be used in the coming years to project geopolitical and geo-economic power, with the aim of rejuvenating the US economy and minimising, even reversing, perceived decline.

Quite how this will play out in future can only be speculated upon. Certainly, the US is not, and is not going to become, a fossil fuel 'rentier state', with oil and gas sales dominating exports and government revenues; its economy is much too diversified for that.[98] In this regard, the coming energy transition – and in the short term the recent price drops – are far greater challenges and threats to Russia (where fuel exports accounted for 71 per cent of total exports in 2013), Saudi Arabia (87 per cent), Venezuela (99 per cent), Nigeria (88 per cent) and other southern and post-Soviet producer states, than they are to the US.[98] Nonetheless, the prospect of the US using oil and gas exports for power projection is extremely worrying. At the very least it seems likely that, as its domestic oil and gas industries grow in economic, political, and geo-political importance, so pro-fossil fuel-related interests and ideologies in the US will correspondingly strengthen – making it less and less likely that the US will consent to keeping its valuable energy assets 'stranded' in the ground, or to pressing its allies to reduce their consumption of American imports.

More than that, the possibility of the coming energy transition contributing decisively to the reshaping of twenty-first-century international and global order – as some states, sectors, and classes decarbonise rapidly while others remain committed to a fossil fuelled-future – cannot be discounted. Previous energy transitions have been instrumental to shifts in, and challenges to, established patterns of social organisation and international hegemony. King Coal was the motor of the British industrial revolution and, via the steamship, of the mid-nineteenth-century extension of European empires.[100] Coal also underpinned, together with steel, Germany's late nineteenth-century rise and twentieth-century descent into militarism and total war – hence the necessity of creating an institution to regulate these sectors, the European Coal and Steel Community, in post-1945 Europe.[101] The transition from coal to oil in the mid-twentieth century

[95]Christophe McGlade and Paul Ekins, 'Un-burnable oil: an examination of oil resource utilisation in a decarbonised energy system', *Energy Policy*, 64 (2014), pp. 102–12; Christophe McGlade and Paul Ekins, 'The geographical distribution of fossil fuels unused when limiting global warming to 2 °C', *Nature*, 517 (2015), pp. 187–90.

[96]Michael Jacob and Jérôme Hilaire, 'Climate science: Unburnable fossil fuel reserves', *Nature*, 517 (2015), pp. 150–2.

[97]The White House, *National Security Strategy*, pp. 22–3.

[98]Hazem Beblawi and Giacomo Luciani (eds), *The Rentier State: Essays in the Political Economy of Arab Countries* (New York: Croon Helm, 1987).

[99]World Bank, 'Fuel Exports (% of Merchandise Exports)', available at: {https://data.worldbank.org/indicator/TX.VAL.FUEL.ZS.UN?view=chart}. Figures quoted are all for 2013.

[100]Malm, *Fossil Capital*; Douglas Burgess, *Engines of Empire: Steamships and the Victorian Imagination* (Stanford: Stanford University Press, 2016).

[101]See, for example, John Gillingham, *Industry and Politics in the Third Reich: Ruhr Coal, Hitler and Europe* (London: Methuen, 1985).

created conditions for the emergence of a specific form of capital-dominated representative democracy, which was very different from that which had preceded it.[102] Moreover, the use of domestically-produced oil was crucial to US military advantage in the Second World War, and the creation and policing of a managed global oil market no less central to the liberal international order established after it.[103]

It does not follow from any of this, of course, that the coming energy transition will lead to major conflict between a declining carbon-dependent US and various aspiring decarbonising hegemons (among other reasons, because international politics does not follow simple 'hegemonic cycles').[104] Nonetheless, given that energy is the sine qua non of mechanised production and mass consumption; given the huge economic, political, and power advantages conferred by fossil fuels; given that fossil fuel extraction and consumption are still expanding; given the historical place of energy in modern projects of war-making, state control, and domination; given the urgency of rapid decarbonisation; and given the current unevenness of patterns of fossil fuel production and use between different states and societies, plus the uneven commitments to decarbonisation – given all this, it is in my view more than possible that the coming energy transition will be disorderly and violently contested.[105] Indeed, I would go so far as to speculate that the questions of whether and which fossil fuel resources should be kept in the ground, and how this should be policed and paid for, will become major sources of social and international discord by the mid-decades of the twenty-first century. The current US oil and bas boom does not provide much comfort that this scenario will be avoided.

Conclusion

This article has sought to make two main arguments about the implications of the Trump presidency for climate change and its mitigation. On one level, it has simply sought to show that existing action on climate change, whether domestic or international, are unlikely to be upended under his administration. Federal rollback will be limited, in large part because there exists so little to destroy. Activist US states will remain activist, but others likely not, with little obligation on the latter to change. And globally, the Paris framework is more or less immune to US withdrawal. In each of these respects, the Trump administration is unlikely to effect a sweeping reversal of existing climate change policies, regulations, or practices. On this count, liberal institutionalist commentators are surely right that there are decided limits to rollback.

Second, though, and taking this 'continuitist' argument further, the article suggests that the Trump administration may contribute significantly to the entrenchment of various existing patterns and trends, which, even prior to January 2017, were far from progressive. Even then, carbon emissions reduction efforts were falling well short, both within the US and globally; global climate financing was likewise; climate change denial was deeply ingrained in American politics and society; and the US oil and gas industries were witnessing an unprecedented boom. During Trump's tenure, I submit, all four of these problematic patterns and tendencies will likely continue, if not become still more deeply ingrained. Indeed, looking further ahead, the future imagined in the above analysis is not pretty, combining global temperature rises of another order of magnitude (with inevitable consequences for sea levels, heat deaths, food production, migration, and more besides); stark global divisions over responsibility and financing; deep

[102]Mitchell, *Carbon Democracy*.

[103]See, for example, David Painter, 'Oil and the American century', *Journal of American History*, 99:1 (2012), pp. 24–39; Simon Bromley, *American Hegemony and World Oil: The Industry, The State System and the World Economy* (University Park, PA: Pennsylvania State University Press, 1991).

[104]See, for example, David Lake, 'British and American hegemony compared: Lessons for the current era of decline', in Jeffry Frieden and David Lake (eds), *International Political Economy: Perspectives on Global Wealth and Power* (4th edn, London: Routledge, 2014), pp. 127–40.

[105]On the powers conferred by fossil fuels, see especially, Malm, *Fossil Capital*.

sociopolitical divisions, in the US and elsewhere, over how to respond to the warming climate; and continued producer-state reliance on using fossil fuels as instruments of state and geopolitical power. One recent (constructivist-informed) commentary on Trump and climate politics claims that the negative worldwide response to his Paris agreement announcement provides evidence 'not only of the existence of a climate protection norm, but of its maturity and strength'.[106] The arguments above, however, suggest very much to the contrary.

From all this, three broader issues deserve to be highlighted, each relating to the political and conflict implications of climate change. First, climate change is politically important not just as a grave problem and a source of disagreements and divisions, but also, as Mike Hulme has argued especially powerfully, as a site and stage where existing social cleavages, meanings, and priorities are regularly being performed.[107] Nowhere is this clearer than in the contemporary US, where Donald Trump and his allies' views on climate change often appear to be less about climate change per se, than carriers and signifiers of various other antipathies, obsessions, and agendas: a 'post-truth' hostility to expertise; a parallel hostility to regulation and the Washington political elite; a favouring of traditional masculinist industries and labour; white supremacism; 'America first' nationalism; fears of other states' rise and of American decline; and opposition to all things Obama. No other environmental issue is intersectionally constituted to this degree, or is so hostage to 'extra-environmental' fears, interests, and divisions. Unless new cheap depoliticising technologies come to the rescue, this tendency will doubtless increase, in turn defining and limiting responses to climate change.

One key dimension of this, second, is US hegemony and assorted challenges to it. This is not the place for a full consideration of this issue, still less for an analysis of how shifting geopolitical patterns have shaped, and continue to shape, global responses to climate change. But two things seem abundantly clear. One is that US policy on climate change has long been pre-eminently defined by fears about decline, in relation to China in particular: this was so even during the heyday of America's 'unipolar moment', when fears for US economic competitiveness underpinned its non-ratification of (and later withdrawal from) the 1997 Kyoto Protocol, just as it applies with heightened rhetorical force and rage under Donald Trump today.[108] A second is that the striking weakness of the current Paris climate change regime – comprising voluntary emissions reduction targets and no compliance mechanism, for a problem which Ban Ki-Moon called 'the one true existential threat to our planet' – is the direct result of these US fears, allied with Chinese demands that its development and rise not be retarded.[109] If hegemony is in part about leadership in addressing global commons issues, then the extant climate change regime is clearly evidence of the failure or limits of US hegemony – and not only since Trump. Far greater ambition will soon be required, whether with or without the US. Moreover, if conflict does deepen between the US and a rising China, as realists such as Christopher Layne predict – or if Russia-US relations continue to sour – then it is hard to imagine that global climate change mitigation efforts would *not* get caught up in this, especially given the powerful currents of climate change denialism, rapidly growing oil and gas production, fossil fuel rent dependence, and dreams of energy dominance discussed above.[110] Whether these scenarios comes to pass or

[106]Betsill, 'Trump's Paris withdrawal', p. 190.

[107]Mike Hulme, *Why We Disagree About Climate Change: Understanding Controversy, Inaction and Opportunity* (Cambridge: Cambridge University Press, 2009); and Mike Hulme, *Weathered: Cultures of Climate* (London: Sage, 2017).

[108]Robert Falkner, 'American hegemony and the global environment', *International Studies Review*, 7:4 (2005), pp. 585–99; J. Timmons Roberts, 'Multipolarity and the new world (dis)order: US hegemonic decline and the transformation of the global climate regime', *Global Environmental Change*, 21:3 (2011), p. 781.

[109]'Transcript of press conference by Secretary-General Ban Ki-Moon at United Nations Headquarters, 12 January 2009', SG/SM/12044, available at: {https://www.un.org/press/en/2009/sgsm12044.doc.htm}; Roberts, 'Multipolarity and the new world (dis)order'

[110]Christopher Layne, 'The US-Chinese power shift and the end of Pax Americana', *International Affairs*, 94:1 (2018), pp. 89–111

not – and I take no position on this here – what does seem evident is that future global climate change mitigation efforts will in one way or another continue to be thoroughly intertwined with questions of American hegemony.

Finally, the above suggests a rather different way from usual of thinking about the links between climate change, conflict, and security. Most research on this theme is resolutely climate- and environment-centric, focused on the impacts of projected warming, changes in rainfall patterns and increased environmental shocks on socioeconomic and in turn conflict variables, especially in the global South and Africa in particular. I have argued elsewhere that many of the more dramatic claims to this effect – that climate change was a causal factor behind the 2003–05 war in Darfur and the ongoing war in Syria; that climate change will result in so many extra battle deaths in Africa – are weakly founded and overstated, and also reproduce longstanding colonial imaginaries of the global South as a site of scarcity and source of disorder.[111] But this does not mean, I would insist, that climate change has no important consequences for conflict or security. To the contrary, if we approach climate change not just as an environmental force or threat, but also, or instead, as one that demands a fundamental transformation of the energetic basis of our global capitalist order, and over which there are multiple lines of disagreement over how, and even whether, to achieve this, then it is not at all difficult to imagine how grave these consequences could become. Incredibly, these issues are barely recognised, let alone reflected on, in existing research on climate change and security or low-carbon energy transition.[112] However, given that climate change promises environmental havoc, while simultaneously posing existential questions for industrial modernity and state power, and already being a cause of, and site for, intense social, political, and ideological disagreements on multiple axes and scales, the prospects of a disorderly and violent energy transition are surely high. The Trump administration's positions are more a reflection than a cause of this looming disorder, of course. But they surely do not help.

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[111]Jan Selby and Clemens Hoffmann, 'Beyond scarcity: Rethinking water, climate change and conflict in the Sudans', *Global Environmental Change*, 29 (2014), pp. 360–70; Jan Selby et al., 'Climate change and the Syrian civil war revisited', *Political Geography*, 60 (2017), pp. 232-44; Selby et al, 'Climate change and the Syrian civil war revisited: a rejoinder', *Political Geography*, 60 (2017), pp. 253–5; Selby and Hoffmann, 'Rethinking climate change, conflict and security'; Selby, 'Positivist climate conflict research'. On the predominantly global South and Africa focus of this research and its link to colonial imaginaries, see especially, Betsy Hartmann, 'Converging on disaster: Climate security and the Malthusian anticipatory regime for Africa', *Geopolitics*, 19:4 (2014), pp. 757–83; and Courtland Adams et al., 'Sampling bias in climate-conflict research', *Nature Climate Change*, 8 (2018), pp. 200–03.

[112]For overviews of research on these themes see, for example, on climate change and conflict: Soloman Hsiang and Marshall Burke, 'Climate, conflict, and social stability: What does the evidence say?', *Climatic Change*, 123:1 (2013), pp. 39–55; Selby, 'Positivist climate conflict research'; and Kendra Sakaguchi et al., 'Climate wars? A systematic review of empirical analyses on the links between climate change and violent conflict', *International Studies Review*, 19:4 (2017), pp. 622–45; and on transition, Arnulf Grubler, 'Energy transitions research: Insights and cautionary tales', *Energy Policy*, 50 (2012), pp. 8–16; Kathleen Araújo, 'The emerging field of energy transitions: progress, challenges, and opportunities', *Energy Research and Social Science*, 1 (2014), pp. 112–21.

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