LPE Primer: The Neoliberal Economics of Climate Change

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This primer aims to provide an overview of key literature addressing how neoliberal economic analysis currently affects climate policy and how we might move beyond such analyses. After a brief introduction connecting neoliberalism and capitalism to the current climate crisis, the primer covers how neoliberal economists model climate change, with a focus on discount rates, uncertainty and risk, existing inequities, resource fungibility, infinite growth, and the elevation of technocracy over democracy. Next, it outlines work addressing neoliberal "solutions" to the climate crisis, including carbon pricing, lifestyle changes, and climate risk reporting, as well as more speculative proposals, such as direct air capture and solar geoengineering. Finally, it identifies scholars developing alternative strategies for addressing climate change, with an emphasis on systemic change and democratization of the economy.

I. Introduction to Neoliberalism, Capitalism, and Climate Change

Another LPE primer offers a helpful definition of neoliberalism:

> Neoliberalism refers to a form of governance that was born in the 1970s, and which then came to dominate many domestic economies, as well as global economic institutions, over the course of the 1980s . . . [N]eoliberalism reconceives the appropriate relation between the market economy and forms of collective, public authority. It tends to take the former as a realm of individualistic, self-interested, rational calculation, while it casts the latter as prone to mismanagement, distortion, tyranny, and ignorance . . . [T]he conflict between market imperatives and democratic demands requires more than simply dismantling and weakening the institutions that channel and implement the collective will. It requires putting institutions (including public institutions) to work on behalf of the market.[1]

Neoliberalism has rendered the climate crisis intractable. As a global collective action problem, climate change requires coordinated government action across every nation and almost every sector of the economy to reduce emissions. But neoliberalism is unwilling to countenance such broad government involvement in markets. As Naomi Klein puts it,

> [W]e have not done the things that are necessary to lower emissions because those things fundamentally conflict with deregulated capitalism, the reigning ideology for the entire period we have been struggling to find a way out of this crisis. We are stuck because the actions that would give us the best chance of averting catastrophe—and would benefit the vast majority—are extremely threatening to an elite minority that has a stranglehold over our economy, our political process, and most of our major media outlets . . . [I]t is our great collective misfortune that the scientific community made its decisive diagnosis of the climate threat at the precise

[1] Samuel Aber, *Neoliberalism: An LPE Reading List and Introduction*, L. & POL. ECON. BLOG (2020), https://lpeproject.org/wp-content/uploads/2020/07/Neoliberalism-Primer.pdf.

> moment when those elites were enjoying more unfettered political, cultural, and intellectual power than at any point since the 1920s.[2]

Solving the climate crisis will require moving beyond neoliberal models of government that eschew any market interventions except those that insulate the market from democratically expressed, collective will.

Given the scope of the crisis, addressing climate change will also involve truly global coordination. Neoliberalism presents a barrier to this type of coordination as well, particularly because the United States and other neoliberal governments have been deeply resistant to any mandatory commitments that would infringe upon market activity.[3] Furthermore, as Carmen Gonzalez has pointed out, "Climate change is fraught with procedural injustice because the North dominates the institutions of global economic and environmental governance, such as the International Monetary Fund (IMF), the World Bank, the World Trade Organization (WTO), and multilateral environmental treaty regimes, and frequently ignores Southern perspectives and priorities."[4] These institutions have been global engines of neoliberal policymaking, often through coercive means.[5]

It is worth noting that neoliberalism is only the specific form of governance that currently dominates our broader capitalist system. Capitalism relied on extractive activity and fossil-fuel-based power long before neoliberalism, and many of the scholars cited in this primer point to capitalism, not just neoliberalism, as the driving force behind the climate crisis. This primer will discuss both neoliberalism and capitalism, with the understanding that neoliberalism is the most recent and perhaps the most perniciously effective instantiation of capitalism-driven governance. Environmental destruction today is enabled by neoliberal governmental structures that prevent collective efforts to preserve the environment (and the human lives that depend on it) from interfering with free market profits.

II. How Neoliberal Economists Model Climate Change

A. Uncertainty and Risk

Economists themselves acknowledge that economic models of climate change struggle to deal with uncertainty. Economist Martin Weitzman has analyzed how economic analyses of climate change fall short in situations of "fat-tailed" uncertainty—uncertainty involving low probability, highly disastrous events. He emphasizes that where widespread death, natural disasters, extinctions, and similar disastrous events are at play, models become extremely sensitive to arbitrary assumptions

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[2] NAOMI KLEIN, THIS CHANGES EVERYTHING: CAPITALISM VS. THE CLIMATE 18 (2014).

[3] *See* Jeffrey McGee, *The Influence of U.S. Neoliberalism on International Climate Change Policy*, *in* CLIMATE INNOVATION: LIBERAL CAPITALISM AND CLIMATE CHANGE (Neil E. Harrison & John Mikler, eds., 2014).

[4] Carmen G. Gonzalez, *Climate Justice and Climate Displacement: Evaluating the Emerging Legal and Policy Responses*, 36 WIS. INT'L L.J. 366, 372-73 (2019).

[5] *See, e.g.*, RICHARD PEET, UNHOLY TRINITY: THE IMF, WORLD BANK, AND WTO (2009) (arguing that these institutions function as undemocratic proponents of neoliberal capitalism); David Karjanen, *World Bank, the International Monetary Fund, and Neoliberalism*, *in* THE WILEY BLACKWELL ENCYCLOPEDIA OF RACE, ETHNICITY, AND NATIONALISM (John Stone et al., eds., 2015) (discussing criticism of the World Bank and International Monetary Fund for promoting neoliberalism and austerity).

about those events, which involve high levels of uncertainty.[6] Other economists take this critique even further: Robert Pindyck has written that cost-benefit analyses of climate change are essentially useless for analyzing policy because they do not meaningfully capture the most important risks at stake, namely the risk of catastrophic climate outcomes.[7]

In order to get a sense of the flaws of these models, it is helpful to explore some of the most prominent and widely used examples. No model is more renowned or widely used than William Nordhaus's Dynamic Integrated Climate-Economy (DICE) model, for which Nordhaus was awarded the Nobel Prize in economics in 2018.[8] Steve Keen, a post-Keynesian economist, has written a comprehensive critique of the model, with a special emphasis on how it purports to account for biodiversity, ocean acidification (a side effect of elevated carbon dioxide levels that could devastate global marine life), extreme climate events, uncertainty, and political reactions to climate change.[9] As a brief illustration of the model's shortcomings, its assumptions lead to the following results: that the global economy will only lose a few percentage points of GDP if temperatures rose enough to cause large risks to global food security,[10] or that GDP would only fall by 50 percent at levels of warming at which the Earth becomes largely uninhabitable for humans.[11]

Even beyond climate-economy models, many environmental cost-benefit analyses leave out key information in situations of uncertainty. Amy Sinden's empirical research has found that the vast majority of EPA cost-benefit analyses for major rules in recent years left out benefits that the agency itself classified "important," "significant," or "substantial" due to challenges with quantifying those benefits based on existing data.[12]

In short, uncertainty in economic models of climate change is typically handled by either entirely ignoring the potential consequences of warming, or by adopting arbitrary, unscientific assumptions that usually underestimate the harms of climate change. Nevertheless, these models are highly respected within the field of economics and have been used at the highest levels of policymaking.[13]

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[6] Martin L. Weitzman, Fat-Tailed Uncertainty in the Economics of Catastrophic Climate Change (Harvard Department of Economics, Symposium Paper, 2011), https://scholar.harvard.edu/files/weitzman/files/fattaileduncertaintyeconomics.pdf.

[7] Robert S. Pindyck, *Climate Change Policy: What Do the Models Tell Us?*, 51 J. ECON. LIT. 860 (2013), https://www.aeaweb.org/articles?id=10.1257/jel.51.3.860.

[8] Jason Hickel, *The Nobel Prize for Climate Catastrophe*, FOREIGN POLICY (Dec. 2018), https://foreignpolicy.com/2018/12/06/the-nobel-prize-for-climate-catastrophe.

[9] Steve Keen, *The Appallingly Bad Neoclassical Economics of Climate Change*, 2020 GLOBALIZATIONS 1 https://doi.org/10.1080/14747731.2020.1807856.

[10] Ryan Cooper, *The Deadly Hidden Risks within the Most Prominent Economic Model of Climate Change*, THE WEEK (Sept. 2019), https://theweek.com/articles/850637/deadly-hidden-risks-within-most-prominent-economic-model-climate-change ("The report says reaching just 4 degrees of warming (or just half a degree above Nordhaus' Goldilocks scenario for 2100, which would be quickly reached in the following decades), would 'include severe and widespread impacts on unique and threatened systems, substantial species extinction, large risks to global and regional food security, and the combination of high temperature and humidity compromising normal human activities, including growing food or working outdoors in some areas for parts of the year.'")

[11] Douglas A. Kysar, *Politics by Other Meanings: A Comment on "*Retaking Rationality *Two Years Later,"* 48 HOUSTON L. REV. 43, 62 (2011), https://digitalcommons.law.yale.edu/fss_papers/3847.

[12] Amy Sinden, *The Problem of Unquantified Benefits*, 49 ENV'T L. 73 (2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3087370.

[13] Douglas A. Kysar, *Politics by Other Meanings: A Comment on "*Retaking Rationality *Two Years Later,"* 48 HOUSTON L. REV. 43, 47 (2011), https://digitalcommons.law.yale.edu/fss_papers/3847.

B. Baking in Inequities: Value of Statistical Lives

Scholars like Lisa Heinzerling have also criticized how economic models of climate change value human life based on the existing unequal distribution of resources.[14] This dynamic is particularly clear in the case of valuation of statistical lives (VSL), a metric that values life based on the wage premium workers receive for risky jobs. Proponents of VSL, like Cass Sunstein, have argued that the metric should vary based on socioeconomic status in order to best inform government policy.[15] In other words, the government should use a higher valuation of life for policies disproportionately benefiting the wealthy and a lower one for policies disproportionately benefiting the poor. Larry Summers also infamously praised the economic logic of moving polluting industries to the Global South because wages are lower, meaning the lives lost are worth less under VSL metrics.[16] Heinzerling and Douglas Kysar have objected to this logic, arguing instead that VSL merely reflects existing inequality and bargaining power,[17] and treats deaths caused by environmental harm differently from other intentionally-caused deaths.[18] The inequality they highlight is particularly devastating for the Global South, which is responsible for a tiny fraction of greenhouse gas emissions, but has already been and will continue to be disproportionately affected by climate change.[19]

C. Fungibility of Resources

Scholars like Henry Shue have highlighted how economic models of climate change are inattentive to basic needs because they assume that all resources are interchangeable.[20] Building on the notion that economic analysis should avoid normative positions about the distribution of resources, such models rely upon observed market behavior that aggregates individual preferences. However, by taking the existing distribution of resources as an initial baseline and assuming the full fungibility of resources, these models inevitably value some people's luxuries over others' survival. For example, economic models of climate change treat emissions from manufacturing and transporting a designer handbag no differently than the emissions from subsistence agriculture in the Global South. As Shue argues, any morally defensible climate policy should focus on cutting

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[14] Lisa Heinzerling, *The Rights of Statistical People*, 24 HARV. ENV'T L. REV. 189 (2000), https://scholarship.law.georgetown.edu/facpub/327; Lisa Heinzerling, *Knowing Killing and Environmental Law*, 14 N.Y.U. ENV'T L.J. 521 (2006), https://scholarship.law.georgetown.edu/facpub/326.

[15] Cass R. Sunstein, *Valuing Life: A Plea for Disaggregation*, 54 DUKE L.J. 385 (2004), https://scholarship.law.duke.edu/dlj/vol54/iss2/2.

[16] Lawrence Summers & Lant Pritchett, *"Dirty" Industries: Just Between You and Me, Shouldn't the World Bank be Encouraging More Migration of the Dirty Industries to the LDCs [Least Developed Countries]?*, WORLD BANK (1991), http://www.personal.ceu.hu/corliss/CDST_Course_Site/Readings_old_2012_files/Our%20Words_%20The%20Lawrence%20Summers%20Memo.pdf.

[17] DOUGLAS A. KYSAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY 112 (2010)

[18] Lisa Heinzerling, *Knowing Killing and Environmental Law*, 14 N.Y.U. ENV'T L.J. 521 (2006), https://scholarship.law.georgetown.edu/facpub/326.

[19] J. TIMMONS ROBERTS & BRADLEY PARKS, A CLIMATE OF INJUSTICE: GLOBAL INEQUALITY, NORTH-SOUTH POLITICS, AND CLIMATE POLICY (2006).

[20] Henry Shue, *Subsistence Emissions and Luxury Emissions*, 15 L. POL'Y 39 (1993), https://doi.org/10.1111/j.1467-9930.1993.tb00093.x.

greenhouse gas emissions from luxury activities before requiring any cuts that affect activities essential to survival.[21]

D. Discount Rates and Infinite Growth

Discounting is a modeling practice that accounts for the time value of money. Economists use a "discount rate" based on economy-wide returns to capital to adjust for the fact that future benefits are worth less than current benefits. After all, money made today could be invested and generate greater returns in the future. While this argument from opportunity costs is the most common justification for discounting, other explanations put forward include "that people in the future are likely to be better off than we are today [often assumed using a baseline of infinite economic growth, discussed more below], that failing to recognize the diminished value of the future as compared to the present will induce us to spend all of our money on the far future rather than the needy present, and that people are impatient and would rather have good things today than tomorrow."[22]

In the context of climate change, Robert Pindyck has demonstrated that discount rates create significant devaluation of future generations.[23] He shows that the lives of our descendants are being valued at pennies on the dollar in models of climate change, despite the fact that the most significant harms of warming will affect future generations. Discount rates can often mean the difference between recommending ambitious climate action or little action at all. For instance, the Trump administration used a seven percent discount rate for climate-economy modeling while the Obama administration used a three percent rate, resulting in a tenfold difference in the social cost of carbon ($50 per ton versus $5 per ton).[24] And even the Obama administration at times used a five percent rate to create a negative social cost of carbon (meaning climate change would be viewed as a net economic positive).[25]

Discounting rests on another fundamental and flawed assumption in neoliberal economic models of climate change: the assumption that economic growth is infinite. The Office of Management and Budget, responsible for the federal government's cost-benefit analysis of major regulatory actions, incorporates such an assumption in justifying discount rates.[26] But natural resources have concrete limits, and in an era of climate change, the consequences of warming may cause history to become an unreliable guide to future consumption and growth patterns.[27] Assuming that the economy will grow forever both justifies ignoring ecological constraints and, in so doing, ensures that we will more quickly bump up against those constraints as unabated resource use continues.

Neoliberal thinkers often justify growth-driven economics on the grounds that a rising tide lifts all boats. But in fact, climate change has been a driver of wealth inequality. A recent study found

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[21] *Id.*

[22] Lisa Heinzerling, *Climate Change, Racial Justice, and Cost-Benefit Analysis*, L. & POL. ECON. BLOG (Sept. 28, 2021), https://lpeproject.org/blog/climate-change-racial-justice-and-cost-benefit-analysis.

[23] Robert S. Pindyck, *Climate Change Policy: What Do the Models Tell Us?*, 51 J. ECON. LIT. 860 (2013), https://www.aeaweb.org/articles?id=10.1257/jel.51.3.860.

[24] Heinzerling, *supra* note 22.

[25] *Id.*

[26] OMB Circular A-4, Regulatory Analysis (Sept. 17, 2003), https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf.

[27] KYSAR, *supra* note 17 at 161-62.

that climate change worsened global economic inequality by 25 percent in the past 50 years.[28] Infinite growth underlies economic models that purport to find the amount of greenhouse gas emissions that best serves overall human welfare. But such growth should no longer be assumed to advance welfare universally, or even to reflect reasonable assumptions about the future of the economy under conditions of climate change.

E. Technocracy over Democracy

Douglas Kysar has argued that cost-benefit analysis of climate models puts debate about the future of our planet into narrow terms that are inaccessible to laypeople: "subjects of ordinary moral and political discourse become debated through a stylized cost-benefit vernacular."[29] Economic models of climate change are full of normative assumptions, such as discounting or valuation of statistical lives, that many people would find objectionable if they were an overt part of policy debates.

Nevertheless, proponents of CBA like Cass Sunstein argue that CBA is neutral, or even scientific, meaning it produces the "right" answer rather than a highly contestable set of assumptions.[30] Kysar would counter that economic models of climate change are not objective or factually correct in any meaningful sense, and preferences revealed through private consumption choices should not be given precedence over outcomes reached through collective deliberation. As Kysar puts it, "A different approach altogether would be to assume that . . . valuations are more reliably captured through society's willingness to act collectively in order to preserve the threatened good."[31]

III. How Neoliberal Economics Purports to Solve Climate Change

This section discusses the literature around three neoliberal "solutions" to the climate crisis: carbon pricing, lifestyle environmentalism, and climate risk reporting. For a broader look at the way neoliberalism and capitalist logic pervades the field of environmental law, Michael M'Gonigle and Louise Takeda's "green legal theory" provides a helpful framework. They argue that environmental law itself has come to "embody a liberal economic and political rationality that, today as in the past, limits the conditions of future possibility [and] inherently defines 'green' initiatives so that they support continued economic growth and capital accumulation while excluding consideration of systemic alternatives."[32]

A. Carbon Pricing

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[28] Noah S. Diffenbaugh & Marshall Burke, *Global Warming Has Increased Global Economic Inequality*, 116 PROC. NAT'L ACAD. SCI. 9808 (2019), https://doi.org/10.1073/pnas.1816020116.

[29] Douglas A. Kysar, *Politics by Other Meanings: A Comment on "*Retaking Rationality Two Years Later," 48 HOUSTON L. REV. 43, 47 (2011), https://digitalcommons.law.yale.edu/fss_papers/3847.

[30] Dylan Matthews, *Can Technocracy Be Saved? An Interview with Cass Sunstein*, VOX (Oct. 22, 2018), https://www.vox.com/future-perfect/2018/10/22/18001014/cass-sunstein-cost-benefit-analysis-technocracy-liberalism

[31] DOUGLAS A. KYSAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY 113-14 (2010).

[32] Michael M'Gonigle & Louise Takeda, *The Liberal Limits of Environmental Law: A Green Legal Critique*, 30 PACE ENV'T L. REV. 1005, 1109 (2013).

Carbon pricing is one of the most prominent neoliberal solutions to climate change. Advocates argue that by placing a price on carbon emissions, either through a tax or cap-and-trade scheme, the market will be able to reach an efficient level of emissions. William Boyd argues that carbon pricing came to prominence during the rise of the law-and-economics movement, as legal scholars became increasingly critical of "command-and-control" policies that constituted much of the first wave of environmental regulation in the United States.[33]

Cass Sunstein argues that these trading systems would promote democracy by "putting the power of deciding pollution levels back into the hands of the citizenry,"[34] rather than relying on the assessments of regulators. But this represents a rather unusual view of democracy. Democracy allows citizens to come together and deliberate to make collective decisions about how they wish to be governed. In other words, democracy does not preclude the setting of centralized goals. Markets, on the other hand, only allow individuals to reveal preferences through their spending decisions. These decisions do not allow collective deliberation and goal-setting, and markets severely limit which goals can be pursued. Market power is also determined by wealth, meaning its distribution is a far cry from the one-person-one-vote standard of democratic elections. Thus, pollution pricing, while billed as a democratizing endeavor, in fact places stringent limits on what our polity can collectively decide to do to protect our environment and ourselves.

William Boyd has argued that the rise of pricing tools also had a limiting effect within environmental academia. Rather than debating the many different ways to address the climate crisis, including the political complications of any given intervention, environmental academia was reduced to debating policy instruments. This led experts to "largely ignor[e] a much harder set of questions regarding how these instruments move though the political process, how they get operationalized in actual programs, and how they influence broader conceptions of government."[35] Carbon pricing has largely failed in practice, but a debate centered around the efficiency of policy instruments cannot account for the political reasons behind that failure.[36]

Taking a step back, carbon pricing can also be viewed as a continuation of patterns of extraction and commodification that led to the current climate crisis. Both Nancy Fraser[37] and Andreas Malm[38] have written about how capitalist economies developed through a series of historical impasses wherein the consequences of one mode of environmental exploitation become too severe. "[T]he 'fix' involves the conjure and appropriation of a new historical nature, previously dross, but suddenly gold, a must-have world-commodity, conveniently viewed as unowned and there for the taking. What follows in each case, finally, are uncontrolled downstream effects, which spark new socio-ecological impasses, prompting further iterations of the cycle."[39] In short, capitalism invents new modes of environmental extraction when the old modes become untenable.

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[33] William Boyd, *The Poverty of Theory: Public Problems, Instrument Choice, and the Climate Emergency*, 46 COLUM. J. ENV'T L. 399 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3852389. It is worth noting here that the "command-and-control" regime of environmental regulation has not been entirely replaced by market mechanisms, even though it has been heavily criticized. For more on the persistence of command-and-control regulation, as well as issues of dispersion of authority within that system of regulation, see Dan Farber, *Continuity and Transformation in Environmental Regulation*, 10 ARIZ. J. ENV'T L. & POL'Y 1 (2019).

[34] Boyd, *supra* note 33 at 437 (quoting Cass R. Sunstein, *Administrative Substance,* 1991 DUKE L.J. 607, 636).

[35] *Id* at 469.

[36] *Id.*

[37] Nancy Fraser, *Climates of Capital*, 127 NEW LEFT REV. 94 (2021) , https://newleftreview.org/issues/ii127/articles/nancy-fraser-climates-of-capital.

[38] ANDREAS MALM, FOSSIL CAPITAL (2016).

[39] Fraser, *supra* note 37 at 121.

Some thinkers have suggested that this pattern may be repeating itself with the advent of carbon markets. As Steffen Böhm has argued, "[T]he institutionalization of carbon markets does not, in fact, represent a move towards the radical transformation of capitalism, but is better understood as the most recent expression of ongoing trends of ecological commodification and expropriation, driving familiar processes of uneven and crisis-prone development."[40] In his view, carbon pricing does nothing to address how capitalism treats nature as an unlimited resource to be exploited in service of infinite economic growth. Pricing is therefore merely crisis management that will allow an extractive model of relating to nature to continue.

B. Lifestyle Changes

Lifestyle environmentalism posits that consumers are empowered to transform the market through their own spending choices, and if consumers simply care enough about their individual carbon footprints, the market will accommodate their preferences in order to capture the price premium consumers are willing to pay for greener products.[41] Of course, this assumes both that everyone individually has the wealth necessary to afford such a premium and that individual market choices are capable of creating systemic change. Nancy Fraser argues that this reinforces the neoliberal tendency to divide the economic realm from the political realm, thereby "avoid[ing] the necessity of confronting capitalist power."[42]

In critiquing the lifestyle environmentalism approach, Andreas Malm[43] and Jason Moore[44] have also critiqued the term "anthropocene." The anthropocene is defined as a new geological period in which human activity tangibly affects the Earth's ecosystems. Malm and Moore have instead used the term "capitalocene" to put the responsibility on capitalist forms of extraction rather than on people broadly. Moore has also argued that "anthropocene" perpetuates a false division between humans and nature that implies humans can exist outside of nature,[45] an assumption that we observed earlier in neoliberal climate-economy models that find human economic activity to outlast the ecological conditions required for human survival.[46]

C. Climate Risk Reporting

Banking institutions and leaders have proposed climate risk reporting as a way to better incorporate the market consequences of climate change into financial reporting and analysis of risk,[47]

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[40] Steffen Böhm, Maria Ceci Misoczky & Sandra Moog, *Greening Capitalism? A Marxist Critique of Carbon Markets*, 33 ORGANIZATION STUDIES 1617, 1617 (2012), https://journals.sagepub.com/doi/10.1177/0170840612463326.

[41] Boyd, *supra* note 33 at 478.

[42] Fraser, *supra* note 37 at 126.

[43] Rose Deller, *Book Review: Fossil Capital: The Rise of Steam Power and the Roots of Global Warming by Andreas Malm*, LONDON SCH. OF ECON. (July 7, 2017), https://blogs.lse.ac.uk/lsereviewofbooks/2017/07/07/book-review-fossil-capital-the-rise-of-steam-power-and-the-roots-of-global-warming-by-andreas-malm.

[44] Jason W. Moore, *The Capitalocene, Part I: On the Nature and Origins of Our Ecological Crisis*, 2017 J. PEASANT STUD. 1, http://dx.doi.org/10.1080/03066150.2016.1235036.

[45] *Id.*

[46] Douglas A. Kysar, *Politics by Other Meanings: A Comment on* "Retaking Rationality Two Years Later," 48 HOUSTON L. REV. 43, 62 (2011), https://digitalcommons.law.yale.edu/fss_papers/3847.

[47] *See, e.g.*, NETWORK FOR GREENING THE FIN. SYS., A CALL FOR ACTION: CLIMATE CHANGE AS A SOURCE OF FINANCIAL RISK (2019) (reporting that 39 central banks agree that markets are not adequately pricing climate risk);

and the SEC is currently drafting a rule that would mandate climate-related risk disclosures.[48] The hope is that a reporting system could create price signals that drive some degree of climate action while also making markets more efficient. Madison Condon has argued that these proposals are flawed in five fundamental ways because financial institutions and businesses:

> (1) Lack the fine-grained asset-level data they need in order to assess risk exposure; (2) Continue to rely on outdated means of assessing risk; (3) Have misaligned incentives resulting in climate-specific agency costs; (4) Have myopic biases exacerbated by climate change misinformation; and (5) Are impeded by captured regulators distorting the market.[49]

These risks lead to what Condon calls "the underpricing of corporate climate risk," which results in the "misallocation of investment capital, hindering adaptation and subsidizing future combustion of fossil fuels."[50] More broadly, climate risk reporting relies on the same faulty assumption criticized throughout this primer: namely that adequate pricing signals will cause the market alone to resolve the climate crisis.

D. New Frontiers in Neoliberal Climate Policy

Moore postulates that we have reached a breaking point in the capitalocene, which he calls "the end of cheap nature."[51] Capitalism in the recent past has made "labor-power, food, energy, and raw materials"[52] appear incredibly cheap, while failing to internalize the human and environmental destruction involved in extracting these commodities. In short, the prosperity of capitalism functioned on borrowed time.

Both Andreas Malm and Nancy Fraser have posited that when capitalism faces consequences of environmental exploitation that threaten the economic system, it often innovates new modes of extraction that purport to solve the current crisis while planting the seeds of future

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Climate Risk and the Transition to a Low-Carbon Economy, BLACKROCK 4 (Feb. 2021), https://www.blackrock.com/corporate/literature/publication/blk-commentary-climate-risk-and-energy-transition.pdf (arguing that "consistent reporting and disclosure" of climate risk is "critical"); *Task Force on Climate-Related Financial Disclosures*, BLOOMBERG PHILANTHROPIES (2020), https://www.bloomberg.org/environment/driving-sustainable-finance/task-force-on-climate-related-financial-disclosures (discussing Bloomberg Philanthropies' advocacy for a climate risk reporting mandate). *See also* James Fallows Tierney, *Woke Capital?*, L. & POL. ECON. BLOG (May 5, 2021), https://lpeproject.org/blog/woke-capital (discussing the ways in which common ownership by institutional investors "might give certain capitalist actors an incentive to think about factors that affect the stability of the entire system").

[48] *SEC Response to Climate and ESG Risks and Opportunities*, U.S. SECURITIES & EXCHANGE COMM'N (Oct. 26, 2021), https://www.sec.gov/sec-response-climate-and-esg-risks-and-opportunities.

[49] Madison Condon, *Market Myopia's Climate Bubble*, 1 UTAH L. REV. 63, 63 (2022).

[50] *Id.*

[51] Jason W. Moore, *The End of Cheap Nature, Or How I Learned to Stop Worrying about "The" Environment and Love the Crisis of Capitalism*, *in* STRUCTURES OF THE WORLD POLITICAL ECONOMY AND THE FUTURE OF GLOBAL CONFLICT AND COOPERATION (Christian Suter & Christopher Chase-Dunn, eds., 2014), https://www.researchgate.net/publication/264707683_The_End_of_Cheap_Nature_or_How_I_Learned_to_Stop_Worrying_about_'the'_Environment_and_Love_the_Crisis_of_Capitalism.

[52] *Id.*

crises.[53] As Fraser puts it, "[W]e can't know for sure whether capitalism has any more tricks up its enormously inventive sleeve that could stave off global warming, at least for a while, nor if so, for how long. Nor do we know whether the system's partisans could invent, sell and implement those tricks quickly enough."[54]

To offer one illustrative example, Direct Air Capture (DAC) uses machinery to extract carbon dioxide from the air.[55] The technology is not yet widely deployed, but several companies are working on developing it, and it is widely discussed in climate policy circles.[56] Andreas Malm writes that, in some cases, the carbon captured by DAC is not in fact being stored but instead being sold, meaning the captured carbon is only temporarily removed from the atmosphere. The carbon has been put to a variety of uses, including the carbonation of soft drinks,[57] but perhaps most egregiously, captured carbon has been blasted into oil drilling sites, allowing for the extraction of an additional 25 percent of fossil fuels from sites that are nearly depleted.[58] Malm also discusses the potential for moral hazard from DAC: "Merely the mental picture of millions of machines may insidiously, consciously or subconsciously, influence policymakers and the public: down the road, there will be a technology to bail us out."[59] In short, DAC may represent a new phase of capitalist commodification of environmental destruction, and depending on how it is rolled out and how it affects commitment to emissions mitigation, it may merely plant the seeds of further exploitation and crisis.

A more extreme example comes in the form of solar geoengineering. Solar geoengineering involves reflecting sunlight away from Earth in order to counteract warming from climate change.[60] The most prominent proposal to do this is known as stratospheric aerosol geoengineering (SAG), which involves spraying calcite or sulfate particles into the stratosphere to reflect a small portion of sunlight back into space before it reaches Earth's surface.[61] A full discussion of the ramifications of this technology is far beyond the scope of this primer, but very briefly, SAG will not address all the consequences of climate change, involves very serious risks and unknowns given the complexity of the climate system, could yield regional inequality, and could lead to grave geopolitical concerns, especially because the technology can only be deployed globally given how the stratosphere circulates.[62]

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[53] Nancy Fraser, *Climates of Capital*, 127 NEW LEFT REVIEW 94, 110-20 (2021), https://newleftreview.org/issues/ii127/articles/nancy-fraser-climates-of-capital; ANDREAS MALM, FOSSIL CAPITAL (2016).

[54] Fraser, *supra* note 53 at 122.

[55] *Our Technology*, CARBON ENGINEERING, https://carbonengineering.com/our-technology.

[56] Simon Evans, *Direct CO_2 Capture Machines Could Use "A Quarter of Global Energy" in 2100*, CARBONBRIEF (July 22, 2019), https://www.carbonbrief.org/direct-co2-capture-machines-could-use-quarter-global-energy-in-2100 (noting that the Intergovernmental Panel on Climate Change found that direct air capture will be needed to meet a 1.5-degree Celsius warming limit).

[57] Andreas Malm & Wim Carton, *Seize the Means of Carbon Removal: The Political Economy of Direct Air Capture*, 29 HISTORICAL MATERIALISM 3, 16 (2021), https://doi.org/10.1163/1569206X-29012021.

[58] *Id.* at 23.

[59] *Id.* at 13.

[60] *What Is Geoengineering?*, OXFORD GEOENGINEERING PROGRAMME (2017), http://www.geoengineering.ox.ac.uk/www.geoengineering.ox.ac.uk/what-is-geoengineering/what-is-geoengineering.

[61] DAVID KEITH, A CASE FOR CLIMATE ENGINEERING 1 (2013).

[62] *Id.* at 8; Simone Tilmes et al., *Impact of Geoengineered Aerosols on the Troposphere and Stratosphere*, 114 J. GEOPHYSICAL RSCH.: ATMOSPHERES 1 (2009), https://doi.org/10.1029/2008JD011420; Christoph Kleinschmitt et al., *The Sectional Stratospheric Sulfate Aerosol Module (S3A-v1) within the LMDZ General Circulation Model: Description and Evaluation Against Stratospheric Aerosol Observations*, 10 GEOSCIENTIFIC MODEL DEV. 3359

Concerningly, SAG is very cheap to deploy—current estimates suggest that the aerosols could be deployed by modified airplanes, and the total cost of application per year would be between $1 and $3 billion dollars, a small fraction of the cost of emissions mitigation.[63] And the technology could be deployed unilaterally by anyone with enough resources, and would affect the entire globe.[64] Major conservative groups and fossil fuel interests have already indicated support for the technology, suggesting that it may be seen as an alternative to emissions mitigation,[65] even though researchers urge that SAG should only be used in tandem with mitigation.[66] Researchers support using SAG only in tandem with mitigation for several reasons. SAG not only fails to address all the harms of climate change, such as ocean acidification, but it also creates grave geopolitical and climate risks. For instance, if humanity became reliant on SAG over a long period and then suddenly stopped deploying it, perhaps because of political backlash to its adverse consequences, all the warming that had been offset would happen suddenly. This risk (one of many, a full accounting of which is beyond the scope of this primer) is known as termination shock. There is also a tension in researchers' reasoning. Geoengineering is often justified by the urgency of the climate crisis and the current failure to mitigate emissions, but then proponents also argue that it is unthinkable to implement geoengineering without aggressive mitigation.

SAG is still in early stages, with very small-scale experiments underway.[67] But this could be an even more striking example of how capitalist innovation may "fix" the current climate crisis through a new cycle of commodification that puts us at risk for further crises in the future.

IV. Alternative Paths Forward

This section will outline a few different paths for fighting climate change that do not rely on neoliberal economic frameworks. In selecting interventions to focus on, I sought to highlight non-reformist reforms, defined by Andre Gorz as efforts that are "conceived not in terms of what is possible within the framework of a given system and administration, but in view of what should be made in terms of human needs and demands."[68] The list of interventions is not exhaustive and the

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(2017), https://doi.org/10.5194/gmd-10-3359-2017; A.J. Ferraro et al., *Stratospheric Heating by Potential Geoengineering Aerosols*, 38 GEOPHYSICAL RSCH. LETTERS 1 (2011), https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2011GL049761; Alan Robock, *20 Reasons Why Geoengineering May Be a Bad Idea*, 64 BULL. ATOMIC SCIENTISTS 14, 16 (2008), https://climate.envsci.rutgers.edu/pdf/20Reasons.pdf.

63 Wake Smith & Gernot Wagner, *Stratospheric Aerosol Injection Tactics and Costs in the First Fifteen Years of Deployment*, 13 ENV'T RSCH. LETTERS 124001 (2018), https://iopscience.iop.org/article/10.1088/1748-9326/aae98d/pdf.

64 Florian Rabitz, *Going Rogue? Scenarios for Unilateral Geoengineering*, 84 FUTURES 98 (2016), https://doi.org/10.1016/j.futures.2016.11.001. Some, including Rabitz, have argued that only powerful nations could withstand the resulting political backlash and unilateral implementation could be an impetus for more drastic emissions mitigation, meaning some see this risk in a more positive light.

65 *See* Jean-Daniel Collomb, *U.S. Conservative and Libertarian Experts and Solar Geoengineering: An Assessment*, 14 EUROPEAN J. AMER. STUD. 1 (2019), https://journals.openedition.org/ejas/14717; Linda Feldmann, *Newt Gingrich: Eight of the GOP Ideas Man's More Unusual Ideas*, CHRISTIAN SCI. MONITOR (Dec. 15, 2011), https://www.csmonitor.com/USA/Elections/President/2011/1215/Newt-Gingrich-8-of-the-GOP-idea-man-s-more-unusual-ideas/Using-geo-engineering-to-combat-global-warming.

66 DAVID KEITH, A CASE FOR CLIMATE ENGINEERING 4-5 (2013).

67 James Temple, *Geoengineering Is Very Controversial. How Can You Do Experiments? Harvard Has Some Ideas.*, MIT TECH. REV. (July 2019), https://www.technologyreview.com/2019/07/29/133999/geoengineering-experiment-harvard-creates-governance-committee-climate-change.

68 ANDRÉ GORZ, STRATEGY FOR LABOR: A RADICAL PROPOSAL 7 (1964).

options within it are not mutually exclusive. I simply seek to survey a few prominent plans that address the root causes of climate change.

A. Degrowth

Samuel Alexander, a leading proponent of the degrowth movement, starts from the premise that economic policy must center scientific limits on greenhouse gas emissions, and work backwards from there to live within those limits.[69] Degrowth suggests that the Global North needs to decrease the size of its national economies while prioritizing and improving other indicators of human wellbeing. The Global South would still be given room to grow its economies to ensure that people's basic needs are met. Tim Jackson has argued that a degrowth economy will involve redefining our economy around human flourishing and prosperity rather than the narrow economic lens of welfare.[70]

Degrowth is not without critics on the left. Some have argued from an eco-socialist perspective that degrowth focuses too much on individual action, overlooking the systemic causes of climate change; that degrowth is akin to austerity; and even that degrowth would mean the end of progress.[71] Others have noted the potentially racist undertones of degrowth advocacy, especially if the Global South is not given enough room to grow its economies in proportion to its growing population.[72] As Nancy Fraser put it, "[D]egrowth activists tend to muddy the political waters by conflating what must grow in capitalism—namely, 'value'—with what should grow but can't within capitalism—namely, goods, relations and activities that can satisfy the vast expanse of unmet human needs across the globe."[73]

But degrowth may offer a useful tool for redefining a successful economy by working backward from scientifically-supported ecological limits and prioritizing new indicators of human flourishing rather than infinite growth.

B. Climate Justice and Interconnected Movements

Conventional environmental advocacy has often failed to address environmental racism, defined as the burdens of (1) environmental degradation and climate change and (2) racialized extractive systems, both of which disproportionately harm communities of color.[74] As Maxine Burkett writes,

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[69] Samuel Alexander, *Degrowth and the Carbon Budget: Powerdown Strategies for Climate Stability*, SIMPLICITY INST. (2014), http://simplicityinstitute.org/wp-content/uploads/2011/04/DegrowthandtheCarbonBudgetSamuelAlexander1.pdf.

[70] TIM JACKSON, PROSPERITY WITHOUT GROWTH: FOUNDATIONS FOR THE ECONOMY OF TOMORROW (2d ed. 2017); *see also* Nathan J. Robinson, *Do Economists Actually Know What Wealth Is?*, CURRENT AFFAIRS (Oct. 27, 2016), https://www.currentaffairs.org/2016/10/do-economists-actually-know-what-wealth-is.

[71] Leigh Phillipps, *The Degrowth Delusion*, OPEN DEMOCRACY (Aug. 30, 2019), https://www.opendemocracy.net/en/oureconomy/degrowth-delusion.

[72] Sághalie Latlah, *The Racism of "De-Growth" or "Anti-Growth" Environmentalism*, ORDINARY TIMES (Oct. 3, 2018), https://ordinary-times.com/2018/10/03/the-racism-of-de-growth-or-anti-growth-environmentalism.

[73] Nancy Fraser, *Climates of Capital*, 127 NEW LEFT REV. 94, 126 (2021), , https://newleftreview.org/issues/ii127/articles/nancy-fraser-climates-of-capital

[74] Carmen Gonzalez, *Climate Change, Race, and Migration*, 1 J. L. & POL. ECON. 109 (2020), https://escholarship.org/uc/item/4bw094qc.

> In the imagery the mainstream groups employ, charismatic megafauna (large animals with popular appeal) and remote places have defined climate change. The poor, communities of color, and native communities that are literally crumbling under the current and projected climate impacts have not.[75]

In a similar vein, Carmen Gonzalez critiques narrow approaches to addressing climate displacement and instead seeks to center climate-vulnerable states and peoples in proposed climate solutions.[76]

Climate justice advocates are working toward a "Just Transition," which ensures that decarbonization is achieved while changing other exploitative aspects of our economy, rather than by worsening inequality. The Climate Justice Alliance explains,

> Transition is inevitable. Justice is not. We must build a visionary economy that is very different than the one we now are in. This requires stopping the bad while at the same time as building the new. We must change the rules to redistribute resources and power to local communities. Just transition initiatives are shifting from dirty energy to energy democracy, from funding highways to expanding public transit, from incinerators and landfills to zero waste, from industrial food systems to food sovereignty, from gentrification to community land rights, from military violence to peaceful resolution, and from rampant destructive development to ecosystem restoration. Core to a just transition is deep democracy in which workers and communities have control over the decisions that affect their daily lives.[77]

In other words, false solutions are those that "extract and further concentrate wealth and political power," "continue to poison, displace, and imprison communities," and "reduce the climate crisis to a crisis of carbon."[78]

Nancy Fraser has argued that in order to solve the climate crisis, the environmental movement cannot operate in isolation. Many of the issues of our time intersect because capitalism creates artificial divisions between humans and nature, between social reproduction and economic activity, and between politics and the economy.[79] To fight this phenomenon, "an eco-politics capable of saving the planet must be anti-capitalist and trans-environmental."[80] Fraser's argument is more theoretical than prescriptive, but the Green New Deal offers a real-world example that may fit into her framework of an anti-capitalist environmentalism that transcends environmental issues.

The Green New Deal (GND), championed by the youth climate organization known as the Sunrise Movement,[81] has been introduced in Congress by Representative Alexandria Ocasio-Cortez

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[75] Maxine Burkett, *Climate Disobedience*, 27 DUKE ENV'T. L. & POL'Y F. 1, 13 (2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3303699.

[76] Carmen Gonzalez, *Racial Capitalism, Climate Justice, and Climate Displacement*, 11 OÑATI SOCIO-LEGAL SERIES 108 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3626490.

[77] *Just Transition: A Framework for Change*, CLIMATE JUSTICE ALLIANCE (2016), https://climatejusticealliance.org/just-transition.

[78] *Id.*

[79] *See generally* Fraser, *supra* note 73.

[80] *Id.* at 120.

[81] Lauren Maunus, *Green New Deal Year One: What We're Fighting For*, SUNRISE MOVEMENT: UPRISING NEWS (Jan. 20, 2021), https://www.sunrisemovement.org/movement-updates/green-new-deal-year-1.

and Senator Edward Markey.[82] At its core, the GND aims to solve climate change in conjunction with economic inequality and racism.[83] Its major goals include net-zero emissions by 2050; a federal jobs guarantee; rights to healthy food and clean air and water; and economic development geared toward ending oppression. This would involve a "10-year mobilization" around deploying renewable energy, updating the electricity grid, retrofitting every US building for energy efficiency, and overhauling transportation with massive investments in public transit. The GND also promises to provide support to communities that currently rely heavily on jobs in the fossil fuel industry.[84]

C. Indigenous-Led Innovations

Indigenous groups have long been at the forefront of environmental protection efforts.[85] Public attention has increasingly turned to Indigenous efforts to fight climate change and the placement of dangerous fossil fuel infrastructure on Indigenous lands through the Dakota Access Pipeline,[86] Keystone XL Pipeline,[87] and Line 3 Pipeline[88] protests. Indigenous groups are also disproportionately vulnerable to the effects of climate change because "many of the geographical regions that are most vulnerable to the effects of climate change are also the traditional lands of Indigenous communities."[89]

In response to these and other advocacy efforts, scholars have begun proposing new frameworks for consultation with tribes regarding climate issues and fossil fuel infrastructure.[90] Recommendations for improving consultation include ensuring that all "agency climate change and energy development policies, research, resources, and plans . . . directly and meaningfully address issues related to Indigenous communities in the United States"; "recognize the role and protect the

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[82] Recognizing the Duty of the Federal Government to Create a Green New Deal, H.R. 109, 116th Cong. (2019), https://www.congress.gov/bill/116th-congress/house-resolution/109/text; A Resolution Recognizing the Duty of the Federal Government to Create a Green New Deal, S.R. 59, 116th Cong. (2019), https://www.congress.gov/bill/116th-congress/senate-resolution/59/cosponsors?searchResultViewType=expanded

[83] *See* Alyssa Battistoni, *The Failure of Market Solutions and the Green New Deal*, L. & POL. ECON. BLOG (Mar. 29, 2019), https://lpeproject.org/blog/the-failure-of-market-solutions-and-the-green-new-deal-pt-1; Robert Hockett, *The Green New Deal: What's Green? What's New? What's the Deal?*, L. & POL. ECON. BLOG (Feb. 22, 2019), https://lpeproject.org/blog/the-green-new-deal-whats-green-whats-new-whats-the-deal.

[84] *See generally* Recognizing the Duty of the Federal Government to Create a Green New Deal, H.R. 109, 116th Cong. (2019), https://www.congress.gov/bill/116th-congress/house-resolution/109/text. *See also The Red, Black, and Green New Deal*, MOVEMENT FOR BLACK LIVES (2021), https://redblackgreennewdeal.org (advocating for the belief that "all Black people have the right to determine our own futures; where we can earn a decent living, purchase a home, raise a family and live in a safe community with access to reliable, clean and affordable services" through the Red, Black, and Green New Deal).

[85] Shiham Drissi, *Indigenous Peoples and the Nature They Protect*, UNITED NATIONS ENV'T PROG. (June 8, 2020), https://www.unep.org/news-and-stories/story/indigenous-peoples-and-nature-they-protect.

[86] Rebecca Hersher, *Key Moments in the Dakota Access Pipeline Fight*, NAT'L PUB. RADIO (Feb. 22, 2017, 4:28PM), https://www.npr.org/sections/thetwo-way/2017/02/22/514988040/key-moments-in-the-dakota-access-pipeline-fight.

[87] *Tribes Respond to Keystone XL Pipeline Termination*, NATIVE AM. RIGHTS FUND (June 9, 2021), https://www.narf.org/keystone-xl.

[88] Sheila Regan, *"It's Cultural Genocide": Inside the Fight to Stop a Pipeline on Tribal Lands*, GUARDIAN (Feb. 19, 2021, 5:00 PM), https://www.theguardian.com/us-news/2021/feb/19/line-3-pipeline-ojibwe-tribal-lands.

[89] Rebecca Tsosie, *Indigenous People and Environmental Justice: The Impact of Climate Change*, 78 U. COLO. L. REV. 1625, 1625 (2007).

[90] Elizabeth Kronk Warner, Kathy Lynn & Kyle Whyte, *Changing Consultation*, 54 U.C. DAVIS L. REV. 1127 (2020).

use of traditional knowledge in consultations"; "examine how the impacts of climate change and extractive industries on the quantity and distribution of culturally important species will affect tribal access to and management of these tribal resources, on- and off-reservation,"; and "find direct pathways to strengthen . . . opportunities for co-management" related to "climate change planning and renewable energy."[91] More ambitiously, other scholars have argued for an "Indigenous right to environmental self-determination, which would allow Indigenous peoples to maintain their cultural and political status upon their traditional lands."[92]

In climate litigation more broadly, scholars have suggested that the unique status of Indian Nations through treaty rights and the federal trust responsibility in Federal Indian Law in the United States could help overcome common obstacles faced in climate suits, including barriers like standing and establishing claims under the Administrative Procedure Act.[93] In short, Indigenous-led innovations provide a multitude of ways to fight the climate crisis and promote and uphold tribal sovereignty.

D. International Human Rights Law

Many commentators have noted that international law has largely failed to address the climate crisis. As Carmen Gonzalez puts it:

> The climate treaties have failed to curb global temperature increases, and have delivered insufficient adaptation assistance to climate-vulnerable states and peoples. Even though climate-related disasters and slow-onset events (such as sea level rise) threaten to displace millions of people, international law provides very limited protection to persons who flee their country of origin to escape the ravages of climate change. Neither the 1951 Refugee Convention nor the treaties governing climate change requires countries to admit climate-displaced persons.[94]

But Gonzalez also suggests ways in which international law, especially human rights law, could be used to address climate displacement more justly. In particular, she calls for an "approach to climate displacement grounded in [displaced communities'] collective right to self-determination and to legal continuity as self-governing communities on the territories of other states."[95] This would be made possible by a "responsibility-based framework that imposes obligations on affluent states to finance the mobility decisions of climate-displaced populations based on their contribution to the climate crisis."[96]

In short, as Gonzalez has written elsewhere, "If mitigation, adaptation, and disaster risk reduction are not sufficient to avert displacement, then the leading greenhouse gas-emitting states

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[91] *Id.* at 1180-82.

[92] Rebecca Tsosie, *Indigenous People and Environmental Justice: The Impact of Climate Change*, 78 U. COLO. L. REV. 1625, 1625 (2007).

[93] Noelia Gravotta, *A Great Nation Keeping Its Word: The Role of Tribal Treaty Rights in Climate Change Litigation*, 29 N.Y.U. ENV'T L.J. 118 (2021).

[94] Carmen Gonzalez, *Climate Change and Racial Capitalism*, L. & POL. ECON. BLOG (Oct. 27, 2020), https://lpeproject.org/blog/climate-change-and-racial-capitalism.

[95] *Id.*

[96] *Id.*

have a moral duty to make the victims whole by providing financial compensation, relocation assistance, and a mechanism to finance and facilitate migration."[97]

E. Rights of Nature and Animals

The concept of "rights of nature" posits that "nature has rights just as human beings have rights; rather than treating nature as property under the law, rights of nature cases contend that nature, rivers, forests and ecosystems have the right to exist, flourish, maintain and regenerate their life cycles."[98] Legally, this creates a basis for representation by a guardian who acts in the best interest of the ecosystem, without having to demonstrate legal standing based on human interests.[99] Scholars have attributed the rise of the rights of nature framework to two key factors: (1) "a recent recognition that current environmental law, including the human right to a healthy environment, has failed to address the global ecological crisis and notably climate change," and (2) "indigenous traditions and jurisprudence 'that have always treated humans as part of nature, rather than distinct from it.'"[100] The first rights of nature claim filed in the United States was in the 2017 case *Colorado River Ecosystem v. State of Colorado*, which sought to establish that the Colorado River Ecosystem is a "person" with "rights to exist, flourish, regenerate, be restored, and naturally evolve."[101] Recently, in an effort to prevent the Line 3 Pipeline from being placed on White Earth Nation lands, the Nation used a rights of nature argument in a suit in tribal court against the Minnesota Department of Natural Resources.[102]

Relatedly, animal welfare is an oft-overlooked element of the fight against climate change. Systems that cause the most animal suffering, particularly animal agriculture, are also major drivers of climate change.[103] And climate change is already causing a mass extinction that could lead to not only the loss of over a million species, but also human suffering from resulting loss of food security, soil fertility, and more.[104] Jonathan Lovvorn has argued that the fight against climate change necessitates a "clean food revolution," meaning "shifting the way we conceptualize food—and embracing a new clean and efficient human energy standard—[to] more objectively consider both old and new potential solutions to 'power' the hundreds of millions of people who currently lack food security in the world, and better ensure ample human energy is available for the billions of new human energy consumers joining our ranks by 2050."[105] Such a revolution would necessarily involve

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[97] Carmen G. Gonzalez, *Climate Justice and Climate Displacement: Evaluating the Emerging Legal and Policy Responses*, 36 WIS. INT'L L.J. 366, 396 (2020).

[98] Mary Annette Pember, *"Rights of Nature" Lawsuits Hit a Sweet Spot*, INDIAN COUNTRY TODAY (Aug. 15, 2021), https://indiancountrytoday.com/news/rights-of-nature-lawsuits-hit-a-sweet-spot.

[99] Tiffany Challe, *The Rights of Nature—Can an Ecosystem Bear Legal Rights?*, STATE OF THE PLANET (Apr. 22, 2021), https://news.climate.columbia.edu/2021/04/22/rights-of-nature-lawsuits/#:~:text=According%20to%20the%20%E2%80%9CRights%20of,or%20even%20by%20climate%20change.

[100] Kristen Stilt, *Rights of Nature, Rights of Animals*, 134 HARV. L. REV. F. 276, 278 (2021).

[101] Challe, *supra* note 99.

[102] Pember, *supra* note 98.

[103] Jonathan Lovvorn, *Clean Food: The Next Clean Energy Revolution*, 36 YALE L. & POL'Y REV. 283, 285 n.9 (2018).

[104] Alistair Walsh, *What to Expect from the World's Sixth Mass Extinction*, DEUTCHE WELLE (Jan. 11, 2022), https://www.dw.com/en/what-to-expect-from-the-worlds-sixth-mass-extinction/a-60360245#:~:text=Unlike%20any%20other%2C%20this%20sixth,agriculture%20all%20play%20a%20hand.

[105] Lovvorn, *supra* note 103 at 286.

drastic reductions in the consumption of animal products, which are by far the largest drivers of greenhouse gas emissions from agriculture.[106]

F. Carbon Upsets

In contrast to carbon offsets, which depend on the business-as-usual baseline of our fossil fuel economy, Douglas Kysar has proposed the concept of carbon upsets:

> Rather than award credits based on development that moves us toward a cleaner but still very dirty future, why not award credits to legal and political actions that have more dramatic impact? For instance, rather than bribe fossil fuel companies to stop flaring natural gas, why not reward indigenous groups that entirely block new exploration activities? Rather than transfer money to logging operations for incremental replanting programs, why not award credits to forest-dwelling communities that successfully fight to stop logging altogether? . . . Imagine a world in which global financial giants like Goldman Sachs devote themselves not to the exploitation of dubious arbitrage opportunities . . . but to the identification and promotion of critical political interventions by disempowered voices for sustainability . . . [Carbon upsets] aim[] to disrupt the political and economic inertia of the status quo.[107]

Kysar points out that carbon upsets could even be used to fund environmental advocacy groups that whose campaigns or litigation result in reduced greenhouse gas emissions.[108]

G. Direct Action

A growing subset of climate activists have turned toward nonviolent civil disobedience as a way of furthering their cause.[109] As Maxine Burkett has written in support of these tactics, "The policy tactics of the most prominent environmental groups have . . . involved a significant mismatch between the scale of both the scientific discourse and political dissension on climate change, further justifying for some the need to shift tactics."[110] Burkett concludes that nonviolent civil-disobedience may prove useful to the climate movement, much as it has to many social justice movements that precede it.

V. Conclusion

This primer sought to provide an overview of how neoliberal economics influences climate policy and what alternative models of transformation could offer. It began by outlining how neoliberal economics understands climate change, including through discount rates, uncertainty and

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[106] *Id.* at 298 n.76.

[107] Douglas Kysar, *Not Carbon Offsets, But Carbon Upsets*, GUARDIAN (Aug. 29, 2010), https://www.theguardian.com/commentisfree/cif-green/2010/aug/29/carbon-upsets-offsets-cap-and-trade.

[108] *Id.*

[109] Michelle Nijhuis, *"I'm Just More Afraid of Climate Change Than I Am of Prison,"* N.Y. TIMES (Feb. 13, 2018), https://www.nytimes.com/2018/02/13/magazine/afraid-climate-change-prison-valve-turners-global-warming.html.

[110] Maxine Burkett, *Climate Disobedience*, 27 DUKE ENV'T L. & POL'Y F. 1, 11 (2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3303699.

risk, valuation of statistical lives, resource fungibility, infinite growth, and the elevation of technocracy over democracy. It then discussed carbon pricing, lifestyle changes, and climate risk reporting as examples of neoliberal "solutions" to climate change, and outlined new frontiers of neoliberal climate interventions. It concluded with an overview of a few non-reformist reforms, including direct action, carbon upsets, intersectional movement building for environmental and economic justice, Indigenous-led innovations, international human rights law, rights of nature and animals, and degrowth. These efforts represent a new direction in environmental advocacy that challenges the often-hidden neoliberal assumptions behind prominent climate analyses and policies. Solving the climate crisis may necessitate moving past economic models that are inherently hostile to emissions mitigation and democratic economic transformation.

SUGGESTED READING LIST

Understanding how neoliberalism drives the climate crisis

NAOMI KLEIN, THIS CHANGES EVERYTHING: CAPITALISM VS. THE CLIMATE (2014).

- In this sweeping book, Klein takes aim at the "fiction of perpetual growth on a finite planet," exploring the origins of the idea and its consequences, and then suggesting ways to move beyond it. She argues that capitalism is incompatible with solving the climate crisis, and devotes much of the book to debunking common neoliberal solutions, such as fracked natural gas as a bridge fuel, nonbinding international climate agreements, and cap and trade policies. As she puts it, "Any attempt to rise to the climate challenge will be fruitless unless it is understood as part of a much broader battle of worldviews. Our economic system and our planetary system are now at war." Despite the scale and urgency of the task of changing our economic system, Klein finds hope in the emerging and intertwined youth climate, divestment, and environmental justice movements. These movements envision a more democratic, sustainable alternative to neoliberalism, and their ascendancy could provide an answer to neoliberal climate disaster.

DOUGLAS A. KYSAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY (2010).

- In this seminal critique of the role of neoliberal economics in environmental policy, Kysar defends the traditional, precautionary approach to environmental harms against newer economic efficiency-driven alternatives. The book proceeds in four parts. The first part argues that all-encompassing welfare-maximizing economic approaches leave the political community without a process to independently evaluate economic tools of policy assessment and ask deeper questions about harm and responsibility. The second part outlines the ethical and political issues that are left out of economic modes of policymaking, creating environmental policies bereft of normative dimensions. The second part also discusses the contestable positions taken in foundational modeling decisions: "citizens are invited only to inspect whether government agencies are maximizing the use of their tax dollars according to unexamined rules and techniques of valuation." The third part assess the way non-nationals, future generations, and others outside the political community are treated in

economic models for environmental decisionmaking. The final part explores the precautionary principle as an alternative to efficiency-driven environmental decisionmaking: the principle's "requirement that we pause to consider the environmental consequences of our actions is at bottom a reminder that social choices express a collective moral identity—our identity, an identity that cannot be located within the freestanding optimization logic of economics."

Nancy Fraser, *Climates of Capital*, 127 NEW LEFT REV. 94 (2021), https://newleftreview.org/issues/ii127/articles/nancy-fraser-climates-of-capital.

- Fraser argues that addressing climate change requires a much broader environmental movement, which she terms a "counter-hegemony." First, she argues that capitalism is incompatible with sustainability because capitalism separates an economic realm considered to create value from a separate realm considered to have no value, which includes social reproduction, nature, and public goods. By ignoring the value of nature, capitalism inevitably exploits natural resources to the point of crisis. She then argues that addressing climate change will require addressing the exclusion of social reproduction and public goods from the economic realm, not just nature. Ecological crisis is intermingled with other social crises. She ends by arguing for a trans-environmental movement dedicated to opposing capitalism.

ANDREAS MALM, FOSSIL CAPITAL (2016).

- Malm's historical account of the origins of climate change begins with the rise of steam power in Britain. He argues that steam power was not cheaper or more abundant than earlier sources of power like water mills, but rather allowed capital to better control labor. He traces the transition from animate power, the energy stored in living beings; to flow energy, like wind and water power; to stock energy, the remnants of solar energy from the distant past (also known as fossil fuels). He argues that the transition to fossil fuels is intimately tied to class-based oppression and that solving climate change will require ending capitalism.

Jason W. Moore, *The Capitalocene, Part I: On the Nature and Origins of Our Ecological Crisis*, 2017 J. PEASANT STUD. 1, http://dx.doi.org/10.1080/03066150.2016.1235036.

- Moore argues against the use of the term "anthropocene," which he contends places the blame for climate change on all people rather than on the true source of climate change: capitalism. He advocates for the use of the term "capitalocene" instead. While "anthropocene" perpetuates an artificial division between humans and nature, "capitalocene" better explains the "patterns of power, capital, and nature" that emerged with capitalism and are responsible for our current ecological crisis.

Carmen Gonzalez, *Climate Change and Racial Capitalism*, L. & POL. ECON. BLOG (Oct. 27, 2020), https://lpeproject.org/blog/climate-change-and-racial-capitalism.

- Gonzalez's piece explores how, to borrow her words, "the global capitalist order has used racism to create the conditions for the massive unchecked resource extraction that has

caused global climate change and for pushing the burden of its impacts onto those who are most vulnerable and least responsible." She discusses climate injustice, the failures of international law to address it, and what more just solutions to climate displacement, grounded in self-determination, might look like.

Critiquing neoliberal climate-economy models and cost-benefit analysis

Steve Keen, *The Appallingly Bad Neoclassical Economics of Climate Change*, 2020 GLOBALIZATIONS 1 https://doi.org/10.1080/14747731.2020.1807856.

- Keen outlines the reasons why economists' predictions of damage from climate change tend to be much more optimistic than climate scientists' predictions. He outlines three flawed methods that economists use to model damages: first, assuming that 90 percent of GDP will be unaffected by climate change because the economic activity in question happens indoors; second, using current correlations between temperature and GDP to model future climate change; and third, using surveys to estimate climate damages that are heavily weighted toward economists' perspectives rather than the perspectives of scientists. He concludes that mainstream economic models' climate damage functions are at least an order of magnitude too low.

Robert S. Pindyck, *Climate Change Policy: What Do the Models Tell Us?*, 51 J. ECON. LIT. 860 (2013), https://www.aeaweb.org/articles?id=10.1257/jel.51.3.860.

- Pindyck argues that integrated assessment models (which combine science and economics into a single climate modelling framework) are so full of arbitrary assumptions that they are "close to useless as tools for policy analysis: certain inputs (e.g., the discount rate) are arbitrary, but have huge effects on the SCC [social cost of carbon] estimates the models produce; the models' descriptions of the impact of climate change are completely ad hoc, with no theoretical or empirical foundation; and the models can tell us nothing about the most important driver of the SCC, the possibility of a catastrophic climate outcome." These models therefore "create a perception of knowledge and precision, but that perception is illusory and misleading."

Martin L. Weitzman, Fat-Tailed Uncertainty in the Economics of Catastrophic Climate Change (Harvard Department of Economics, Symposium Paper, 2011), https://scholar.harvard.edu/files/weitzman/files/fattaileduncertaintyeconomics.pdf.

- Weitzman, a climate economist, is critical of the way "[d]eep structural uncertainty about the unknown unknowns of what might go very wrong is coupled with essentially unlimited downside liability on possible planetary damages" in climate economics. He argues that it is difficult to make accurate models of extreme events because there is a race between "how rapidly probabilities are declining and how rapidly damages are increasing." Assumptions about this race are often arbitrary because "it represents events that are very far outside the realm of ordinary experience."

Douglas A. Kysar, *Politics by Other Meanings: A Comment on "Retaking Rationality Two Years Later,"* 48 HOUSTON L. REV. 43 (2011), https://digitalcommons.law.yale.edu/fss_papers/3847.

- Kysar, in response to a lecture by prominent cost-benefit analysis (CBA) proponent Richard Revesz, analyzed recent developments in CBA at the federal level. He critiqued CBA as a form of "politics by other meanings" that makes policy disputes more difficult for average voters to understand. By putting "subjects of ordinary moral and political discourse" into a "stylized cost-benefit vernacular," key questions that democracy should openly debate are instead relegated to technocratic squabbling over modeling assumptions and methods. Kysar explores this development with a case study of the social cost of carbon, which in his view, offers only "deceptively narrow and limited answers to the most fundamental policy questions raised by climate change."

Lisa Heinzerling, *The Rights of Statistical People*, 24 HARV. ENV'T L. REV. 189 (2000), https://scholarship.law.georgetown.edu/facpub/327.

- In this comment, Heinzerling criticizes the tendency of CBA to evaluate life-saving interventions using unidentified statistical people. These "people" are defined as a collection of risks, abstracting away the difficult question of deciding the monetary value of the real people we know and love. While CBA is often used in environmental contexts, we generally do not allow economic profitability to justify killing in other contexts. Heinzerling argues that the use of statistical people helps justify this discrepancy.

Lisa Heinzerling, *Knowing Killing and Environmental Law*, 14 N.Y.U. ENV'T L.J. 521 (2006), https://scholarship.law.georgetown.edu/facpub/326.

- Heinzerling argues that society's broad "moral commitment against knowing killing" should extend to environmental policy. In her view, economic analysis has "de-ethicized" environmental decisionmaking, but the core idea that it is wrong to knowingly kill another human being should still play a role in environmental policy. Cost-benefit analysis obscures the way its treatment of environmental tradeoffs justifies knowing killing of others through environmental harm.

Lisa Heinzerling, *Inside EPA: A Former Insider's Reflections on the Relationship between the Obama EPA and the Obama White House*, 31 PACE ENV'T L. REV. 325 (2014), https://digitalcommons.pace.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1741&context=pelr.

- Heinzerling, an EPA official during the Obama administration and noted critic of cost-benefit analysis in the environmental realm, discusses the relationship between the EPA and the White House's Office of Information and Regulatory Affairs (OIRA). OIRA is responsible for overseeing cost-benefit analysis for all major federal regulations, and Heinzerling highlights the role that OIRA has played in blocking important environmental

regulations. She also criticizes OIRA's review process more broadly, noting that its power is opaque, arbitrary, unaccountable, and in some cases, extra-legal.

Amy Sinden, *The Problem of Unquantified Benefits*, 49 ENV'T L. 73 (2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3087370.

- Sinden takes an empirical approach to critiquing the way CBA often leaves important environmental benefits unquantified. She reviewed 45 CBAs prepared by the EPA for major rules between 2002 and 2015, and found that in 80 percent of them, "EPA excluded categories of benefits that the agency itself described as either actually or potentially 'important,' 'significant,' or 'substantial' because they were unquantifiable due to data limitations." Her research suggests that accurate quantification of environmental benefits is rare, meaning the foundations of CBA as a tool to measure welfare is suspect in the environmental context.

Noah S. Diffenbaugh & Marshall Burke, *Global Warming Has Increased Global Economic Inequality*, 116 PROC. NAT'L ACAD. SCI. 9808 (2019), https://doi.org/10.1073/pnas.1816020116

- Diffenbaugh and Burke study the way that climate change has already affected economic inequality to-date, concluding that "global warming has very likely exacerbated global economic inequality, including ~25% increase in population-weighted between-country inequality over the past half century." This conclusion is important for understanding the interdependence of climate change and economic inequality and growth. While cost-benefit analysis of climate policies compares the benefits of emissions reductions to a counterfactual of continued economic growth in a fossil-fuel-based economy—often justifying continued emissions based on the need to raise standards of living in developing countries—reducing economic inequality will become more difficult in a world of unabated climate change.

<u>Understanding the current neoliberal paradigm in climate policy</u>

Cass R. Sunstein, *Valuing Life: A Plea for Disaggregation*, 54 DUKE L.J. 385 (2004), https://scholarship.law.duke.edu/dlj/vol54/iss2/2.

- Sunstein is perhaps best known as Obama's regulatory czar, a position in which he advocated for extensive cost-benefit analyses of federal policy. In a striking example of the consequences of neoliberal cost-benefit analysis approaches, Sunstein argues that the value of a statistical life (VSL) should be more individuated. VSL is used to account for the value of lives lost in regulatory tradeoffs. Sunstein argues that "VSL should vary across individuals—even or especially if the result would be to produce a lower number for some people than for others . . . [G]overnment should use a higher VSL for programs that disproportionately benefit the wealthy—and a lower VSL for programs that disproportionately benefit the poor." The pursuit of economic efficiency above all else yields arguments that interventions that help poor people should be valued less.

Dylan Matthews, *Can Technocracy Be Saved? An Interview with Cass Sunstein*, VOX (Oct. 22, 2018), https://www.vox.com/future-perfect/2018/10/22/18001014/cass-sunstein-cost-benefit-analysis-technocracy-liberalism.

- This interview with Sunstein gives insight into how he views cost-benefit analysis. As a prominent proponent of CBA and powerful leader of regulatory oversight under President Obama, Sunstein's views are illustrative of the neoliberal mindset behind CBA. In perhaps the most telling passage, the interview asks whether cost-benefit analysis might produce inherently conservative outcomes. Sunstein responds, "I don't think it has a conservative bias. If it ends up going in a conservative direction, that tells us something important. What it tells us is that the conservative view is correct." Sunstein is dismissive of the role of political disagreement in regulation, instead arguing that cost-benefit analysis can generate objectively correct economic answers that exist entirely outside of politics.

Lawrence Summers and Lant Pritchett, *"Dirty" Industries: Just Between You and Me, Shouldn't the World Bank be Encouraging More Migration of the Dirty Industries to the LDCs [Least Developed Countries]?*, WORLD BANK (1991), http://www.personal.ceu.hu/corliss/CDST_Course_Site/Readings_old_2012_files/Our%20Words_%20The%20Lawrence%20Summers%20Memo.pdf.

- In this infamous memo, Summers argues that heavily polluting industries should be located in the least developed countries for three key reasons. First, the "foregone earnings" of the citizens of these countries from morbidity and mortality will be less, making the economic logic of moving toxic waste to those countries "impeccable." Second, under-populated countries are likely "under-polluted" because their air quality is inefficiently high compared to densely populated places like Los Angeles or Mexico City. Finally, wealthier people are more likely to demand a clean environment "for aesthetic and health reasons," in part because wealthier people are more likely to live long enough to worry about things like carcinogens. These arguments demonstrate the consequences of purely economic thinking about environmental wellbeing.

OMB Circular A-4, Regulatory Analysis (Sept. 17, 2003), https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A4/a-4.pdf.

- This guidance from the White House's Office of Management and Budget is a seminal document for the federal government's cost-benefit analysis regime. It outlines best practices for conducting cost-benefit analysis, including many of the biased assumptions and practices criticized by other sources in this bibliography. For instance, it outlines recommended practices for discount rates, valuation of statistical lives, and assumptions about economic growth. The circular is very helpful for understanding how and why CBA is currently conducted at the federal level.

Critiquing neoliberal "solutions" to the climate crisis

William Boyd, *The Poverty of Theory: Public Problems, Instrument Choice, and the Climate Emergency*, 46 COLUM. J. ENV'T L. 399 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3852389.

- Boyd explores the "instrument choice debate" that has dominated environmental law for the past thirty years. The debate focuses on which regulatory instruments will most efficiently reduce greenhouse gas emissions from an economic perspective. But it neglects to consider the role of public engagement and government problem solving in climate policy. Boyd focuses primarily on emissions trading instruments to illustrate these points: emissions trading as a concept originated in the law and economics movement and has constrained the way environmental law thinks about regulation and the capacity for climate action. In many instances, emissions trading simply has not worked in practice, but an environmental law focused solely on instrument choice does not account for the political factors that cause trading schemes to fail. Boyd calls for a more expansive conception of government involvement in emissions reductions in order to address the current climate emergency.

Andreas Malm & Wim Carton, *Seize the Means of Carbon Removal: The Political Economy of Direct Air Capture*, 29 HIST. MATERIALISM 3 (2021), https://doi.org/10.1163/1569206X-29012021.

- Malm and Carton explore the rise of carbon dioxide removal technologies, which remove carbon directly from the atmosphere, in neoliberal policymaking circles. They argue that the technology offers an almost irresistible proposition: undoing the damage of fossil fuel combustion without requiring changes to our economic system. But the technology cannot achieve what it promises. Its intellectual origin is in profound skepticism about our ability to mitigate emissions, creating tremendous risk of moral hazard. And carbon dioxide removal is currently being used in deeply unsustainable ways: in perhaps the most shocking example, captured carbon has been resold to be pumped into depleted oil wells to extract more fossil fuels. Malm and Carton argue for "seizing the means of carbon removal" and "detaching it from its present capitalist perversions." They support using carbon dioxide removal only through public ownership and with concomitant emissions mitigation efforts.

Steffen Böhm, Maria Ceci Misoczky & Sandra Moog, *Greening Capitalism? A Marxist Critique of Carbon Markets*, 33 ORG. STUDS. 1617 (2012), https://journals.sagepub.com/doi/10.1177/0170840612463326.

- Böhm, Miscozsky, and Moog argue that carbon pricing cannot transform our current economic system, but rather is part of a larger capitalist trend of commodifying and expropriating nature. They characterize carbon markets as a new mode of accumulation rather than a way to rein in markets or achieve greater sustainability. They also criticize the way that carbon markets might further disadvantage the Global South as the markets are used to exert further control over emerging economies.

Michael M'Gonigle & Louise Takeda, *The Liberal Limits of Environmental Law: A Green Legal Critique*, 30 PACE ENV'T L. REV. 1005 (2013).

- Michael M'Gonigle and Louise Takeda propose a new field of "green legal theory" meant to explore the ways environmental law can move beyond mere incremental reformism within a capitalist framework. They argue that environmental law itself has come to "embody a liberal economic and political rationality that, today as in the past, limits the conditions of future possibility [and] inherently defines 'green' initiatives so that they support continued economic growth and capital accumulation while excluding consideration of systemic alternatives." Their piece provides a helpful framework for anyone seeking to understand how the entire foundation and workings of environmental law could be reenvisioned to reject the logic of capitalism.

Envisioning transformative solutions

KATE ARONOFF, ALYSSA BATTISTONI, DANIEL ALDANA COHEN, THEA RIOFRANCOS & NAOMI KLEIN, A PLANET TO WIN: WHY WE NEED A GREEN NEW DEAL (2019).

- This book explores the interconnected crises of climate change, racial injustice, and growing economic inequality. Its core argument is that a Green New Deal could address all of these problems at once, while also making climate policy more appealing to everyday Americans. Pairing emissions reductions with immediate economic gains for working-class people and communities of color is the only way to achieve a just transition and build a coalition strong enough to defeat the powerful interests aligned against emissions reductions. A Green New Deal would involve ending fossil fuel use and extraction while also guaranteeing green jobs, housing, and public transit for all.

JEDEDIAH PURDY, AFTER NATURE: A POLITICS FOR THE ANTHROPOCENE (2015).

- Purdy begins with an exploration of the "anthropocene," a new geological era in which nature is affected at every level by human activity. He argues that while scientists have begun to grapple with the meaning of living in the anthropocene, few scholars have explored what the new era means for our politics. Purdy sets out to understand how the anthropocene will influence law, policy, and politics. He delves into U.S. environmental history, including development of the frontier, the Romantics' veneration of wilderness, and today's more utilitarian outlook focused on using nature for human welfare. He connects these traditions to different views on lawmaking, and discusses how these traditions manifest themselves in the physical world (wilderness, farmland, suburbs, etc.). He concludes that the current era presents us with a decision between an environmental politics that is more democratic and one that is more unequal and crueler than what we face today. Purdy argues that deeply collective politics, combined with a worldview that no longer centers humans alone, is the only way to address climate change.

Henry Shue, *Subsistence Emissions and Luxury Emissions*, 15 L. & POL'Y 39 (1993), https://doi.org/10.1111/j.1467-9930.1993.tb00093.x.

- Shue analyzes four key questions about international climate policy: "(1) What is a fair allocation of the costs of preventing the global warming that is still avoidable?; (2) What is a fair allocation of the costs of coping with the social consequences of the global warming that will not in fact be avoided?; (3) What background allocation of wealth would allow international bargaining (about issues like 1 and 2) to be a fair process?; and (4) What is a fair allocation of emissions of greenhouse gases (over the long-term and during the transition to the long-term allocation)?" In answering these questions, he develops a distinction between emissions that support luxury activities and consumption and those that are (currently) necessary for subsistence. Rather than treating all emissions and economic activity equally, as current economic models and cost-benefit analyses do, Shue advocates for prioritizing subsistence emissions.

TIM JACKSON, PROSPERITY WITHOUT GROWTH: FOUNDATIONS FOR THE ECONOMY OF TOMORROW (2d ed. 2017).

- Jackson starts from the premise that, given current ecological constraints, our economy can no longer be organized around the pursuit of infinite growth. He argues for a post-growth economy that redefines prosperity, and he outlines how such an economy would change work, investments, and the role of the monetary supply. He contends that an economy organized around living within our ecological limits could yield better employment protections and social investments, as well as reduced inequality and instability, both environmentally and economically.

Samuel Alexander, *Degrowth and the Carbon Budget: Powerdown Strategies for Climate Stability*, SIMPLICITY INSTITUTE (2014), http://simplicityinstitute.org/wp-content/uploads/2011/04/DegrowthandtheCarbonBudgetSamuelAlexander1.pdf.

- Alexander advocates for a new economic paradigm focused on living within our "carbon budget," defined as the "maximum amount of carbon emissions that can be released into the atmosphere to retain a reasonable chance of keeping global temperature levels below a 2°C temperature rise above pre-industrial levels." Rather than pursuing economic growth, Alexander advocates for degrowth, defined as "an equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions." Degrowth would be pursued in developed nations, while developing nations would still be given room for economic growth to ensure that all essential needs are met. The paper begins with an overview of the carbon budget literature and then outlines the way degrowth strategies could help achieve decarbonization while still supporting human flourishing, if flourishing is redefined outside current economic paradigms of welfare.

Douglas Kysar, *Not Carbon Offsets, But Carbon Upsets*, GUARDIAN (Aug. 29, 2010), https://www.theguardian.com/commentisfree/cif-green/2010/aug/29/carbon-upsets-offsets-cap-and-trade.

- Kysar begins with the story of environmental groups that negotiated a settlement with the Overseas Private Investment Corporation and the Export-Import Bank of the United States to change the way those institutions evaluated the climate impact of the projects they fund. The settlement could have sweeping climate impacts, but the groups that won it received no compensation for their work. Kysar uses this example to argue for a system of "carbon upsets" rather than "carbon offsets." While offsets focus on creating a system of credits sold between polluters to satisfy emissions reductions obligations, carbon upsets focus on legal and political actions with more transformative impacts: "[R]ather than bribe fossil fuel companies to stop flaring natural gas, why not reward indigenous groups that entirely block new exploration activities? Rather than transfer money to logging operations for incremental replanting programs, why not award credits to forest-dwelling communities that successfully fight to stop logging altogether?"

Maxine Burkett, *Climate Disobedience*, 27 DUKE ENV'T L. & POL'Y F. 1 (2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3303699.

- Burkett examines the way that the climate movement has begun using the protest and nonviolent civil disobedience tactics of past American social movements (particularly the anti-slavery and civil rights movements). She first sets out to define the climate movement and then examines the ways its moral questions and goals relate to and differ from past social movements. She concludes by outlining the lessons that the climate movement can learn from the past and arguing that non-violent civil disobedience was often essential to past social change.

J. TIMMONS ROBERTS & BRADLEY PARKS, A CLIMATE OF INJUSTICE: GLOBAL INEQUALITY, NORTH-SOUTH POLITICS, AND CLIMATE POLICY (2006)

- Roberts and Parks explore the inequities at the heart of climate change: while developing nations have contributed the least to global greenhouse gas emissions, they stand to suffer the "worst and first" effects of the climate crisis. International climate negotiations are often stalled by competing notions of climate justice: developing nations want the industrialized nations primarily responsible for climate change to act first, while those industrialized nations demand equal sacrifices from all nations. Roberts and Parks advocate for a broader definition of international climate policy focused on addressing inequality between the Global North and South in the process of reducing emissions.

Winona LaDuke, *What Would Sitting Bull Do?*, L.A. PROGRESSIVE (Aug. 25, 2016), https://www.laprogressive.com/protesting-dakota-access-pipeline/.

- LaDuke, a prominent environmentalist and Indigenous anti-pipeline activist, writes about the Standing Rock Reservation's struggle against Enbridge and the Dakota Access Pipeline. She gives a history of the land, from its fertile biodiversity before colonization to the present day, when 90 percent of timber and 75 percent of wildlife have been eliminated. The loss of these resources impoverished the local Lakota people. LaDuke frames the construction of

the Dakota Access Pipeline as a continuation of a history of pollution, exploitation, and impoverishment, and calls upon Native people to resist environmental exploitation as they have resisted past colonization. At the time the article was written, the viability of the pipeline was uncertain as Tribes brought legal action seeking to stop it. But after recent failures by the Biden administration to stop the pipeline, it is likely to move forward.

Carmen Gonzalez, *Racial Capitalism, Climate Justice, and Climate Displacement*, 11 OÑATI SOCIO-LEGAL SERIES 108 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3626490.

- Gonzalez seeks to expand the definition of climate justice by exploring how environmental harms are linked to racism and the fossil-fuel based capitalist economy. She critiques narrow approaches to addressing climate displacement and instead seeks to center climate-vulnerable states and peoples in proposed climate solutions. Only a "race-conscious analysis of climate change and climate displacement can reveal the commonalities among seemingly distinct forms of oppression in order to forge the alliances necessary to achieve just and emancipatory outcomes."

Gerald Torres & AJ Hudson, *Beyond the Buzzwords: Just Transition*, YALE CTR. FOR BUS. & ENV'T (2021), https://www.beyond-buzzwords.com/just-transition.

- Torres and Hudson discuss the definition of a "just transition" and the origins and aims of the movement that surrounds it, which they trace back to the labor and environmental justice movements. They define the just transition as "both a movement and process to transition our society from an economy that relies on fossil fuels, resource extraction, and labor exploitation to one that is decarbonized, regenerative, and that prioritizes social and ecological wellbeing, equity, and justice." Torres and Hudson emphasize that a just transition is an economic transition, but also one that incorporates deep democracy and procedural justice.

Just Transition Principles, CLIMATE JUSTICE ALLIANCE (June 2018), https://climatejusticealliance.org/wp-content/uploads/2018/06/CJA_JustTransition_Principles_final_hi-rez.pdf

- This guide from the Climate Justice Alliance helps to define a "just transition," offers history and context for the term, and lays out key principles for a just transition. These principles include moving toward "buen vivir," defined as "liv[ing] well without living better at the expense of others"; creating meaningful work; upholding self-determination; equitably redistributing resources and power; advancing regenerative ecological economics; retaining culture and tradition; embodying local, regional, national, and international solidary; and building the world we need now. The guide also outlines how to spot false solutions that do not align with these principles.