

THE BOUNDS OF ENERGY LAW

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INTRODUCTION	2341
I. A MATERIALIST ACCOUNT OF THE FIELD AND ITS FAILINGS	2347
<i>A. New Energy Sources and Uses Emerge: 1850–1930.....</i>	2348
<i>B. New Deal Legal Gap-Filling and the Mid-Century Détente: 1930–1970.....</i>	2353
<i>C. The (Partial) Collapse of the Consensus: 1970–2000.....</i>	2357
<i>D. 1990s–2020: Energy Law Meets Climate Change, First Generation</i>	2361
II. THE CLIMATE CONVERSATION AND THE LIMITS OF EXISTING ENERGY LAW	2366
<i>A. Energy Law and the Decarbonization Imperative.....</i>	2368
<i>B. The End of the Energy Law Silo.....</i>	2373
III. PUSHING THE BOUNDS OF ENERGY LAW	2382
<i>A. Politics and Power as Central to the Analysis</i>	2383
<i>B. Race, Inequality, and Energy.....</i>	2390
<i>C. A Deeper Materiality.....</i>	2395
CONCLUSION	2403

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Abstract: U.S. energy law was born of fossil fuels. Consequently, our energy law has long centered on the material and legal puzzles that bringing fossil fuels to market presents. Eliminating these same carbon-producing energy sources, however, has emerged as perhaps the most pressing material transformation needed in the twenty-first century—and one that energy law scholarship has rightfully embraced. Yet in our admirable quest to aid in this transformation, energy law scholars are largely writing into the field bequeathed to us, proposing changes that tweak, but do not fundamentally challenge, last century’s tools for managing the extraction, transport, and delivery of fossil fuels and electrons. The result, as this Article illustrates, is that we are coming up short in achieving the scale and scope of transformation necessary for planetary stability. The aim of this Article is to push U.S. energy law scholars to expand the bounds of the field in three directions. First, to achieve durable policies that transform the energy system, this Article argues that we must orient more attention to institutions, politics, and power—rather than just substantive solutions—to revive the best of the early-twentieth-century Progressive scholarly tradition. Second, as conversations around the Green New Deal and the relationship of Black Lives Matter to the energy system highlight, there is both a political and moral imperative to shed our disciplinary obsession with economic efficiency and integrate considerations of overlapping societal priorities—most pointedly, racism and inequality—into energy law and policy. Finally, we should expand our idea of what counts as “energy law” beyond the delivery of fossil fuels and electrons, to include a broader and deeper analysis of how energy is embedded and consumed within the economy and society. That means tracing and regulating the flow of energy beyond the point of delivery by examining means of reducing or eliminating fossil fuel consumption across aviation, shipping, automobility, housing, and agriculture. It also means turning our attention to how the law can help build modes of life that better align with a no-carbon future—a new line of inquiry that the Article calls “structural energy conservation.”

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INTRODUCTION

As a field, energy law contains strikingly limited tools for dealing with the major crises of our time. For example, the COVID-19 pandemic tearing through the United States has proven particularly devastating in the Navajo Nation in large part because many homes there still lack electricity and indoor plumbing.¹ U.S. energy law has essentially nothing to say regarding these continued disparities in access. COVID-19 also prompted many states to rush through new laws prohibiting electricity shutoffs during the rapid economic contraction and widespread lockdowns of 2020.² Without these emergency protections, energy law would have permitted shutoffs to surge among the same communities of color most impacted by the virus. By October 2020, however, protections had expired for at least seventy-six million Americans, and today, most states again “have no binding protections from utility shutoffs.”³ These policy decisions have devastating human consequences: a January 2021 study found that a full federal moratorium on utility disconnections from March to November 2020 might have reduced COVID-19 infections by 8.7% and COVID-19-related deaths by 14.8% across the United States.⁴

When it comes to the longer-term crisis of climate change, the equity gaps in energy law are also enormous. Generally, wealthy Americans create more carbon pollution because they own larger homes, consume more luxury goods, and take more airplane flights than other Americans.⁵ This fact means that

¹ Laurel Morales, *Lacking Water and Electricity, Navajo COVID-19 Cases Surge*, KJZZ (Apr. 7, 2020), <https://kjzz.org/content/1514251/lacking-water-and-electricity-navajo-covid-19-cases-surge> [<https://perma.cc/6PKW-T4LN>]; see Warigia M. Bowman, Dikos Nitsaa’igii-19 (“The Big Cough”): Coal, Covid-19, and the Navajo Nation 9 (Aug. 30, 2020) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3686931 [<https://perma.cc/KBS3-LLMD>] (examining “how U.S. energy or mineral extraction policy—particularly regarding coal and uranium—has weakened Navajo health, and may have contributed to the Covid-19 infection crisis on Navajo” (footnote omitted)).

² See GREER RYAN, CTR. FOR BIOLOGICAL DIVERSITY, EXPIRING ELECTRICITY SHUTOFF BANS COULD LEAVE TWO-THIRDS OF STATES WITH NO BINDING PROTECTIONS BY JULY, 88% BY AUGUST 2 (2020), <https://www.biologicaldiversity.org/programs/energy-justice/pdfs/June-23-2020-Issue-Brief-State-Moratoria-on-Electric-ShutOffs.pdf> [<https://perma.cc/49BS-LX92>] (providing an overview of laws initiated by half the states during COVID-19 that prohibited electricity shutoffs for consumers).

³ *Id.* at 1 (emphasis omitted); Michael J. Coren, *Bans on Electricity Shutoffs for 76 Million Americans Are Being Lifted*, QUARTZ, <https://qz.com/1896433/utility-shutoff-bans-for-76-million-americans-are-being-lifted/> [<https://perma.cc/ZBJ7-LYJK>] (Sept. 2, 2020).

⁴ Kay Jowers, Christopher Timmins, Nrupen Bhavsar, Qihui Hu & Julia Marshall, *Housing Precaution & the COVID-19 Pandemic: Impacts of Utility Disconnection and Eviction Moratoria on Infections and Deaths Across US Counties* 1 (Nat’l Bureau Econ. Rsch., Working Paper No. 28394, 2021), <http://www.nber.org/papers/w28394> [<https://perma.cc/GJ4S-SRWN>].

⁵ TIM GORE, OXFAM INT’L, CONFRONTING CARBON INEQUALITY 7 (2020), <https://oxfamlibrary.openrepository.com/bitstream/handle/10546/621052/mb-confronting-carbon-inequality-210920-en.pdf> [<https://perma.cc/K8QN-R4K4>] (“[T]he top 10% richest households globally use around 45% of all

along with the growth of extreme income inequality has come the rise of energy inequality.⁶ Due to this increased inequality, much of our remaining carbon budget risks being “squandered to expand the consumption of the already rich, rather than to improve humanity.”⁷ Yet poor communities within the United States and globally will bear most of the devastating climate-related impacts of these emissions.⁸ Again, U.S. energy law has little to say about this disparity in personal energy consumption and its consequences.

U.S. energy law has also struggled to adequately account for issues of structural power and inequality. Although energy law scholars over the past several decades have made admirable contributions to transitioning away from fossil fuels,⁹ to date we have not matched the pace, scale, or scope of the necessary transformation.¹⁰ Fossil fuel interests continue to hold outsized sway in energy politics and regulation at the state and federal levels, blocking or weakening many worthwhile reform ideas.¹¹

The present-day limitations of U.S. energy law are obvious to many outside the field, including to the numerous young activists who insist that U.S.

the energy linked to land transport, and around 75% of all energy linked to aviation, compared with just 10% and 5% respectively for the poorest 50%.” (footnote omitted)).

⁶ Yannick Oswald, Anne Owen & Julia K. Steinberger, *Large Inequality in International and Intranational Energy Footprints Between Income Groups and Across Consumption Categories*, 5 NATURE ENERGY 231, 232 (2020), <https://www.nature.com/articles/s41560-020-0579-8.pdf> [<https://perma.cc/5ALA-F7XQ>]. Oxfam International calculates that between 1990 and 2015, the emissions of the top 1% rose three times faster than the emissions of the bottom half. GORE, *supra* note 5, at 2.

⁷ Fiona Harvey, *World's Richest 1% Cause Double CO₂ Emissions of Poorest 50%*, *Says Oxfam*, THE GUARDIAN (Sept. 20, 2020), <https://www.theguardian.com/environment/2020/sep/21/worlds-richest-1-cause-double-co2-emissions-of-poorest-50-says-oxfam> [<https://perma.cc/2PSF-RN83>] (quoting Tim Gore, head of policy, advocacy and research at Oxfam International).

⁸ See generally S. Nazrul Islam & John Winkel, *Climate Change and Social Inequality* (U.N. Dep't Econ. & Soc. Affs., Working Paper No. 152, 2017), https://www.un.org/esa/desa/papers/2017/wp152_2017.pdf [<https://perma.cc/UCR7-4ZC3>] (identifying three means by which the impact of climate change is especially worse for the poor, including by increased exposure to climate change, increased susceptibility to damage, and decreased ability to recover).

⁹ See *infra* Part I, Section D (discussing the inroads energy law scholars have recently made and providing examples of innovative ideas).

¹⁰ See *infra* notes 144–153 (describing the current climate crisis and outlining steps needed to address the problem).

¹¹ See *infra* notes 155–161 (outlining the lobbying efforts of utility companies, the fossil fuel industry, and partisan groups to stymie climate change legislation). See generally MATTO MILDENBERGER, CARBON CAPTURED (Sheldon Kamieniecki & Michael E. Kraft eds., 2020) (investigating domestic climate policy in a series of countries and arguing that the success of clean energy policies depends on institutional support); NAOMI ORESKES & ERIK M. CONWAY, MERCHANTS OF DOUBT: HOW A HANDFUL OF SCIENTISTS OBSCURED THE TRUTH ON ISSUES FROM TOBACCO SMOKE TO GLOBAL WARMING (2010) (charting the history of climate change denialism); LEAH CARDAMORE STOKES, SHORT CIRCUITING POLICY: INTEREST GROUPS AND THE BATTLE OVER CLEAN ENERGY AND CLIMATE POLICY IN THE AMERICAN STATES (2020) (examining clean energy policies in the United States and arguing that lobbying from fossil fuel interest groups is central to why these policies failed to gain or maintain traction).

leaders stop treating climate change as a technocratic problem that can be solved within existing legal frameworks and institutions. These activists are demanding that climate change be framed as part of a larger agenda of economic and racial justice. To accomplish this goal, activists call for a Green New Deal (GND)—a federal infrastructure and investment initiative at the scale of the 1930s New Deal—to create integrated solutions to the challenges that Americans of color and working-class Americans face in trying to carve out secure livelihoods on an increasingly precarious planet.¹² These demands are gaining traction in state legislatures¹³ and now in the White House, as President Joe Biden has credited the youth climate movement for helping shape a federal climate agenda that draws heavily from the GND.¹⁴ Nevertheless, moving this agenda from rhetoric to federal-level action remains a challenging task that will require careful, deliberate attention to both the substance and political economy of emerging legislative and executive reform proposals.

Energy law and energy law scholarship in the United States have not adequately embraced this new conversation. In the last few decades, scholarly interest in the field of energy law has intensified, and an expanded number of law schools have begun offering the subject. The impetus for this increased interest is the challenge of ameliorating climate change and its many injustices, which has drawn a new generation of scholars and students to energy law. But, in speaking with colleagues, I know I am not alone in questioning the contours and bounds of this field. When I teach energy law—and as the content of leading energy law textbooks illustrates—it ends up a strange admixture of property law, environmental law, constitutional doctrine, regulated industries, statutory interpretation, and administrative law.¹⁵ I have found that the only way to

¹² See H.R. Res. 109, §§ 1–2, 116th Cong. (2019) (outlining the goals of the joint resolution and introducing the key framework for the GND).

¹³ See David Roberts, *New York Just Passed the Most Ambitious Climate Target in the Country*, VOX, <https://www.vox.com/energy-and-environment/2019/6/20/18691058/new-york-green-new-deal-climate-change-cuomo> [<https://perma.cc/6BGP-Y9U7>] (July 22, 2019); Justin Worland, *California Already Has a Green New Deal. Here's How It Works*, TIME, <https://time.com/5553039/green-new-deal-california/> [<https://perma.cc/5Q5F-ZA8X>] (Mar. 29, 2019, 2:41 PM).

¹⁴ See Adam Aton, *Biden Vows Climate Action in First Speech as Nominee*, E&E NEWS: CLIMATEWIRE (Aug. 21, 2020), <https://www.eenews.net/climatewire/2020/08/21/stories/1063712211> [<https://perma.cc/36L2-DUJH>] (highlighting that youth represent powerful voices on economic, racial, and environmental injustice); Anand Giridharadas, *To Solve Everything, Solve Climate*, THE INK (Anand Giridharadas, New York, N.Y.), Sept. 1, 2020, <https://the.ink/p/to-solve-everything-solve-climate> [<https://perma.cc/6Y5Q-WEQE>] (outlining the impetus and goals of President Biden's climate task force with Sunrise Movement executive director Varshini Prakash).

¹⁵ See LINCOLN L. DAVIES, ALEXANDRA B. KLASS, HARI M. OSOFSKY, JOSEPH P. TOMAIN & ELIZABETH J. WILSON, *ENERGY LAW & POLICY*, at ix–x (2d ed. 2018) (organizing major sections by, inter alia, energy extraction, electricity governance, and energy transportation); JOEL B. EISEN, EMILY HAMMOND, JIM ROSSI, DAVID B. SPENCE, JACQUELINE L. WEAVER & HANNAH J. WISEMAN, *ENER-*

organize this content coherently is to approach it *materially*, tracing energy physically as it moves through stages and spaces. For this reason, in my course, we first tackle energy extraction (mining, drilling, etc.), then energy generation (turning raw materials into electrons), then the movement of energy through space (transmission lines and pipelines), and then finally energy delivery (public utility law).

This Article contends that U.S. energy law scholarship has similarly oriented itself around the historic materiality of energy in ways that constrain the boundaries of the field.¹⁶ U.S. energy law was born of fossil fuels and its development has been largely shaped by the material and legal puzzles associated with bringing these resources to consumers.¹⁷ Eliminating these same carbon-producing energy sources, however, has emerged as perhaps the most pressing material transformation needed in the twenty-first century. Contemporary energy law scholarship embraces this challenge.¹⁸ Yet in the quest to aid in this transformation, energy law scholars are largely writing into the field bequeathed to us by proposing changes that tweak, but do not fundamentally challenge, energy law's supply-side, efficiency-oriented focus. Consequently, we are coming up short in achieving the scale and scope of transformation necessary for planetary stability.

The aim of this Article is to push U.S. energy law scholars to expand the bounds of the field in three directions. First, to achieve durable policies that transform the energy system, the Article argues that we must reorient more attention to politics and power, rather than just substantive solutions, in a revival of the best of the early-twentieth-century Progressive scholarly tradition.¹⁹ Second, there is both a political and moral imperative to shed the disci-

GY, ECONOMICS AND THE ENVIRONMENT, at ix (4th ed. 2015) (providing chapters on various sources of production, electricity regulation, and transportation).

¹⁶ See ROBERT R. NORDHAUS & SAM KALEN, *ENERGY FOLLIES: MISSTEPS, FIASCOS, AND SUCCESSSES OF AMERICA'S ENERGY POLICY* 2 (2018) (“[E]nergy law and regulation enjoy an iterative relationship with discrete events.”); Joseph P. Tomain, *The Dominant Model of United States Energy Policy*, 61 U. COLO. L. REV. 355, 361 (1990) (“[T]he coal, oil, natural gas (and electricity) industries have been regulated separately by tracking each resource through its fuel cycle from production and processing through distribution and marketing.”). For a discussion of British Commonwealth energy law that takes a similar arc, see Raphael J. Heffron & Kim Talus, *The Evolution of Energy Law and Energy Jurisprudence: Insights for Energy Analysts and Researchers*, ENERGY RSCH. & SOC. SCI., Sept. 2016, at 1 (outlining the historical development of energy law to explain its current shape).

¹⁷ See *infra* Part I (outlining the historical development of energy technology and energy law). Cf. Imre Szeman & Dominic Boyer, *Introduction: On the Energy Humanities* to ENERGY HUMANITIES 1 (Imre Szeman & Dominic Boyer eds., 2017) (“We are citizens and subjects of fossil fuels through and through, whether we know it or not.”).

¹⁸ See *infra* Part I, Section D (presenting recent articles from prominent energy law scholars).

¹⁹ See Jedediah Britton-Purdy, David Singh Grewal, Amy Kapczynski & K. Sabeel Rahman, *Building a Law-and-Political-Economy Framework: Beyond the Twentieth-Century Synthesis*, 129 YALE L.J. 1784, 1792 (2020) (arguing for a “law and political economy” approach to legal scholar-

plinary obsession with economic efficiency and integrate considerations of overlapping societal priorities—most pointedly, racism and inequality—into energy law and policy. Finally, and relatedly, we should expand our idea of what counts as “energy law” beyond delivery of fossil fuels and electrons, to include a broader and deeper analysis of how energy is embedded and consumed within the economy and society. This expansion must occur in at least two directions. First, we must trace and regulate the flow of energy beyond the point of delivery by examining means of reducing or eliminating fossil fuel consumption across aviation, shipping, automobility, housing, and agriculture. Second, we must ask how the law can help build modes of life that better align with a no-carbon future—a new line of inquiry that this Article terms “structural energy conservation.”

These ideas share kinship with several budding intellectual movements. Several scholars have observed a convergence in the topics treated by energy and environmental law—a trend that drives my desire to reevaluate the contours and content of energy law itself.²⁰ Energy law scholars, with our focus on financing, siting, and delivering the benefits of key infrastructure, have a unique and valuable perspective to offer in discussions of decarbonization—especially if we can better connect our corner of expertise to a broader set of societal conversations and movements. My goal here is to push for a reconceptualization of the field that more thoroughly embraces the material challenge of climate change and under-addressed issues of power, politics, inequality, and racism that it inexorably implicates.²¹ Of course, energy is but one area of law

ship that proceeds from the understanding “that the economy is always already political in both its origins and its consequences”); K. Sabeel Rahman, *Domination, Democracy, and Constitutional Political Economy in the New Gilded Age: Towards a Fourth Wave of Legal Realism?*, 94 TEX. L. REV. 1329, 1332 (2016) (seeking to revive the Progressive concept of a “democratic political economy”).

²⁰ See, e.g., Todd S. Aagaard, *Energy-Environment Policy Alignments*, 90 WASH. L. REV. 1517, 1518–20 (2015); Lincoln L. Davies, *Alternative Energy and the Energy-Environment Disconnect*, 46 IDAHO L. REV. 473, 475–76 (2010); Jody Freeman, *The Uncomfortable Convergence of Energy and Environmental Law*, 41 HARV. ENV'T L. REV. 339, 340 (2017); Alexandra B. Klass, *Climate Change and the Convergence of Environmental and Energy Law*, 24 FORDHAM ENV'T L. REV. 180, 182 (2012).

²¹ For other energy law scholars who have made inroads here, see generally Deborah Behles, *From Dirty to Green: Increasing Energy Efficiency and Renewable Energy in Environmental Justice Communities*, 58 VILL. L. REV. 25 (2013) (equity-enhancing clean energy policy); Eric Biber, *Cultivating a Green Political Landscape: Lessons for Climate Change Policy from the Defeat of California's Proposition 23*, 66 VAND. L. REV. 399 (2013) (California's progressivity on climate issues); Eric Biber, Nina Kelsey & Jonas Meckling, *The Political Economy of Decarbonization: A Research Agenda*, 82 BROOK. L. REV. 605 (2017) (politics and power); William Boyd, *Public Utility and the Low-Carbon Future*, 61 UCLA L. REV. 1614 (2014) (possibilities for a broader understanding of public utility); Alice Kaswan, *A Broader Vision for Climate Policy: Lessons from California*, 9 SAN DIEGO J. CLIMATE & ENERGY L. 83 (2018) (justice considerations); Felix Mormann, *Clean Energy Equity*, 2019 UTAH L. REV. 335, <https://dc.law.utah.edu/cgi/viewcontent.cgi?article=1205&context=ulr> [<https://perma.cc/94NZ-HCFF>] (incorporating equity); Uma Outka, *Fairness in the Low-Carbon Shift*:

that must be reckoned with, and I am indebted to the work of legal scholars across subject areas who are using this pivotal political moment to revisit these interrelationships within and across legal fields.²²

In developing this Article's proposed expansions to energy law, I am also aided by the rich literatures that have developed in social science and the energy humanities regarding what the study of energy should encompass. As these literatures help illustrate, our understandings of what energy *is* and how we relate to it are as much cultural as scientific.²³ The transformation of our energy system is therefore likely to require a far greater transformation of ourselves and our institutions than energy law has contemplated to date.

Many of the critiques leveled here at the narrowness of energy law scholarship also apply to energy policy-making as a whole, however, this Article focuses on legal scholarship for a key reason. As I see it, lawyers and policy-makers on the ground can be forgiven and sometimes applauded for pursuing compromises and policies of expediency that secure incremental change. We are likely to see many reforms in this vein soon. The Biden Administration's ambitious climate goals are already butting up against a bare Democratic majority in Congress, creating pressure for compromise measures that make modest in-roads on climate change while reversing the worst of the Trump Administration's deregulatory initiatives.²⁴ Good, speedy lawyering will be critical in securing these important short-term changes.

Learning from Environmental Justice, 82 BROOK. L. REV. 789 (2017) (justice issues raised by clean energy transition); Shelley Welton & Joel Eisen, *Clean Energy Justice: Charting an Emerging Agenda*, 43 HARV. ENV'T L. REV. 307 (2019) (similar clean energy justice issues).

²² See generally MEHRSA BARADARAN, *THE COLOR OF MONEY: BLACK BANKS AND THE RACIAL WEALTH GAP* (2017) (discussing racial wealth gap and banking); PAUL BUTLER, *CHOKEHOLD: POLICING BLACK MEN* (2017) (detailing how the legal system is set up against Black men); RICHARD ROTHSTEIN, *THE COLOR OF LAW: A FORGOTTEN HISTORY OF HOW OUR GOVERNMENT SEGREGATED AMERICA* (2017) (discussing history of racism in housing and land use policies); TIM WU, *THE CURSE OF BIGNESS: ANTITRUST IN THE NEW GILDED AGE* (2018) (reframing antitrust as a field concerned with "bigness" and political power, rather than just "consumer welfare"); Amna Akbar, Sameer M. Ashar, & Jocelyn Simonson, *Movement Law*, 73 STAN. L. REV. 821 (2021) (calling for more scholarship that works in tandem with social movements to open new avenues for justice); Monica C. Bell, *Policing Reform and the Dismantling of Legal Estrangement*, 126 YALE L.J. 2054 (2017) (framing the problem of policing in Black communities as one of "legal estrangement"); Britton-Purdy et al., *supra* note 19 (suggesting a framework for legal scholarship to focus on equality, power, and democracy); Rahman, *supra* note 19 (discussing ways to respond to inequality today); Ganesh Sitaraman, *The Puzzling Absence of Economic Power in Constitutional Theory*, 101 CORNELL L. REV. 1445 (2016) (urging constitutional scholars to consider the politics of "elite economic domination").

²³ See, e.g., Matthew Huber, *Theorizing Energy Geographies*, 9 GEOGRAPHY COMPASS 327, 328 (2015) ("Energy underpins the basic aspects of social life—food, mobility, consumption, and the geographies of home and work.").

²⁴ See Press Release, The White House Briefing Room, FACT SHEET: The American Jobs Plan (Mar. 31, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/> [<https://perma.cc/4U3X-APRA>] (outlining the goals for the American Jobs

In contrast, energy law scholars—in our freer role as intellectuals—bear the burden and privilege of thinking bigger and bolder, asking how we can advance a set of durable reforms on par with the scale of the climate change crisis rather than the political moment. This Article is an attempt to sketch a blueprint in that direction and is intended to be an invitation for collaboration in the effort. Admittedly, the link between scholarship and action is at best slow and iterative and is often perceived as tenuous.²⁵ But a better grounding of our scholarship in the present material reality of the planet, and the social reality of our times, should strengthen its potential as a catalyst for change.

Because there is limited writing on the development of energy law as a legal field and scholarly discipline, Part I begins with a historical sketch of the topic as frequently conceptualized and taught to date.²⁶ Part II then describes how climate change complicates the field of energy law both practically and intellectually, and thus demands a rapid transformation in our relationship to energy and to each other that reforms to date have been insufficient to achieve.²⁷ Finally, Part III lays out my proposed expansions for the field, which build from the exigencies of responding to climate change rather than from the historical, material roots of the field.²⁸

I. A MATERIALIST ACCOUNT OF THE FIELD AND ITS FAILINGS

Just what is energy law? In the latter part of the Article, I make the case for reimagining the contours and content of the field. But first, this Part sketches the history of energy law as typically, and more narrowly, conceived to date.

Plan); Geof Koss & Timothy Cama, *Senate Inks Highway Deal as Parties Split on Broader Package*, E&E NEWS: E&E DAILY (May 24, 2021), <https://www.eenews.net/eedaily/2021/05/24/stories/1063733303> [<https://perma.cc/P583-UYMS>] (describing how President Biden proposed \$2.2 trillion in infrastructure spending in his March 2021 American Jobs Plan, but reduced the figure by May to \$1.7 trillion in an effort to achieve bipartisan compromise). Progressives have critiqued even the initial plan as considerably more tepid than President Biden's campaign promises regarding infrastructure spending. Adam Aton, *It's Green and It's New. But Biden's Deal Aims for the Center*, E&E NEWS: CLIMATEWIRE (Apr. 1, 2021), <https://www.eenews.net/climatewire/2021/04/01/stories/1063729009> [<https://perma.cc/SMQ2-DNK9>].

²⁵ See, e.g., Pierre Schlag, *Spam Jurisprudence, Air Law, and the Rank Anxiety of Nothing Happening (A Report on the State of the Art)*, 97 GEO. L.J. 803, 805–06 (2009). Activist-scholars might take perverse heart from recent work excavating the deep links between early scholars of neoliberalism and the ongoing, multi-decade, largely successful political project they helped to spawn. See generally WENDY BROWN, IN THE RUINS OF NEOLIBERALISM: THE RISE OF ANTIDEMOCRATIC POLITICS IN THE WEST (2019); NANCY MACLEAN, DEMOCRACY IN CHAINS: THE DEEP HISTORY OF THE RADICAL RIGHT'S STEALTH PLAN FOR AMERICA (2017); QUINN SLOBODIAN, GLOBALISTS: THE END OF EMPIRE AND THE BIRTH OF NEOLIBERALISM (2018).

²⁶ See *infra* Part I.

²⁷ See *infra* Part II.

²⁸ See *infra* Part III.

This Part illustrates how energy's material characteristics deeply inform energy law doctrine and scholarship. U.S. energy law is shaped around the particular characteristics of dominant energy sources as they emerge, rise, and sometimes fall.²⁹ Thus, in the history of energy law, three energy sources feature centrally: oil, gas, and electricity—largely fired by coal, until recently. The arc of energy law devotes itself primarily to remedying evolving challenges in the production, transportation, and delivery of these fuels. This Part broadly outlines several of the field's core theoretical and doctrinal developments and points out some of these developments' limitations. Section A relates the emergence of certain fuel sources and the birth of public utility companies.³⁰ Section B delves into the New Deal and its implications for energy law.³¹ Section C discusses trends that emerged in the later part of the twentieth century, including the environmental movement and deregulation.³² Finally, Section D considers how the field has grappled so far with growing concern over climate change.³³

A. New Energy Sources and Uses Emerge: 1850–1930

The birth of U.S. energy law can be traced to the late 1800s, the period when the country began extracting hydrocarbons from the earth in earnest to fuel rapid industrialization.³⁴ Before this time, the nation was largely powered by hydropower and wood, with limited need for attendant legal doctrines.³⁵ By the end of the nineteenth century, coal was the dominant fuel source in American industry and daily life.³⁶ The oil and gas industries also emerged during

²⁹ See, e.g., Kenneth A. Manaster, *An Introductory Analysis of Energy Law and Policy*, 22 SANTA CLARA L. REV. 1151, 1152–53 (1982) (suggesting that the development of energy law has proceeded fuel by fuel and controversy by controversy); Tomain, *supra* note 16, at 361 (providing an analysis of how energy policy has developed alongside each fuel's development). Other scholars have made concordant observations, albeit not necessarily with a critical slant. See Manaster, *supra*, at 1152–53; Tomain, *supra* note 16, at 361.

³⁰ See *infra* Part I, Section A.

³¹ See *infra* Part I, Section B.

³² See *infra* Part I, Section C.

³³ See *infra* Part I, Section D.

³⁴ See BARBARA FREESE, *COAL: A HUMAN HISTORY* 137 (2003) (describing transition from wood to coal between 1850 and 1900); William J. Novak, *Law and the Social Control of American Capitalism*, 60 EMORY L.J. 377, 379 (2010) (dating the emergence of modern capitalism to the period from 1877 to 1932); Tomain, *supra* note 16, at 355 (outlining how U.S. energy policy-makers have oriented the field towards efficiency since its inception); *Hydrocarbon*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/hydrocarbon> [<https://perma.cc/AZJ9-TMFN>] (defining hydrocarbons as “organic compound[s] . . . containing only carbon and hydrogen and often occurring in petroleum, natural gas, coal, and bitumens”).

³⁵ NORDHAUS & KALEN, *supra* note 16, at 8, 11. During this time, Congress authorized dams on navigable waters through individual statutes. *Id.*

³⁶ See FREESE, *supra* note 34, at 137.

this same period, with the nation's first commercial well drilled in 1859 in Pennsylvania.³⁷

These emerging fuels gave rise to new legal puzzles and doctrines. Some of the earliest legal battles revolved around property rights with disputes centered on who could lay claim to the new riches coming from underground. With coal—a rock that remains in place until removed by considerable labor—these queries proved simple to answer under traditional notions of property. Coal mining, however, often left behind devastated landowners, whose land and homes could fissure, sink, and cave in once the support of underground coal stores was removed.³⁸ The common law regarding such subsidence ostensibly protected surface landowners from collapses and other surface damage caused by mineral rights holders.³⁹ In practice, however, enforcement of these rights proved difficult and courts tended to construe waivers of subjacent support liberally.⁴⁰ Thus, as coal became king, landowners, neighbors, and laborers found limited recourse in the law against its destructive potential.⁴¹

For slippery oil and invisible gas, property doctrines proved more complex because these fuels could migrate underground from one person's property to another's when drilled.⁴² A new theory was necessary for these fossil fuels, and the solution state courts across the country struck upon was the "law of capture."⁴³ In brief, this doctrine holds that whoever captures oil or gas—that is, has it in his possession by extracting it from the earth—owns it, even if

³⁷ Owen L. Anderson, *Foreword: The Evolution of Oil and Gas Conservation Law and the Rise of Unconventional Hydrocarbon Production*, 68 ARK. L. REV. 231, 231–32 (2015).

³⁸ See Wendy B. Davis, *Out of the Black Hole: Reclaiming the Crown of King Coal*, 51 AM. U. L. REV. 905, 928 (2002) (describing subsidence as a phenomenon that occurs when the land sinks or shifts due to the removal of underlying coal).

³⁹ See Terrence O'Brien, Comment, *Subsidence Regulation*, 6 LAND & WATER L. REV. 543, 543–44 (1971) (outlining the rights granted to the owner of a property from which coal is removed).

⁴⁰ See Robert E. Beck, *Protecting the Public Interest or Surface Owners from Their Own Folly?: A Close Look at "Preventing" Subsidence Under the Surface Mining Control and Reclamation Act of 1977 (SMCRA)*, 21 S. ILL. U. L.J. 391, 398–99 (1997) (noting how courts gradually construed ever-vaguer language as adequate waiver); Davis, *supra* note 38, at 917 (explaining how, "[a]fter selling their mineral rights for pennies," surface land property owners were often surprised by the degree to which coal companies gained co-extensive rights to use and abuse the surface).

⁴¹ See THOMAS G. ANDREWS, *KILLING FOR COAL: AMERICA'S DEADLIEST LABOR WAR* 87–156 (2008) (detailing working conditions in turn-of-the-century coal mines); Davis, *supra* note 38, at 918–19 (describing how coal operators were granted superior rights to surface owners by courts).

⁴² D. Edward Greer, *The Ownership of Petroleum Oil and Natural Gas in Place*, 1 TEX. L. REV. 162, 163 (1923) (discussing early cases differentiating oil and gas from "solid minerals").

⁴³ See Note, *Nature of A Landowner's Right to Natural Gas*, 7 HARV. L. REV. 369, 370 (1894) (outlining decisions that implicated the law of capture); Note, *Rights of Access to Underlying Strata of the Earth's Surface*, 7 HARV. L. REV. 47, 47–48 (1893) (discussing cases regarding whether rights to coal also gave rights to underlying oil).

most of what was extracted originated under someone else's land.⁴⁴ And with that, the race to drill was on.

Near the end of the nineteenth century, a new technology emerged that would revolutionize American domestic and industrial life: electricity.⁴⁵ At first, the clamor to provide electricity caused a rush of competition between rival firms. Firms strung duplicative wires haphazardly across cities, competing to win local franchises and trying to cherry-pick the most lucrative customers.⁴⁶ Later, certain firms assumed dominant market shares, creating monopoly conditions that allowed the firms to exploit consumers.⁴⁷

These new material conditions forced an intense intellectual and practical legal battle over who should control the delivery of electricity, along with other key goods, and how.⁴⁸ Some Progressive scholars advocated for municipal ownership of utilities that would each serve entire cities or regions.⁴⁹ Other scholars called for the creation of state-level public utility commissions designed to oversee and regulate the rates of private monopoly utilities.⁵⁰

The terms of this debate were much more public-oriented than were earlier battles over property rights. The theme animating these conversations was how best to tame the giant corporations that industrialization and agglomera-

⁴⁴ James W. Coleman, *The Third Age of Oil and Gas Law*, 95 IND. L.J. 389, 391 (2020); see Bruce M. Kramer & Owen L. Anderson, *The Rule of Capture—An Oil and Gas Perspective*, 35 ENV'T L. 899, 899 (2005) (describing the rule of capture as “an integral part of oil and gas law since the completion of the first commercial oil well”). Coleman describes how oil and gas leases were an important complementary legal development at this time. See Coleman, *supra*, at 401–06 (explaining how these leases spread the risk a productive or nonproductive well to the landowner and the oil company).

⁴⁵ See DAVID E. NYE, *ELECTRIFYING AMERICA: SOCIAL MEANINGS OF A NEW TECHNOLOGY, 1880–1940*, at 391 (1990) (describing the transformative effect of electricity in the United States).

⁴⁶ *Id.* at 141.

⁴⁷ See RICHARD F. HIRSH, *POWER LOSS: THE ORIGINS OF DEREGULATION AND RESTRUCTURING IN THE AMERICAN ELECTRIC UTILITY SYSTEM* 13 (1999) (describing how utilities evolved from small local entities “into giant, centralized electric power corporations” during the 1890s–1900s).

⁴⁸ Novak, *supra* note 34, at 397 (“[T]he central question was what new forms of control would arise to contain and regulate the new concentrations and organizations of economic power.”).

⁴⁹ See, e.g., DANIEL T. RODGERS, *ATLANTIC CROSSINGS: SOCIAL POLITICS IN A PROGRESSIVE AGE* 135–36, 148–49 (1998) (noting that municipalization was a major issue in mayoral campaigns in New York City, Detroit, Chicago, San Francisco, and Cleveland, among others); Edward F. Dunne, *Our Fight for Municipal Ownership*, THE INDEPENDENT, Oct. 1906, at 927 (“In recent years perhaps no subject has engrossed so much of the attention of the public in the great cities of this country . . . as the question of ownership and operation by the public of public utilities.”).

⁵⁰ See Forrest McDonald, *Samuel Insull and the Movement for State Utility Regulatory Commissions*, 32 BUS. HIST. REV. 241, 250–51 (1958) (describing the importance of a 1907 National Civic Federation report in tilting opinions towards state commission regulation); Shelley Welton, *Public Energy*, 92 N.Y.U. L. REV. 267, 285–89 (2017) (describing the historical debate between proponents of municipal ownership and proponents of commission control of private utilities).

tion had wrought.⁵¹ The consumer interest, writ large, was pitted against the impulses of these corporate giants to take advantage of everyday people.⁵² In the end, largely due to distrust of corrupt local governments,⁵³ state public utility regulation won the day and every state in fairly rapid succession established a commission to regulate a number of private service providers as public utilities, including electricity, natural gas, railroads, and telephone service.⁵⁴ In exchange for a monopoly service territory, these utility companies agreed to provide safe and adequate service to all customers within the territory at commission-determined “just and reasonable” rates.⁵⁵

Public utility law presented a sweeping new theory of the interrelationship between state and market actors rooted in a hierarchy in which public needs trumped profit motives and laissez-faire economics.⁵⁶ And it was a theory put into action: commissions proved largely successful in their mission of

⁵¹ See THOMAS C. LEONARD, *ILLIBERAL REFORMERS: RACE, EUGENICS & AMERICAN ECONOMICS IN THE PROGRESSIVE ERA* 4 (2016) (“Between 1895 and 1904, a sweeping merger movement consolidated scores of American industries: 1,800 major industrial firms disappeared into 157 mergers.”); Novak, *supra* note 34, at 393 (“[P]rogressives increasingly considered monopoly and the concentration of economic interests as a problem in and of themselves . . .”).

⁵² Boyd, *supra* note 21, at 1649; see Novak, *supra* note 34, at 392 (describing how this system was explicitly advanced).

⁵³ See HIRSH, *supra* note 47, at 19 (outlining how state legislatures made reforms to rectify corruption in local government). Many scholars also suggest that the utilities supported state regulation as an alternative to public ownership, helping forge a “consensus” around state commissions. See *id.* at 23–24; Robert L. Bradley, Jr., *Introduction: The Origins and Development of Electric Power Regulation to THE END OF A NATURAL MONOPOLY: DEREGULATION AND COMPETITION IN THE ELECTRIC POWER INDUSTRY* 43, 56 (Peter Z. Grossman & Daniel H. Cole eds., 2003); Boyd, *supra* note 21, at 1642.

⁵⁴ See HIRSH, *supra* note 47, at 19 (describing the rise of utility regulation based on the passage of model laws). For a longer recounting of this history, see Boyd, *supra* note 21, at 1636–51. William Novak explains how railroad regulation was really the driving force behind public utility law. See William J. Novak, *The Public Utility Idea and the Origins of Modern Business Regulation*, in *CORPORATIONS AND AMERICAN DEMOCRACY* 139, 160–61 (Naomi R. Lamoreaux & William J. Novak eds., 2017) (presenting “the railroad problem” that suddenly faced the Supreme Court and the federal government during the late nineteenth century).

⁵⁵ Boyd, *supra* note 21, at 1619, 1641–42 (describing key elements of early exemplar state public utility statutes). “Just and reasonable” is a term of art that anchors most public utility statutes; it describes the standard for regulated prices that public utility companies charge and the companies’ corresponding duty to uphold that standard. *Id.* The Supreme Court case *Munn v. Illinois*, which upheld price regulation of Chicago’s grain elevators as constitutional, laid the legal foundation for this regulatory innovation. 94 U.S. 113 (1877); see also Boyd, *supra* note 21, at 1637 (explaining *Munn*’s importance).

⁵⁶ See Boyd, *supra* note 21, at 1616 (calling the innovation of public utility “among the most powerful and evocative in American law”); Novak, *supra* note 34, at 399 (describing the idea of the public utility as emerging from the trend against monopolies and for public service). As David Spence and Robert Prentice have detailed, Progressive control over the oil industry proceeded not through commissions, but rather through antitrust law. See David B. Spence & Robert Prentice, *The Transformation of American Energy Markets and the Problem of Market Power*, 53 B.C. L. REV. 131, 135–36 (2012) (outlining how the Sherman Act was used against Rockefeller’s Standard Oil).

providing affordable electrical service and other public goods to those living within the territories of regulated utilities.⁵⁷ Also notable, however, is what public utility regulation—this grand innovation born of Progressive scholars’, politicians’, and activists’ desire to elevate the masses⁵⁸—did not do. Public utility law might require utility companies to serve all customers within their territory, but it did not force utilities to operate in areas they chose not to.⁵⁹ Consequently, vast rural swaths of the country remained unserved.⁶⁰

Other scholars today critique Progressives for vaunting technocracy over democracy, pointing out the ways in which their reforms carved out a prominent role for experts by adjudicating the so-called “public interest” through institutions, such as public utility commissions.⁶¹ Legal historian William Novak contests this characterization, arguing that the turn to commissions was *pro*-democratic—an experiment in new ways to elevate the needs of the broader populace over the interests of businesses that dominated the political institutions of the era.⁶² Nevertheless, Progressives’ reliance on independent commissions to control energy delivery created an ongoing conundrum regarding what role the public should play in these technically-oriented adjudicatory bodies.⁶³

⁵⁷ See HIRSH, *supra* note 47, at 55 (explaining that by the end of World War II, utility customers in the United States were able to enjoy the benefits of “ever-cheaper electricity”). For the sake of space, I am glossing over several other commission-related reforms during this era that aimed to control market power, including the Hepburn Act, the Interstate Commerce Commission, and the Federal Trade Commission. See Tomain, *supra* note 16, at 359.

⁵⁸ See John Burns, *Municipal Ownership a Blessing*, THE INDEPENDENT, Feb. 1906, at 449 (advocating municipal ownership of electricity as a tool for “dispers[ing] the ghettos of poverty, the slums of misery and the Alsatias of vice”); NYE, *supra* note 45, at 156–57 (explaining that electricity was the case of many contradictions, including both economic growth and unemployment).

⁵⁹ See Shelley Welton, *Clean Electrification*, 88 U. COLO. L. REV. 571, 614 (2017); see also NYE, *supra* note 45, at 292, 308; Bruce Wyman, *The Obligations of Public Services to Make Connections*, 22 HARV. L. REV. 564, 571 (1909) (remarking that those who provide a designated service need not go beyond the service they have committed to provide).

⁶⁰ NYE, *supra* note 45, at 287 (“[B]y the end of the 1920s, . . . 90 percent of the farmers in the United States could not get distribution lines to their homes and those few who did often paid double the urban rate.”).

⁶¹ LEONARD, *supra* note 51, at 38 (“University-certified experts advised or served the administrative state in the fourth branch of government . . . in the name of an expert-identified common good.”).

⁶² See William J. Novak, *The Progressive Idea of Democratic Administration*, 167 U. PA. L. REV. 1823, 1837–47 (2019).

⁶³ See William T. Gormley, John Hoadley & Charles Williams, *Potential Responsiveness in the Bureaucracy: Views of Public Utility Regulation*, 77 AM. POL. SCI. REV. 704, 705 (1983) (analyzing the policy implications of public utility responsiveness). See generally David Arkush, *Democracy and Administrative Legitimacy*, 47 WAKE FOREST L. REV. 611 (2012); Reeve T. Bull, *Making the Administrative State “Safe for Democracy”: A Theoretical and Practical Analysis of Citizen Participation in Agency Decisionmaking*, 65 ADMIN. L. REV. 611, 617, 622 (2013); Mariano-Florentino Cuéllar, *Rethinking Regulatory Democracy*, 57 ADMIN. L. REV. 411, 470 (2005); Wendy Wagner, *The Participation-Centered Model Meets Administrative Process*, 2013 WIS. L. REV. 671.

Certain Progressive reformers also carried disturbing ideological baggage. Several key intellectuals behind the public utility movement were decidedly racist, and some to the point of supporting race-based immigration policies, race- and gender-based workplace exclusions, and eugenics.⁶⁴ This does not necessarily invalidate their regulatory innovations.⁶⁵ But it does, perhaps, explain something about the choice of commissions as a regulatory tool. By giving commissions the authority to set rates for private companies, public utility law focused on keeping energy prices low for the deserving poor—that is, those whose station in society afforded them the means to pay for it.⁶⁶

B. New Deal Legal Gap-Filling and the Mid-Century Détente: 1930–1970

By the 1930s, several material problems with the earlier phase of U.S. energy law caught the attention of lawmakers and scholars. The first was the yawning divide in urban and rural electrification rates. Whereas urban dwellers considered electricity a commonplace necessity by this time, ninety percent of farms still lacked access to this essential resource.⁶⁷ Progressives needed a new legal solution for this challenge because rate regulation could not force the expansion of utilities' service territories.⁶⁸

Laws adopted in the 1930s facilitated rural electrification through a two-pronged strategy. First, the Rural Electrification Act provided loans to self-

⁶⁴ LEONARD, *supra* note 51, at xi (describing how the Progressive campaign of labor reform excluded “the disabled, immigrants, African Americans, and women from the American work force, all in the name of progress”); *id.* at xii (noting that Richard T. Ely and John R. Commons, both influential figures in the public utility scholarship, supported theories of “race suicide,” purporting that “racially inferior immigrants, by undercutting American workers’ wages, outbred and displaced their Anglo-Saxon betters”). For more on Ely and Commons and their contributions to the public utility debates, see Boyd, *supra* note 21, at 1654–57; Novak, *supra* note 34, at 392; RODGERS, *supra* note 49, at 148–59.

⁶⁵ See Herbert Hovenkamp, *The Progressives: Racism and Public Law*, 59 ARIZ. L. REV. 947, 949 (2017) (agreeing that many Progressives were racist but defending them on the grounds that “Progressives inherited these views, and they were not appreciably different from those held by most of their non-Progressive predecessors and contemporaries”).

⁶⁶ *Cf.* BLAKE EMERSON, *THE PUBLIC’S LAW: ORIGINS AND ARCHITECTURE OF PROGRESSIVE DEMOCRACY* 67 (2019) (observing Progressives’ “poor record on questions of racial equality, with policies aimed at advancing labor and the middle class often advancing side by side with the perpetuation and deepening of the racial caste system” (footnote omitted)); HIRSH, *supra* note 47, at 11 (“Customers had a responsibility as well—to pay rates high enough to guarantee the financial wherewithal of the power firms.”).

⁶⁷ NYE, *supra* note 45, at 287; see DAVID E. NYE, *CONSUMING POWER: A SOCIAL HISTORY OF AMERICAN ENERGIES* 171 (1999) (reporting that from 1905 to the 1930s, wired houses jumped from fewer than 10% to 75%).

⁶⁸ NYE, *supra* note 45, at 304. President Franklin D. Roosevelt considered rural electrification a key component of a New Deal reform agenda. *Id.*

organized cooperatives to build their own electricity networks.⁶⁹ Second, the Tennessee Valley Authority Act authorized large-scale, federally-built-and-owned infrastructure, particularly hydropower dams, to provide cheap electrical power to communities that constructed their own delivery systems.⁷⁰ Although utilities resisted these plans, many large corporations supported them as a strategy to increase consumer demand for electric appliances.⁷¹ These legal strategies proved exceedingly successful in communities that were capable of capitalizing on them—within twenty years, cooperatives had wired ninety percent of their service territories.⁷²

Again, however, these solutions posed distinct limitations. Low-interest loans worked only for communities that had enough density, wherewithal, and money to organize themselves into viable cooperatives. These were the deserving rural poor. Moreover, scholars have documented the disparate impacts of the large federal power projects built to supply electricity to these cooperatives. Unsurprisingly, the losers from rural electrification were “the most vulnerable: poor farm tenants, African and Native Americans, and farmers forcibly removed from their lands.”⁷³

The limits of state-level energy regulation had also become apparent by the 1930s. In 1920, Congress passed the Federal Water Power Act to give a federal commission the authority to license dams on interstate navigable waters and to control interstate hydropower rates.⁷⁴ This commission—the predecessor of the Federal Energy Regulatory Commission (FERC)—gained additional powers as large interstate gas and electric companies outgrew state regu-

⁶⁹ See Rural Electrification Act of 1936, Pub. L. No. 74-605, §§ 2–4, 49 Stat. 1363, 1363–65 (codified as amended at 7 U.S.C. § 901); RURAL ELECTRIFICATION ADMIN., U.S. DEP’T OF AGRIC., A BRIEF HISTORY OF THE RURAL ELECTRIC AND TELEPHONE PROGRAMS 1 (1983) (describing the mechanics of the Rural Electrification Act and how people may receive loans to gain access to electricity).

⁷⁰ See Tennessee Valley Authority Act of 1933, Pub. L. No. 73-17, 48 Stat. 58 (codified as amended at 16 U.S.C. §§ 831–831ee); see also Welton, *supra* note 59, at 614–17 (describing these strategies in more detail).

⁷¹ See NYE, *supra* note 45, at 318 (describing how cooperation between utilities and private industry helped to get the latter on board with the initiative); ROY TALBERT, JR., FDR’S UTOPIAN: ARTHUR MORGAN OF THE TVA 145–48 (1987) (outlining the competition to take advantage of the laws to market electric appliances).

⁷² See Jim Cooper, Policy Essay, *Electric Co-Operatives: From New Deal to Bad Deal?*, 45 HARV. J. ON LEGIS. 335, 347–55 (2008) (outlining the rapid growth and success of co-ops); Alexandra B. Klass & Gabriel Chan, *Cooperative Clean Energy*, 99 N.C. L. REV. (forthcoming 2021) (manuscript at 9–11) (on file with authors).

⁷³ Atif Ansar, *The Fate of Ideals in the Real World: A Long View on Philip Selznick’s Classic on the Tennessee Valley Authority (TVA)*, 36 INT’L J. PROJECT MGMT. 385, 391 (2018); see also Richard Lowitt, *The TVA: 1933–45*, in *TVA: FIFTY YEARS OF GRASS-ROOTS BUREAUCRACY* 35, 52, 58–59 (Erwin C. Hargrove & Paul K. Conkin eds., 1981) (discussing discrimination in the TVA).

⁷⁴ Federal Water Power Act, ch. 285, 41 Stat. 1063 (1920) (codified as amended in scattered sections of 16 U.S.C.); NORDHAUS & KALEN, *supra* note 16, at 18.

lators' ability to manage them, leading to regulatory gaps and allowing some unscrupulous holding companies to take advantage of unwary investors.⁷⁵ To vest federal regulators with the authority necessary to manage such companies, Congress passed a series of statutes extending the practices of rate regulation to the federal level for both gas and electricity.⁷⁶ At the same time, Congress placed limits on massive holding companies by refusing to allow them to invest in noncontiguous territories, so as to limit their economic and political sway.⁷⁷ These innovations created the enduring foundations of federal public utility law today.

A third challenge confronting lawmakers during the New Deal era related to the extraction of oil and natural gas. The law of capture had worked too well, and by the 1930s, super-productive oil fields were so full of wells that "a person could walk from derrick to derrick without stepping on the ground."⁷⁸ Such density proved inefficient because the overabundance of wells diminished the productive capacity of the fields and left oil and gas trapped underground.⁷⁹ Regulators responded with a new generation of federal and state conservation laws.⁸⁰ These laws included well spacing requirements, legal arrangements that forced landowners above a reservoir to work cooperatively rather than competitively, and state and interstate compacts that periodically restricted the amount that producers could bring to market.⁸¹ These conservation laws, however, did not have an environmental focus; their goal was simply maximum efficient production of fossil fuels.⁸²

After the frenetic lawmaking of the 1930s, energy law entered decades of stasis—or what historian Richard Hirsh has described as the "utility consen-

⁷⁵ See *Pub. Utils. Comm'n v. Attleboro Steam & Elec. Co.*, 273 U.S. 83, 89–90 (1927) (holding under the Commerce Clause that electricity sold between states could only be regulated by federal government).

⁷⁶ See, e.g., Federal Power Act, ch. 687, 49 Stat. 838 (1935) (codified as amended in scattered sections of 16 U.S.C.); Natural Gas Act, ch. 556, 52 Stat. 821 (1938) (codified as amended in scattered sections of 15 U.S.C.); see also Alexandra B. Klass & Danielle Meinhardt, *Transporting Oil and Gas: U.S. Infrastructure Challenges*, 100 IOWA L. REV. 947, 995 (2015).

⁷⁷ See Public Utility Holding Company Act of 1935, ch. 687, 49 Stat. 803 (codified as amended at 15 U.S.C. §§ 79–79z-6) (repealed 2005).

⁷⁸ Anderson, *supra* note 37, at 235.

⁷⁹ *Id.*

⁸⁰ See *Ohio Oil Co. v. Indiana*, 177 U.S. 190, 211–12 (1900) (upholding Indiana regulations limiting waste from wells); Anderson, *supra* note 37, at 232, 236 (describing early efforts by state and federal government to enact conservation laws). New Deal-era conservation laws had earlier roots in some states, but the 1930s saw a marked increase in such conservation statutes. See *Ohio Oil Co.*, 177 U.S. at 211–12; Anderson, *supra* note 37, at 232, 236.

⁸¹ Anderson, *supra* note 37, at 237, 239–41.

⁸² *Id.* at 244 ("A major objective of conservation agencies was to conserve reservoir energy to maximize oil production."); see Coleman, *supra* note 44, at 411 (describing how state conservation regulations serve to increase efficiency, rather than environmental protection).

sus.”⁸³ Through 1970, energy consumption steadily rose, prices steadily fell, and no one was much bothered to consider further legal reforms.⁸⁴ During this same time period, the physical landscape of the United States and people’s engagement with fossil fuels were dramatically transformed. In particular, federal highway funding and increased federal home financing options during the 1950s facilitated the accelerated rise of automobility and suburban development patterns.⁸⁵ These developments contributed substantially to the increasing dominance of oil and natural gas.⁸⁶ Moreover, governments of all scales disinvested in mass transit, such that bus and trolley ridership plummeted from 17.2 billion passengers per year in 1950 to fewer than 7 billion per year in the early 1970s.⁸⁷ Energy law, however, barely registered these shifts because there was no real material challenge presented by the rising use of oil and gas. Oil prices declined and consumers were able to obtain the increasing amounts of gasoline they demanded without significant government intervention.⁸⁸

The emergence of the nuclear energy industry brought about new regulatory oversight, but largely of the same conceptual model as natural gas and electricity: regulation by commission.⁸⁹ Scholars studying this model did begin to point out the dangers of the commission format should regulators and regulated utilities grow too cozy⁹⁰—but systematic critiques fell by the wayside in

⁸³ See HIRSH, *supra* note 47, at 11; *see also* Tomain, *supra* note 16, at 356 (describing “the symbiotic relationship between private energy industries and public energy regulation” (footnote omitted)).

⁸⁴ See HIRSH, *supra* note 47, at 45–47; Tomain, *supra* note 16, at 365–66; *see also* NYE, *supra* note 45, at 187 (noting that U.S. energy production rose a staggering 300% between the late nineteenth century to the 1940s as American factories implemented electricity, providing a cheap means to increase efficiency).

⁸⁵ See NYE, *supra* note 45, at 206; ROTHSTEIN, *supra* note 22, at 59–76.

⁸⁶ See NYE, *supra* note 45, at 199 (charting the rise of oil and gas and the declining importance of coal during this period).

⁸⁷ *See id.* at 206.

⁸⁸ See James M. Summers, *Case for Decontrolling the Price and Allocation of Crude Oil*, 53 TEX. L. REV. 1275, 1276 (1975) (describing how, at the time, the federal government put few limits on oil).

⁸⁹ See Tomain, *supra* note 16, at 368. One important legal innovation for nuclear power was the passage of the Price-Anderson Act that limited nuclear facilities’ liability in the case of an accident. Atomic Energy Damages Act (Price-Anderson Act), Pub. L. No. 85-256, 71 Stat. 576 (1957) (codified in scattered sections of 42 U.S.C.); *see* Tomain, *supra* note 16, at 368–69.

⁹⁰ Horace M. Gray, *The Passing of the Public Utility Concept*, 16 J. LAND & PUB. UTIL. ECON. 8, 16 (1940) (arguing that the concept of the public utility is obsolete because companies have no impetus to conserve resources and efficiently utilize capital and techniques); *see also* FINLA G. CRAWFORD, A. BLAIR KNAPP, RALPH E. HIMSTEAD, LOUIS MITCHELL, RICHARD L. SCHANK & MAURICE R. SCHARFF, *ELECTRICAL UTILITIES: THE CRISIS IN PUBLIC CONTROL*, at xix (William E. Mosher ed., 1929) (cataloguing “the extent to which the industry is still being administered as any other exploitative private industry”); James W. Fesler, *The Independence of State Utility Commissions*, II, 3 J. POLITICS 42, 66 (1941) (discussing the potential for utility capture and questioning how the public interest can be protected); Robert L. Hale, *The “Physical Value” Fallacy in Rate Cases*, 30 YALE L.J.

the face of good material outcomes. When outcomes changed, however, new currents of legal thought grew stronger.

C. The (Partial) Collapse of the Consensus: 1970–2000

The longstanding utility consensus cracked in the 1970s.⁹¹ By this point, technological advancements had stalled and the energy crisis of 1973 sent prices skyrocketing.⁹² As consumers lined up at the gas pumps, the federal government responded with one of its few attempts to directly manage oil prices through price control and allocation programs.⁹³ These programs, however, proved largely ineffectual and short-lived.⁹⁴ There were also some efforts to address the oil shortage from the angle of consumption that manifested most prominently through the adoption of Corporate Average Fuel Economy Standards (CAFE) legislation.⁹⁵ This controversial legislation placed requirements on automobile manufacturers to meet increasing fleetwide average miles-per-gallon targets.⁹⁶

When it came to natural gas, the federal government by this point had controlled prices for decades, following a much-maligned Supreme Court opinion in 1954 that required FERC to exercise heavy-handed oversight of gas transactions.⁹⁷ The agency's strategy for managing this task, however, had created a shortage in natural gas by the 1970s.⁹⁸

710, 720–21 (1921) (outlining cases where courts critiqued the actual cost approach, finding that companies could spend money recklessly or improvidently and the public would still have to foot the bill).

⁹¹ See Boyd, *supra* note 21, at 1658–61 (providing a thorough account of these how the utility consensus changed).

⁹² HIRSH, *supra* note 47, at 45; Fred Bosselman, *A Brief History of Energy Law in United States Law Schools: An Introduction to the Symposium*, 86 CHI.-KENT L. REV. 3, 3 (2011). In 1973, the members of Organization of Petroleum Exporting Countries (OPEC) declared an oil embargo against the United States and other countries that caused prices to rise exponentially. HIRSH, *supra* note 47, at 60–61.

⁹³ Emergency Petroleum Allocation Act of 1973, Pub. L. No. 93-159, 87 Stat. 627 (codified as amended at scattered sections of 15 U.S.C.); Summers, *supra* note 88, at 1276.

⁹⁴ Robert P. Murphy, *Removing the 1970s Crude Oil Price Controls: Lessons for Free-Market Reform*, J. PRIV. ENTER., Spring 2018, at 63, 63–64 (describing how the U.S. government instituted price controls and that “by early 1981, almost all vestiges of the command-and-control regime had been removed, with a return to a normal market for the resource”).

⁹⁵ See Energy Policy and Conservation Act of 1975, Pub. L. No. 94-163, §§ 501–506, 89 Stat. 871, (codified as amended in scattered sections of 15, 42 U.S.C.).

⁹⁶ See COMM. ON THE EFFECTIVENESS & IMPACT OF CORP. AVERAGE FUEL ECON. (CAFE) STANDARDS, NAT'L RSCH. COUNCIL, EFFECTIVENESS AND IMPACT OF CORPORATE AVERAGE FUEL ECONOMY (CAFE) STANDARDS 3 (2002), https://www.nhtsa.gov/sites/nhtsa.gov/files/162944_web.pdf [<https://perma.cc/9KJ2-BHDJ>].

⁹⁷ See *Philips Petroleum Co. v. Wisconsin*, 347 U.S. 672, 685 (1954); Richard J. Pierce, Jr., *The Evolution of Natural Gas Regulatory Policy*, NAT. RES. & ENV'T, Summer 1995, at 53, 54.

⁹⁸ Pierce, *supra* note 97, at 54.

Although these shortages and price shocks brought some attention to the plight of low-income consumers struggling to heat and power their homes and fuel their cars, only tepid reforms resulted. Congress created two taxpayer-funded programs, the Low Income Home Energy Assistance Program and the Weatherization Assistance Program, to provide support to low-income families struggling to pay bills.⁹⁹ But these efforts were always modest, and in the decades since their implementation the federal government has chronically underfunded them.¹⁰⁰ Some states adopted shut-off protections for the particularly vulnerable in cases of temperature extremes, and a few adopted “lifeline rates” that provided discounts for their poorest residents.¹⁰¹ There was a general reluctance to subsidize bills by charging other ratepayers more, however, and even less appetite for funding any assistance programs through general taxes.¹⁰² Central to this reluctance was the rise within energy law of a particular economic notion of “equity” that emphasized the importance of each class of ratepayers paying its fair share.¹⁰³

Environmentalism also rose to prominence during the 1970s, but with only tangential impacts on energy law. Rate regulation largely accepted environmental regulation as an input. For example, air quality regulations that required the addition of a scrubber might raise the cost of electricity or cause a particular utility to shift among energy sources, but they did not fundamentally reshape energy law or energy regulatory institutions.¹⁰⁴ Similarly, although the National Environmental Policy Act (NEPA) placed new procedural requirements on energy infrastructure projects, it did little to reshape the substantive law that governed them.¹⁰⁵ Energy law remained comfortably in its silo, focused on delivering energy at low prices.

⁹⁹ Sanya Carley & David M. Konisky, *The Justice and Equity Implications of the Clean Energy Transition*, 5 NATURE ENERGY 569, 573 (2020), <https://www.nature.com/articles/s41560-020-0641-6.pdf> [https://perma.cc/KZG8-E2NE].

¹⁰⁰ *Id.*

¹⁰¹ Welton, *supra* note 59, at 619.

¹⁰² *Id.*

¹⁰³ Gerald R. Faulhaber, *Cross-Subsidization: Pricing in Public Enterprises*, 65 AM. ECON. REV. 966, 966 (1975) (defining policy-makers’ equity concerns about whether a proposed price structure “unduly” favors certain consumers by resulting in a cross-subsidy). See generally EDWARD E. ZAJAC, *FAIRNESS OR EFFICIENCY: AN INTRODUCTION TO PUBLIC UTILITY PRICING* (1978) (arguing that public utility law is largely an ongoing contest between the aims of fairness and efficiency).

¹⁰⁴ See Richard J. Pierce, Jr., *The Past, Present, and Future of Energy Regulation*, 31 UTAH ENV’T L. REV. 291, 291 (2011) (noting how environmental laws induced fuel-switching); Jim Rossi, *Public Choice, Energy Regulation and Deregulation*, in RESEARCH HANDBOOK ON PUBLIC CHOICE AND PUBLIC LAW 419 (Daniel A. Farber & Anne Joseph O’Connell eds., 2010) (describing how utilities spread environmental compliance costs among ratepayers).

¹⁰⁵ See HIRSH, *supra* note 47, at 66 (describing environmentalists’ use of NEPA to delay or halt nuclear projects in the 1970s); Freeman, *supra* note 20, at 361–64.

Up until this period, law schools generally offered two separate classes on energy: oil and gas law and the law of regulated industries. The former focused on the extraction and transport of these fuels, while the latter included public utility regulation of electricity and natural gas. But during the 1970s, there was a renewed interest in energy as a material problem for American society, such that the common threads between these subject areas grew more apparent.¹⁰⁶ Consequently, scholars began to frame energy law as more of a coherent and distinct discipline, complete with its own law journal as of 1979.¹⁰⁷

The crises that renewed interest in energy law also gave critics of the public utility regime more of an audience. Here again, material problems in energy supply and delivery drove change. Drawing on the antiregulatory theory and rhetoric of the Chicago School, public choice scholars voiced distrust of regulators' ability to either discern or make decisions in favor of the public interest.¹⁰⁸ The strongest version of this argument suggested that commissions are subject to capture in much the same way as politicians, and that commissioners act to preserve their own roles in the industry above all else.¹⁰⁹ Based on these critiques, public choice theorists went for the jugular: arguing that the antidote to imperfect bureaucracy was its elimination through deregulation.¹¹⁰

¹⁰⁶ See Bosselman, *supra* note 92, at 3 (describing how the price shocks of the 1970s gave birth to energy law as a discipline).

¹⁰⁷ William A. Mogel, Editor's Page, 11 ENERGY L.J. [vii] (1990) (dating the emergence of the *Energy Law Journal* to 1979).

¹⁰⁸ See Jim Rossi, *The Political Economy of Energy and Its Implications for Climate Change Legislation*, 84 TUL. L. REV. 379, 382 (2009) ("Much public choice scholarship has emphasized how governmental regulation of energy reflects rent-seeking behavior by private actors as well as government officials, in ways that sometimes limit or reduce aggregate wealth."); see also William J. Novak, *Institutional Economics and the Progressive Movement for the Social Control of American Business*, 93 BUS. HIST. REV. 665, 695 (2019) (describing the Chicago School, a neoliberal economic school of thought, as "an explicit rebuke" to the economics thinkers behind Progressive regulatory reform efforts). Public choice scholars study how the interaction between private industry and government action in the energy sector is indicative of "self-interest rather than sound economic policy." Rossi, *supra*, at 380. For more research exploring this notion, see generally Harold Demsetz, *Why Regulate Utilities?*, 11 J.L. & ECON. 55 (1968); Richard A. Posner, *Theories of Economic Regulation*, 5 BELL J. ECON. & MGMT. SCI. 335 (1974); George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3 (1971).

¹⁰⁹ See Stigler, *supra* note 108, at 3 ("[A]s a rule, regulation is acquired by the industry and is designed and operated primarily for its benefit."); see also Rossi, *supra* note 108, at 385 (describing the regulatory capture hypothesis as an "extreme" version of public choice theory).

¹¹⁰ See David Moss & Daniel Carpenter, *Conclusion to PREVENTING REGULATORY CAPTURE: SPECIAL INTEREST INFLUENCE AND HOW TO LIMIT IT* 453 (Daniel Carpenter & David Moss eds., 2013) (describing deregulation as the "remedy of choice" for preventing capture, despite many other options); Boyd, *supra* note 21, at 1651–56 (tracing the history of the public choice critique of public utility); David B. Spence, *Can Law Manage Competitive Energy Markets?*, 93 CORNELL L. REV. 765, 770 (2008) (describing deregulation of electricity and gas as having "both an economic and a political basis").

The idea quickly caught hold in influential energy policy circles. Congress passed legislation beginning the deregulation of natural gas prices in 1978, and FERC followed up with a series of orders aimed at increasing competition in the natural gas sector during the 1980s.¹¹¹ Electricity deregulation proceeded more slowly, complicated by the fact that the technology requires a high degree of planning to perfectly balance supply and demand of electricity at all times.¹¹² Nevertheless, early success in promoting more sectoral competition helped persuade scholars and regulators of the potential for electricity sector deregulation.¹¹³ Consequently, during the 1990s, some states began to split up their utilities, requiring companies delivering power to sell off generation assets.¹¹⁴ Many states also embraced “retail competition,” allowing residents to shop among energy providers rather than remain tethered to a monopoly service provider.¹¹⁵ On the wholesale level, Congress and FERC encouraged regions to band their utilities together to form grid management organizations and centralized energy markets.¹¹⁶ Congress also relaxed the longstanding requirements that limited the size of utility holding companies—a move that utilities insisted would help them better compete through diversification of assets.¹¹⁷ Today, although substantial regulatory oversight endures at both the state and federal levels, electricity markets determine what energy gets bought and sold in most of the country.¹¹⁸

The transformation to more of a market-based system for regulating energy prices was premised on saving consumers money. Tracing its effectiveness even

¹¹¹ See Natural Gas Policy Act of 1978, Pub. L. No. 95-621, 92 Stat. 3350 (codified at scattered sections of 15 U.S.C.); Pierce, *supra* note 104, at 293 (recounting history of price controls); Pierce, *supra* note 97, at 54 (describing the agency’s goals and strategic plan).

¹¹² See Paul L. Joskow, *Competitive Electricity Markets and Investment in New Generating Capacity*, in THE NEW ENERGY PARADIGM 79–80 (Dieter Helm ed., 2007) (outlining the historical difficulty in balancing capacity with demand).

¹¹³ See Boyd, *supra* note 21, at 1659–66. Efforts at deregulation were aided by the surprising success of the Public Utility Regulatory Policies Act of 1978 (PURPA), which contained an under-scrutinized provision that allowed small renewable energy and cogeneration plants to demand access to utility systems, along with compensation at avoided cost rates. See Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified as amended at scattered sections of 15, 16, 30, 42, 43 U.S.C.); Richard D. Cudahy, *PURPA: The Intersection of Competition and Regulatory Policy* 16 ENERGY L.J. 419, 422–25 (1995) (describing the provision and its impact on the energy market).

¹¹⁴ Spence, *supra* note 110, at 774.

¹¹⁵ William Boyd & Ann E. Carlson, *Accidents of Federalism: Ratemaking and Policy Innovation in Public Utility Law*, 63 UCLA L. REV. 810, 835–40 (2016) (detailing the different models that now exist in various states, including traditional, restructured, and hybrid models).

¹¹⁶ *Id.* at 830–32.

¹¹⁷ Energy Policy Act of 2005, 42 U.S.C. §§ 16451–16463.

¹¹⁸ See Boyd, *supra* note 21, at 1670 (arguing that electricity markets are “not really markets in any traditional sense”). For more on the varieties of modern electricity regulation across the United States, see generally Boyd & Carlson, *supra* note 115.

in this limited regard, however, has proven challenging. Many studies find gains in operating efficiency,¹¹⁹ but whether these savings are funneled to producers or consumers is not clear.¹²⁰ Scholars have also raised concerns that this more market-oriented system is scarcely immune from the same domination by powerful incumbent firms that public choice theorists claimed it would eradicate.¹²¹

D. 1990s–2020: Energy Law Meets Climate Change, First Generation

Alongside energy deregulation, the 1990s also ushered in growing concern about global climate change. It was always clear that the energy sector—as the lifeblood and driver of a fossil-based economy—would need to feature centrally in any serious effort to remediate the mounting climate crisis.

Scholars of energy law have responded much more enthusiastically to this challenge than has the energy sector as a whole. Articles since the 1990s have proposed a range of thoughtful amendments to the energy laws bequeathed to us by the twentieth century to help decarbonize the sector. Scholars have devoted significant attention to the design and functionality of renewable portfolio standards (RPS), which mandate that utilities purchase a certain percentage of their electricity from renewable energy sources, often increasing over

¹¹⁹ See Phillip J. Ardoin & Dennis Grady, *The Politics of Electricity Restructuring Across the American States: Power Failure and Policy Failure*, 38 STATE & LOCAL GOV'T REV. 165, 167 (2006) (analyzing why deregulatory initiatives “took hold so rapidly in so many states”); Seth Blumsack, Lester B. Lave & Jay Apt, *Electricity Prices and Costs Under Regulation and Restructuring* 12 (Carnegie Mellon Elec. Indus. Ctr., Working Paper No. CEIC-08-03, 2008), <https://www.cmu.edu/ceic/assets/docs/publications/working-papers/ceic-08-03.pdf> [<https://perma.cc/233C-ZLXX>] (“The existing evidence suggests that restructuring has improved production efficiency, but whether (or how much of) these efficiency gains have been passed on to consumers is much less clear.”); Severin Borenstein & James Bushnell, *The U.S. Electricity Industry After 20 Years of Restructuring* 2–19 (Nat'l Bureau of Econ. Rsch., Working Paper No. 21113, 2015), <http://www.nber.org/papers/w21113> [<https://perma.cc/DL95-E3WW>] (reviewing the historical reasons for the transformation and analyzing whether the positive outcomes were due to the policy changes or to organic technology advances and price fluctuations); Kira R. Fabrizio, Nancy L. Rose & Catherine D. Wolfram, *Do Markets Reduce Costs? Assessing the Impact of Regulatory Restructuring on US Electric Generation Efficiency*, 97 AM. ECON. REV. 1250, 1250 (2007) (finding “modest medium-term efficiency benefits from replacing regulated monopoly with a market-based industry structure”); Paul L. Joskow, *Lessons Learned from Electricity Market Liberalization*, 29 ENERGY J. (SPECIAL ISSUE) 9 (2008) (presenting lessons from the last twenty years in the energy industry); John Kwoka, *Restructuring the U.S. Electric Power Sector: A Review of Recent Studies*, 32 REV. INDUS. ORG. 165, 174–81, 183–90 (2008) (reviewing ten prominent studies on the impacts of restructuring).

¹²⁰ See Boyd, *supra* note 21, at 1672–73 (questioning who benefits from competition).

¹²¹ See Joshua C. Macey & Jackson Salovaara, *Rate Regulation Redux*, 168 U. PA. L. REV. 1181, 1189 (2020) (describing how markets have been subject to pressure to re-create the conditions of rate regulation to favor certain incumbents); David B. Spence, *Naïve Energy Markets*, 92 NOTRE DAME L. REV. 973, 978 (2017) (arguing that “energy markets can never resemble the idealized markets of economic theory that have become so popular in conservative policy discourse”); Shelley Welton, *Rethinking Grid Governance for the Climate Change Era*, 109 CALIF. L. REV. 209, 264–272 (2021).

time.¹²² They have also thoroughly explored the role of tax incentives in renewable energy development, and have advanced reforms in utility rate structures and practices like net metering with the aim of rewarding utilities' pursuit of energy efficiency and other distributed energy technologies.¹²³

¹²² For scholarly work on RPS, see generally Anthony E. Chavez, *Using Renewable Portfolio Standards to Accelerate Development of Negative Emissions Technologies*, 43 WM. & MARY ENV'T L. & POL'Y REV. 1 (2018); Lincoln L. Davies, *Reconciling Renewable Portfolio Standards and Feed-in Tariffs*, 32 UTAH ENV'T L. REV. 311 (2012); Lincoln L. Davies, *Power Forward: The Argument for a National RPS*, 42 CONN. L. REV. 1339 (2010); Lincoln L. Davies, *State Renewable Portfolio Standards: Is There a "Race" and Is It "To the Top"?*, 3 SAN DIEGO J. CLIMATE & ENERGY L. 3 (2012); Kirsten H. Engel, *The Dormant Commerce Clause Threat to Market-Based Environmental Regulation: The Case of Electricity Deregulation*, 26 ECOLOGY L.Q. 243 (1999); Joshua P. Fershee, *Changing Resources, Changing Market: The Impact of a National Renewable Portfolio Standard on the U.S. Energy Industry*, 29 ENERGY L.J. 49 (2008); Joshua P. Fershee, *Commentary, Moving Power Forward: Creating a Forward-Looking Energy Policy Based on a National RPS*, 42 CONN. L. REV. 1405 (2010); Ivan Gold & Nidhi Thakar, *A Survey of State Renewable Portfolio Standards: Square Pegs for Round Climate Change Holes?*, 35 WM. & MARY ENV'T L. & POL'Y REV. 183 (2010); Daniel A. Lyons, *Federalism and the Rise of Renewable Energy: Preserving State and Local Voices in the Green Energy Revolution*, 64 CASE W. RES. L. REV. 1619 (2014); Robert J. Michaels, *National Renewable Portfolio Standard: Smart Policy or Misguided Gesture?*, 29 ENERGY L.J. 79 (2008); James W. Moeller, *Of Credits and Quotas: Federal Tax Incentives for Renewable Resources, State Renewable Portfolio Standards, and the Evolution of Proposals for a Federal Renewable Portfolio Standard*, 15 FORDHAM ENV'T L. REV. 69 (2004); Felix Mormann, *Clean Energy Federalism*, 67 FLA. L. REV. 1621 (2015); Mary Ann Ralls, *Congress Got It Right: There's No Need to Mandate Renewable Portfolio Standards*, 27 ENERGY L.J. 451 (2006); Jim Rossi, *The Limits of a National Renewable Portfolio Standard*, 42 CONN. L. REV. 1425 (2010); Benjamin K. Sovacool & Christopher Cooper, *Congress Got It Wrong: The Case for a National Renewable Portfolio Standard and Implications for Policy*, 3 ENV'T & ENERGY L. & POL'Y J. 85 (2008); Shelley Welton, *Student Article, From the States Up: Building a National Renewable Energy Policy*, 17 N.Y.U. ENV'T L.J. 987 (2008).

¹²³ For a sampling of scholars considering the role of tax incentives, see generally Shannon Baker-Branstetter, *Distributed Renewable Generation: The Trifecta of Energy Solutions to Curb Carbon Emissions, Reduce Pollutants, and Empower Ratepayers*, 22 VILL. ENV'T L.J. 1 (2011); Joel B. Eisen, *Distributed Energy Resources, "Virtual Power Plants," and the Smart Grid*, 7 ENV'T & ENERGY L. & POL'Y J. 191 (2012); John A. Herrick & Cara S. Elias, *Federal Incentives for Clean Energy After Solyndra: A Post-Recovery Act Precipice*, 87 N.D. L. REV. 625 (2011); Kayci G. Hines, *Solar Shift: An Analysis of the Federal Income Tax Issues Associated with the Residential Value of Solar Tariff*, 5 ARIZ. J. ENV'T L. & POL'Y 388 (2015); Mark James, Ashleigh H. Krick & Kelsey R. Bain, *Planning for the Sun to Come Up: How Nevada and California Explain the Future of Net Metering*, 8 SAN DIEGO J. CLIMATE & ENERGY L. 1 (2017); Paul L. Joskow & Richard Schmalensee, *Incentive Regulation for Electric Utilities*, 4 YALE J. ON REG. 1 (1986); Alexandra B. Klass, *Regulating the Energy "Free Riders,"* 100 B.U. L. REV. 581 (2020); Alexandra B. Klass & Elizabeth J. Wilson, *Remaking Energy: The Critical Role of Energy Consumption Data*, 104 CALIF. L. REV. 1095 (2016); Sandra Levine & Katie Kendall, *Energy Efficiency and Conservation: Opportunities, Obstacles, and Experiences*, 8 VT. J. ENV'T L. 101 (2006); Jeff D. Makhholm, *"Decoupling" for Energy Distributors: Changing 19th Century Tariff Structures to Address 21st Century Energy Markets*, 29 ENERGY L.J. 157 (2008); Jonas J. Monast & Sarah K. Adair, *A Triple Bottom Line for Electric Utility Regulation: Aligning State-Level Energy, Environmental, and Consumer Protection Goals*, 38 COLUM. J. ENV'T L. 1 (2013); Felix Mormann, *Beyond Tax Credits: Smarter Tax Policy for a Cleaner, More Democratic Energy Future*, 31 YALE J. ON REG. 303 (2014); Sandeep Nandivada, *Energy-Efficiency Retrofits in the Commercial Sector: An Analysis of PACE Financing, On-Bill Repayment, and Energy Savings*

More broadly, scholars have mounted compelling arguments about the need to reprice energy to reflect its true societal costs. They have rigorously vetted, compared, and contrasted the merits of cap-and-trade programs and carbon taxation.¹²⁴ And considerable effort has been spent exploring how to

Performance Contracts, 29 J. ENV'T L. & LITIG. 363 (2014); David Nichols, *The Role of Regulators: Energy Efficiency*, 18 PACE ENV'T L. REV. 295 (2001); Teresa Parejo-Navajas, *The Energy Improvement of the Existing Urban Building Stock: A Proposal for Action Arising from Best Practice Examples*, 24 N.Y.U. ENV'T L.J. 353 (2016); Heather Payne, *A Tale of Two Solar Installations: How Electricity Regulations Impact Distributed Generation*, 38 U. HAW. L. REV. 135 (2016); Neil Peretz, *Growing the Energy Efficiency Market Through Third-Party Financing*, 30 ENERGY L.J. 377 (2009); Ari Peskoe, *Unjust, Unreasonable, and Unduly Discriminatory: Electric Utility Rates and the Campaign Against Rooftop Solar*, 11 TEX. J. OIL GAS & ENERGY L. 211 (2016); Melissa Powers, *Small Is (Still) Beautiful: Designing U.S. Energy Policies to Increase Localized Renewable Energy Generation*, 30 WIS. INT'L L.J. 595 (2012); Harvey L. Reiter & William Greene, *The Case for Reforming Net Metering Compensation: Why Regulators and Courts Should Reject the Public Policy and Antitrust Arguments for Preserving the Status Quo*, 37 ENERGY L.J. 373 (2016); Richard L. Revesz & Burcin Unel, *Managing the Future of the Electricity Grid: Modernizing Rate Design*, 44 HARV. ENV'T L. REV. 43 (2020); Edan Rotenberg, *Energy Efficiency in Regulated and Deregulated Markets*, 24 UCLA J. ENV'T L. & POL'Y 259 (2006); Noah M. Sachs, *Can We Regulate Our Way to Energy Efficiency? Product Standards as Climate Policy*, 65 VAND. L. REV. 1631 (2012); Noah M. Sachs, *The Limits of Energy Efficiency Markets in Climate-Change Law*, 2016 U. ILL. L. REV. 2237, <https://www.illinoislawreview.org/wp-content/uploads/2016/10/Sachs.pdf> [<https://perma.cc/KP62-7H5P>]; Inara Scott, *"Dancing Backward in High Heels": Examining and Addressing the Disparate Regulatory Treatment of Energy Efficiency and Renewable Resources*, 43 ENV'T L. 255 (2013); Inara Scott, *Incentive Regulation, New Business Models, and the Transformation of the Electric Power Industry*, 5 MICH. J. ENV'T & ADMIN. L. 319 (2016); Joseph P. Tomain, *"Steel in the Ground": Greening the Grid with the iUtility*, 39 ENV'T L. 931 (2009); Michael P. Vandenbergh & Jim Rossi, *Good for You, Bad for Us: The Financial Disincentive for Net Demand Reduction*, 65 VAND. L. REV. 1527 (2012).

¹²⁴ One might quibble with whether cap-and-trade and carbon tax proposals are truly "energy law" versus "climate change law," but I am treating proposals aimed predominantly at decarbonizing the energy system as energy law in this analysis. For scholarly works discussing repricing energy costs, see generally Ann E. Carlson, *Designing Effective Climate Policy: Cap-and-Trade and Complementary Policies*, 49 HARV. J. ON LEGIS. 207 (2012); Richard Cowart, *Carbon Caps and Efficiency Resources: How Climate Legislation Can Mobilize Efficiency and Lower the Cost of Greenhouse Gas Emission Reduction*, 33 VT. L. REV. 201 (2008); Victor B. Flatt, *"Offsetting" Crisis?—Climate Change Cap-and-Trade Need Not Contribute to Another Financial Meltdown*, 39 PEPP. L. REV. 619 (2012); Justin Gundlach, *To Negotiate a Carbon Tax: A Rough Map of Interactions, Tradeoffs, and Risks*, 43 COLUM. J. ENV'T L. 269 (2018); Erik Haites, Duan Maosheng, Kelly Sims Gallagher, Sharon Mascher, Easwaran Narassimhan, Kenneth R. Richards & Masayo Wakabayashi, *Experience with Carbon Taxes and Greenhouse Gas Emissions Trading Systems*, 29 DUKE ENV'T L. & POL'Y F. 109 (2018); Kathryn Harrison, *The Comparative Politics of Carbon Taxation*, 6 ANN. REV. L. & SOC. SCI. 507 (2010); Shi-Ling Hsu, *A Complete Analysis of Carbon Taxation: Considering the Revenue Side*, 65 BUFF. L. REV. 857 (2017); Gary M. Lucas, Jr., *Behavioral Public Choice and the Carbon Tax*, 2017 UTAH L. REV. 115, <https://dc.law.utah.edu/cgi/viewcontent.cgi?article=1033&context=ulr> [<https://perma.cc/JWL4-5ZJX>]; Lesley K. McAllister, *The Enforcement Challenge of Cap-and-Trade Regulation*, 40 ENV'T L. 1195 (2010); Lesley K. McAllister, *Beyond Playing "Banker": The Role of the Regulatory Agency in Emissions Trading*, 59 ADMIN. L. REV. 269 (2007); Brian C. Murray & Heather Hosterman, *Climate Change, Cap-and-Trade and the Outlook for U.S. Policy*, 34 N.C. J. INT'L L. & COM. REG. 699 (2009); Carol M. Rose, *Hot Spots in the Legislative Climate Change Proposals*, 102 NW. U. L. REV. COLLOQUY 189 (2008), <https://scholarlycommons.law.northwestern.edu/>

redesign energy markets to make them more favorable to clean energy¹²⁵ and how to navigate the federal-state jurisdictional tensions that make this space legally tricky.¹²⁶

Scholars of oil and gas law have also contended with a dramatically altered physical landscape since the late 1990s. Over the last couple of decades, the domestic oil and gas industries have enjoyed a staggering revival through widespread commercialization of horizontal drilling and hydraulic fracturing (fracking) technologies. As James Coleman describes, the fracking boom “dwarfs previous oil and gold rushes—there is simply no historical analogue for the scale of the oil and gas revolution currently sweeping the United States.”¹²⁷ In a few brief years, the United States has become the world’s top oil and gas producer—ahead of even Saudi Arabia and Russia.¹²⁸ Oil and gas law has adapted to this new reality by embracing evolving theories of capture and conservation that account for the different properties of fractured gas—including environ-

cgi/viewcontent.cgi?article=1086&context=nulr_online [https://perma.cc/9AVY-YSGD]; Stephen Sewalk, *Carbon Tax with Reinvestment Trumps Cap-and-Trade*, 30 PACE ENV’T L. REV. 580 (2013); Robert N. Stavins, *A Meaningful U.S. Cap-and-Trade System to Address Climate Change*, 32 HARV. ENV’T L. REV. 293 (2008); Michael Waggoner, *Why and How to Tax Carbon*, 20 COLO. J. INT’L ENV’T L. & POL’Y 1 (2008); Michael Wara, *Instrument Choice, Carbon Emissions, and Information*, 4 MICH. J. ENV’T & ADMIN. L. 261 (2015); Jonathan B. Wiener, *Property and Prices to Protect the Planet*, 19 DUKE J. COMP. & INT’L L. 515 (2009).

¹²⁵ For articles discussing ways to reconfigure energy markets, see generally Todd S. Aagaard & Andrew N. Kleit, *The Complexity Dilemma in Policy Market Design*, 30 DUKE ENV’T L. & POL’Y F. 1 (2019); Boyd, *supra* note 21; Danny Cullenward & Shelley Welton, *The Quiet Undoing: How Regional Electricity Market Reforms Threaten State Clean Energy Goals*, 36 YALE J. ON REG. 106 (2018); Justin Gundlach & Romany Webb, *Distributed Energy Resource Participation in Wholesale Markets: Lessons from the California ISO*, 39 ENERGY L.J. 47 (2018); Emily Hammond & David B. Spence, *The Regulatory Contract in the Marketplace*, 69 VAND. L. REV. 141 (2016); Macey & Salovaara, *supra* note 121; John S. Moot, *Subsidies, Climate Change, Electric Markets and the FERC*, 35 ENERGY L.J. 345 (2014); Michael Panfil & Rama Zakaria, *Uncovering Wholesale Electricity Market Principles*, 9 MICH. J. ENV’T & ADMIN. L. 145 (2019); Ari Peskoe, *Easing Jurisdictional Tensions by Integrating Public Policy in Wholesale Electricity Markets*, 38 ENERGY L.J. 1 (2017); Amy L. Stein, *Regulating Reliability*, 54 HOUS. L. REV. 1191 (2017); Julia E. Sullivan, *The Intersection of Federally Regulated Power Markets and State Energy and Environmental Goals*, 26 FORDHAM ENV’T L. REV. 474 (2015); Shelley Welton, *Electricity Markets and the Social Project of Decarbonization*, 118 COLUM. L. REV. 1067 (2018).

¹²⁶ For a discussion of jurisdictional tensions, see generally Matthew R. Christiansen & Joshua C. Macey, *Long Live the Federal Power Act’s Bright Line*, 134 HARV. L. REV. 1360 (2021); Joel B. Eisen, *FERC’s Expansive Authority to Transform the Electric Grid*, 49 U.C. DAVIS L. REV. 1783 (2016); Matt Flaherty, *Evolving Energy Federalism: Zero Emissions Credits and Opportunities in State Energy Policy*, 10 SAN DIEGO J. CLIMATE & ENERGY L. 1 (2019); Robert R. Nordhaus, *The Hazy “Bright Line”: Defining Federal and State Regulation of Today’s Electric Grid*, 36 ENERGY L.J. 203 (2015); Jim Rossi, *The Brave New Path of Energy Federalism*, 95 TEX. L. REV. 399 (2016); Hannah J. Wiseman & Hari M. Osofsky, *Regional Energy Governance and U.S. Carbon Emissions*, 43 ECOLOGY L.Q. 143 (2016).

¹²⁷ Coleman, *supra* note 44, at 419.

¹²⁸ *Id.*

mental conservation.¹²⁹ Oil and gas scholars have also plumbed the ways in which the oft-called “fracking revolution” has provoked new debates over federalism and localism in oil and gas law.¹³⁰ In addition, scholars now debate over the extent to which natural gas could be a bridge fuel to help transition the United States toward lower-carbon energy sources.¹³¹

Viewed from the sector’s baseline, many of these policies have proven successful. U.S. greenhouse gas emissions dropped thirteen percent between 2005 and 2019, largely due to hydraulically fractured natural gas replacing coal in the electricity sector.¹³² Renewable energy has grown rapidly during the same time period and now makes up nineteen percent of U.S. electricity generation—comprised of one-third hydro, one-third wind, and one-sixth solar, among other sources.¹³³ Wind power has tripled since 2009, and solar has grown *forty times over* since that same year.¹³⁴ The cost of these renewable

¹²⁹ See Anderson, *supra* note 37, at 245, 253; Coleman, *supra* note 44, at 391–92; Tara K. Righetti, Hannah J. Wiseman & James W. Coleman, *The New Oil and Gas Governance*, 130 YALE L.J.F. 51, 53–54 (2020), <https://www.yalelawjournal.org/forum/the-new-oil-and-gas-governance> [<https://perma.cc/W3DF-XWDV>] (describing how regulators are increasingly addressing localized environmental impacts).

¹³⁰ See, e.g., John M. Golden & Hannah J. Wiseman, *The Fracking Revolution: Shale Gas as a Case Study in Innovation Policy*, 64 EMORY L.J. 955 (2015); Grace Heusner, Allison Sloto & Joshua Ulan Galperin, *Defining and Closing the Hydraulic Fracturing Governance Gap*, 95 DENV. L. REV. 191 (2017); Amanda C. Leiter, *Fracking as a Federalism Case Study*, 85 U. COLO. L. REV. 1123 (2014); Albert C. Lin, *Fracking and Federalism: A Comparative Approach to Reconciling National and Subnational Interests in the United States and Spain*, 44 ENV’T L. 1039 (2014); Righetti et al., *supra* note 129; Hannah J. Wiseman, *Risk and Response in Fracturing Policy*, 84 U. COLO. L. REV. 729 (2013).

¹³¹ For scholarly sources indicative of the debate, see generally Emily Hammond & Jim Rossi, *Stranded Costs and Grid Decarbonization*, 82 BROOK. L. REV. 645 (2017); Sam Kalen, *A Bridge to Nowhere? Our Energy Transition and the Natural Gas Pipeline Wars*, 9 MICH. J. ENV’T & ADMIN. L. 319 (2020); Patrick Parenteau & Abigail Barnes, *A Bridge Too Far: Building Off-Ramps on the Shale Gas Superhighway*, 49 IDAHO L. REV. 325 (2013); Richard J. Pierce, Jr., *Natural Gas: A Long Bridge to a Promising Destination*, 32 UTAH ENV’T L. REV. 245 (2012); Christopher Serkin & Michael P. Vandenbergh, *Prospective Grandfathering: Anticipating the Energy Transition Problem*, 102 MINN. L. REV. 1019 (2018).

¹³² *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, U.S. ENV’T PROT. AGENCY, <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks> [<https://perma.cc/G2YN-HN7X>] (June 16, 2021).

¹³³ See U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK: WITH PROJECTIONS TO 2050 62–64 (2020), <https://www.eia.gov/outlooks/aeo/pdf/AEO2020%20Full%20Report.pdf> [<https://perma.cc/Q2RS-3XNQ>].

¹³⁴ JONATHAN SUNDBY & GIDEON WEISSMAN, FRONTIER GRP., ROB SARGENT, ENV’T AM. RSCH. & POL’Y CTR., RENEWABLES ON THE RISE 2019: A DECADE OF PROGRESS TOWARD A CLEAN ENERGY FUTURE 1 (2019), <https://frontiergroup.org/sites/default/files/reports/FRG%20AME%20Renewables%20on%20the%20Rise%20Aug19.pdf> [<https://perma.cc/EH8L-LESQ>].

resources has also plummeted to the point where they are often more cost-effective than coal generation, and in some instances, gas generation.¹³⁵

Although it proves analytically challenging to attribute a precise proportion of increased renewable generation and decreased renewable costs to particular policies,¹³⁶ analysts generally agree that RPS policies have played an important role in both trends.¹³⁷ Similarly, the cap-and-trade program enacted across many Northeastern and mid-Atlantic states boasts that investments made with program revenues have resulted in “\$1.8 billion in lifetime energy bill savings [and] 2.5 million short tons of CO₂ emissions avoided.”¹³⁸ The role of scholarship in driving these policies, as opposed to other pathways of policy diffusion and reform, is a difficult question that precludes facile claims of causality. At least it can be said that energy law scholars have been invested in advancing many of the key policy innovations of the last several decades.

Especially in the tough federal political climate of the last several years, this is all good news. A broader lens, however, suggests that we may be reaching the end of the line of interventions in this vein. As the next Part discusses, these efforts, although important, have barely scratched the surface of the radical transition necessary in U.S. energy production and consumption.

II. THE CLIMATE CONVERSATION AND THE LIMITS OF EXISTING ENERGY LAW

The previous Part roughly sketched the central themes and tenets of U.S. energy law as it evolved over its first one-hundred-and-fifty-plus years. Although its amalgamated, fuel-specific nature makes it hard to distill energy law to a first principle, those who have tried have converged on the conclusion

¹³⁵ See U.S. ENERGY INFO. ADMIN., *supra* note 133, at 76 (projecting that solar PV and natural gas combined-cycle plants will be the most economically competitive generating technologies in 2025).

¹³⁶ See Robinson Meyer, *A Very Important Climate Fact That No One Knows*, THE ATLANTIC (May 8, 2019), <https://www.theatlantic.com/science/archive/2019/05/controversial-study-asks-do-renewable-energy-standards-work/588823/> [<https://perma.cc/MSD6-WKFS>] (“Economics has no way of knowing whether RPS policies reduced the global price of renewable energy.”).

¹³⁷ See Galen Barbose, Ryan Wiser, Jenny Heeter, Trieu Mai, Lori Bird, Mark Bolinger, Alberta Carpenter, Garvin Heath, David Keyser, Jordan Macknick, Andrew Mills & Dev Millstein, *A Retrospective Analysis of the Benefits and Impacts of U.S. Renewable Portfolio Standards*, 96 ENERGY POL’Y 645, 657–58 (2016); Galen Barbose, Lori Bird, Jenny Heeter, Francisco Flores-Espino & Ryan Wiser, *Costs and Benefits of Renewables Portfolio Standards in the United States*, 52 RENEWABLE & SUSTAINABLE ENERGY REVS. 523, 524 (2015); Sanya Carley, Lincoln L. Davies, David B. Spence & Nikolaos Zirogiannis, *Empirical Evaluation of the Stringency and Design of Renewable Portfolio Standards*, 3 NATURE ENERGY 754, 754 (2018), <https://www.nature.com/articles/s41560-018-0202-4.pdf?proof=t> [<https://perma.cc/R2SU-NHXF>] (pointing out the importance of analyzing variations in state RPS policies).

¹³⁸ *Investment of Proceeds*, REG’L GREENHOUSE GAS INITIATIVE, <https://www.rggi.org/investments/proceeds-investments> [<https://perma.cc/J2ZD-EMRC>].

that, “[p]ut simply, modern energy law has sought to keep energy prices low and supplies ample.”¹³⁹ The core theories and doctrines in support of this deeply material goal—the law of capture, public utility law in its many iterations, rural electrification, and conservation statutes—each brought considerable good, and they remain foundational components of energy law today. To acknowledge these laws as positive developments, however, does not excuse scholars today from interrogating what about these models still serves us and what must change.

On this last point, I worry that the regulatory theories and structures bequeathed to us by a century of fossil-fueled development are simply not up to the task of driving the decarbonization transformation that our energy system demands today. To date, energy law scholars—myself decidedly included¹⁴⁰—have focused on developing climate change mitigation strategies that essentially color within the lines of the grand bargain struck last century between regulators, regulated utilities, and in some places, newer market players within the energy space. Many of these ideas, including RPS, energy efficiency policies, and energy and carbon pricing reforms, have contributed greatly to the limited and uneven progress we have made in mitigating greenhouse gas emissions to date.

As we have written, spoken, and advocated, however, overall-U.S. emissions have barely budged, and even electricity sector emissions have failed to fall fast enough.¹⁴¹ This Part argues that to achieve the necessary transformation, energy law scholarship going forward must grapple with the limits of existing tools and frameworks, through situating and analyzing energy as part of a broader conversation about the shape of the U.S. economy and society. Section A focuses on energy law’s embrace of electricity to achieve decarbonization and the efforts of fossil fuel companies to undermine renewable energy initiatives.¹⁴² Section B advocates for a reorientation of energy law scholarship in the United States towards addressing social injustice.¹⁴³

¹³⁹ Freeman, *supra* note 20, at 341; *see also* Heffron & Talus, *supra* note 16, at 4 (“In effect, the purpose of the energy sector has been the provision of energy at a reasonable cost and there has been little focus on the merits or value of other directions.”); Tomain, *supra* note 16, at 355 (“[O]ver the last 100 years, the United States government has fairly consistently implemented energy policies that are guided by efficiency, that support the market, and that seek to correct market defects.”); Welton, *supra* note 59 (arguing that energy law’s response to equity challenges has been to focus on ensuring widespread access to affordable energy).

¹⁴⁰ *See generally* Welton, *supra* note 59; Welton, *supra* note 125; Shelley Welton, *Non-Transmission Alternatives*, 39 HARV. ENV’T L. REV. 457 (2015).

¹⁴¹ *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, *supra* note 132 (showing U.S. total emissions as roughly equivalent in 1990 and 2018).

¹⁴² *See infra* Part II, Section A.

¹⁴³ *See infra* Part II, Section B.

A. Energy Law and the Decarbonization Imperative

Starting from a place of climate science, rather than a catalogue of U.S. greenhouse gas emissions data, reveals a bleak picture. Because the United States and the world have delayed adequate climate action for several decades, scientists now calculate that we must embrace a dramatic and rapid transformation away from fossil fuels to avoid massive human suffering and ecological catastrophe.¹⁴⁴ To meet the internationally agreed upon goal of limiting global temperature increases to 2°C, the United States will need to reach zero net carbon emissions, or maybe even negative emissions levels, by 2050 at the latest. To reiterate, that's *zero* carbon emissions on balance within three decades—a feat that will require reductions in emissions of 5–7% *per year*, going forward.¹⁴⁵ Only the global recession of 2008 and the worldwide spread of COVID-19 have ever caused emissions to fall this rapidly in the past, and neither of those presents a desirable model for durable decarbonization.¹⁴⁶ Moreover, emissions already appear to be rapidly bouncing back from their COVID-19-induced dip,¹⁴⁷ which further highlights the need for more transformative models.

¹⁴⁴ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Summary for Policymakers*, in GLOBAL WARMING OF 1.5°C 12 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf [<https://perma.cc/2GQ4-V4CF>] (finding that to limit warming to 1.5°C, “global net anthropogenic CO₂ emissions [must] decline by about 45% from 2010 levels by 2030 . . . reaching net zero around 2050” (emphasis omitted)).

¹⁴⁵ Bill McKibben, *How We Got to the Green New Deal*, in WINNING THE GREEN NEW DEAL: WHY WE MUST, HOW WE CAN 55, 56 (Varshini Prakash & Guido Girgenti eds., 2020) (describing how if the world had started taking action in the 1980s, it would have only required a reduction in carbon emissions of 1–2% per year, not 5–7%). The year 2050 is typically the latest date proposed for completing this transformation; the faster the energy system transforms, the more likely it is that the temperature rise will not reach a catastrophic level. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development* (“Pathways with higher chances of holding warming to below 1.5°C generally show a faster decline in the carbon intensity of electricity by 2030 . . .”), in GLOBAL WARMING OF 1.5°C, *supra* note 144, at 97; MAJORITY STAFF OF HOUSE SELECT COMM. ON THE CLIMATE CRISIS, 116TH CONG., SOLVING THE CLIMATE CRISIS: THE CONGRESSIONAL ACTION PLAN FOR A CLEAN ENERGY ECONOMY AND A HEALTHY, RESILIENT, AND JUST AMERICA 3 (Comm. Print 2020) (presenting the current situation and a plan to get to zero emissions).

¹⁴⁶ Corinne Le Quéré, Robert B. Jackson, Matthew W. Jones, Adam J.P. Smith, Sam Abernethy, Robbie M. Andrew, Anthony J. De-Gol, David R. Willis, Yuli Shan, Josep G. Canadell, Pierre Friedlingstein, Felix Creutzig & Glen P. Peters, *Temporary Reduction in Daily Global CO₂ Emissions During the COVID-19 Forced Confinement*, 10 NATURE CLIMATE CHANGE 647, 651–52 (2020).

¹⁴⁷ Patrick Smith, *Carbon Emissions in 2021 to Pass Pre-Pandemic Levels, Report Warns*, NBC NEWS (Apr. 20, 2021), <https://www.nbcnews.com/science/environment/carbon-emissions-2021-pass-pre-pandemic-levels-report-warns-n1264591> [<https://perma.cc/D5M2-U76D>] (“[A]s the United States and Europe tentatively end pandemic restrictions, the IEA predicts an increase in global energy demand of 4.6 percent this year, 0.5 percent higher than in 2019. Such an increase would be beaten only by the surge seen after the 2008–09 financial crisis, when carbon emissions halved before rebounding strongly.”).

Rapid emissions reductions will need to occur across essentially every economic sector, particularly the energy-intensive sectors. The U.S. transportation sector now ranks first in terms of carbon pollution (29%), followed by electricity (25%), industry (23%), commercial and residential (13%), and agriculture (10%).¹⁴⁸ But these sectors are also linked: the plan for decarbonizing transportation, the commercial and residential sectors, and large portions of the industrial sector is to electrify them.¹⁴⁹ That means that the transformation of the electricity system will need to occur even earlier so that these sectors can turn to electricity as their pathway to decarbonization. To facilitate electrification, in the next several decades, the U.S. electricity system will need to approximately triple in size while reducing its emissions 95–100% and reducing final energy demand by around 40%.¹⁵⁰

Because of electricity's centrality to decarbonization, and also likely because it has proven materially easier to tackle, energy law scholarship has focused the bulk of its attention towards climate change on how to clean up the electricity sector. As noted above, emissions in this sector *have* come down, for a variety of reasons.¹⁵¹ Some states have achieved impressive drops in emissions through enacting strong policies in support of renewable energy, which help strengthen economic coalitions that favor a clean energy transition.¹⁵² Renewable energy, however, is not the primary driver of falling emissions in the U.S. electricity sector. Instead, it has been the untenable “solution” of replacing one fossil fuel—coal—with another slightly less dirty fossil fuel—natural gas.¹⁵³ The buildout of substantial and long-lasting natural gas infrastructure

¹⁴⁸ *Sources of Greenhouse Gas Emissions*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> [<https://perma.cc/Z5FW-LVEB>] (July 27, 2021).

¹⁴⁹ See Jesse D. Jenkins, Max Luke & Samuel Thornstrom, *Getting to Zero Carbon Emissions in the Electric Power Sector*, 2 JOULE 2498, 2498, 2506 (2018) (identifying electric power as the “linchpin of efforts” to limit greenhouse gas emissions).

¹⁵⁰ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *supra* note 145, at 95; STEPHEN NAIMOLI & SARAH LADISLAW, CTR. STRATEGIC & INT'L STUDIES, DEEP DECARBONIZATION PATHWAYS 2 (2020), https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200310_NaimoliLadislaw_Decarbonization_WEB%20FINAL.pdf?XurVZpZFoQx8.uDxr6jGSUA.gHJK4_Oz [<https://perma.cc/AE28-2L34>]; see also Jenkins et al., *supra* note 149, at 2506.

¹⁵¹ See *supra* notes 132–138 (discussing the decline in emissions over the last few years as a function of increased renewable energy generation and declining costs).

¹⁵² See Biber, *supra* note 21, at 425–34 (providing California as an example); *id.*, *supra* note 21, at 605 (explaining the brutal impacts of climate change if society does not adapt); Jonas Meckling, Nina Kelsey, Eric Biber & John Zysman, *Winning Coalitions for Climate Policy*, 349 SCIENCE 1170, 1170–71 (2015) (outlining how coalitions can assist decarbonization).

¹⁵³ See Trevor Houser & Hannah Pitt, *Preliminary US Emissions Estimates for 2019*, RHODIUM GRP. (Jan. 7, 2020), <https://rhg.com/research/preliminary-us-emissions-2019> [<https://perma.cc/5YLL-QXBQ>] (describing how despite the fall in usage of coal, natural gas has increased in use to fill the gap). Natural gas combustion has half the carbon emissions of coal and considerably fewer local air pollutant emissions, however methane leaks during natural gas production offset a contested portion of its carbon benefits. See Ramón A. Alvarez, Daniel Zavala-Araiza, David R. Lyon, David T. Allen,

creates a formidable constituency opposed to renewable energy as a competitor technology.¹⁵⁴

In this vein, several researchers have documented how fossil fuel-centered coalitions continue to stymie or reverse clean energy progress at various levels of government. For example, Leah Stokes's 2020 book, *Short-Circuiting Policy*, carefully examines the politics of renewable energy in several "red" states that passed clean energy legislation. Focusing on policy battles in Texas, Kansas, Arizona, and Ohio, her research illustrates how powerful fossil fuel-allied interest groups worked to erode these clean energy victories over time through their influence in both statehouses and public utility commissions.¹⁵⁵ Even in California, big oil and gas interests have thwarted statewide efforts to tighten the carbon pricing system.¹⁵⁶

Matto Mildenberger extends this analysis to the federal level in his 2020 book, *Carbon Captured*, which describes how high-carbon business sectors and workers form coalitions to effectively block robust federal climate legislation.¹⁵⁷ Other legal scholarship similarly traces how anti-clean energy efforts permeate federal regulatory agencies.¹⁵⁸

Although COVID-19 has destabilized the oil and gas industry in the short term, it is not clear that this pattern will persist without enhanced regulatory

Zachary R. Barkley, Adam R. Brandt, Kenneth J. Davis, Scott C. Herndon, Daniel J. Jacob, Anna Karion, Eric A. Kort, Brian K. Lamb, Thomas Lauvaux, Joannes D. Maasakkers, Anthony J. Marchese, Mark Omara, Stephen W. Pacala, Jeff Peischl, Allen L. Robinson, Paul B. Shepson, Colm Sweeney, Amy Townsend-Small, Steven C. Wofsy & Steven P. Hamburg, *Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain*, 361 *SCIENCE* 186, 186 (2018) (finding considerably higher methane emissions from natural gas than were reported by the U.S. Environmental Protection Agency); Ellen Knickmeyer & Seth Borenstein, *Americans' Energy Use Surges Despite Climate Change Concern*, ASSOCIATED PRESS (Apr. 18, 2019), <https://www.apnews.com/7d4c9cc8f8c344fb9b800a5fd9c48866> [<https://perma.cc/85AS-4DEN>] (reflecting a 10% increase in U.S. natural gas consumption in 2018).

¹⁵⁴ See Richard Newell & Daniel Raimi, *Despite Renewables Growth, There Has Never Been an Energy Transition*, AXIOS (Aug. 17, 2018), <https://www.axios.com/despite-renewables-growth-there-has-never-been-energy-transition-e11b0cf5-ce1d-493c-b1ae-e7dbce483473.html> [<https://perma.cc/6NLM-WTBW>] (arguing that to effectuate an energy transition, "renewables and new technologies will need to do more than build atop CO₂-intensive fossil fuels—they will need to push out incumbents").

¹⁵⁵ STOKES, *supra* note 11, at 3–4. See generally Peskoe, *supra* note 123; Troy A. Rule, *Solar Energy, Utilities, and Fairness*, 6 *SAN DIEGO J. CLIMATE & ENERGY L.* 115 (2015) (demystifying the arguments from pro-fossil fuel legislators and rooftop solar advocates to spur an informed debate around solar energy and debunk the utility of fairness-based reasoning).

¹⁵⁶ Matto Mildenberger & Leah C. Stokes, *The Trouble with Carbon Pricing*, BOS. REV. (Sept. 24, 2020), <http://bostonreview.net/science-nature-politics/matto-mildenberger-leah-c-stokes-trouble-carbon-pricing> [<https://perma.cc/KC3G-EBD4>] ("Though legislators aimed to tighten [California's cap-and-trade] law in 2017, oil and gas lobbyists thwarted their efforts.").

¹⁵⁷ MILDENBERGER, *supra* note 11, at 20–21, 42–43.

¹⁵⁸ See, e.g., Cullenward & Welton, *supra* note 125; Macey & Salovaara, *supra* note 121; Welton, *supra* note 121.

interventions.¹⁵⁹ Even with rapid growth in the renewable energy sector over the last decade, researchers have found that fossil fuel companies' political spending at the federal level has continued to outpace renewable companies' spending by at least thirteen to one.¹⁶⁰ Utilities also engage heavily in lobbying and political spending and donate disproportionately to Republican candidates.¹⁶¹

This research and reality cast doubt on the optimistic view that cheap renewables will inevitably force fossil fuels out of existence.¹⁶² The legal tools that scholars and policy-makers have developed and selectively deployed are working, but these tools are not spreading fast enough and, in most places, are not demanding deep or swift enough transformations of the electricity sector. The projections from the Energy Information Administration (EIA) are telling: based on current policies, the EIA projects that electricity generation will grow modestly through 2050, with additions to the sector dominated by renewables and natural gas.¹⁶³ Relatedly, the EIA projects that electricity sector emissions will decline only slightly, as economic growth ultimately overtakes gains made through greater sectoral deployment of renewables.¹⁶⁴ Hopefully, these EIA projections will prove to be too conservative, as they frequently have been in the past, but they would have to be wrong by orders of magnitude to accord with decarbonization imperatives.¹⁶⁵

To summarize: gains made in public utility law and various forms of carbon pricing have put us only on a course to stabilize U.S. electricity emissions—a far cry from the precipitous plunge to zero demanded by climate sci-

¹⁵⁹ See Kevin M. Camp, David Mead, Stephen B. Reed, Christopher Sitter & Derek Wasileski, *From the Barrel to the Pump: The Impact of the COVID-19 Pandemic on Prices for Petroleum Products*, MONTHLY LAB. REV. (U.S. Bureau of Lab. Stat., Washington, D.C.), Oct. 2020, <https://www.bls.gov/opub/mlr/2020/article/from-the-barrel-to-the-pump.htm> [<https://perma.cc/Y2PH-E3WR>].

¹⁶⁰ Karin Kirk, *Fossil Fuel Political Giving Outdistances Renewables 13 to One*, YALE CLIMATE CONNECTIONS (Jan. 6, 2020), <https://yaleclimateconnections.org/2020/01/fossil-fuel-political-giving-outdistances-renewables-13-to-one/> [<https://perma.cc/6ZGZ-QRK7>].

¹⁶¹ *Energy/Natural Resources*, OPENSECRETS.ORG <https://www.opensecrets.org/industries/indus.php?Ind=E> [<https://perma.cc/MC7A-DC3H>] (July 16, 2021) (listing political donations by energy companies to political entities); *Electric Utilities*, OPENSECRETS.ORG, <https://www.opensecrets.org/industries/summary.php?cycle=2020&ind=E08> [<https://perma.cc/8YZ3-ZQZY>] (Mar. 22, 2021) (detailing political spending by electric utility companies). In the United States, the Republican Party has typically opposed action on climate change, helping to explain these spending patterns.

¹⁶² E.g., Jeffrey Sachs, *Getting to A Carbon-Free Economy*, AM. PROSPECT (Dec. 5, 2019), <https://prospect.org/greennewdeal/getting-to-a-carbon-free-economy/> [<https://perma.cc/LLN3-BVW6>] (suggesting that from this point forward, “[d]ecarbonization of electric power will be relatively straightforward”).

¹⁶³ See U.S. ENERGY INFO. ADMIN., *supra* note 133, at 67–68.

¹⁶⁴ See *id.* at 154.

¹⁶⁵ See Michael Wara, Danny Cullenward, & Rachel Teitelbaum, *Peak Electricity and the Clean Power Plan*, ELEC. J., May 2015, at 18 (arguing that EIA models tend to over-predict actual electricity sales and under-predict energy efficiency).

ence.¹⁶⁶ Moreover, the stark partisan divide in the United States is likely to impede substantial additional cross-state policy profusion in this space.¹⁶⁷ All of this means that the field needs something beyond a sustained focus on refining traditional electricity law frameworks to fully decarbonize the U.S. electricity sector. Many are now pinning their hopes on a federal clean electricity incentive program—a step endorsed by the Biden Administration, but one that is going to require careful political calculations to eke its way through Congress.¹⁶⁸

Such a program would be a critical victory toward robust U.S. decarbonization policy—but even so, it represents but one relatively straightforward component of necessary structural reforms. The policy space beyond electricity decarbonization is far thornier to navigate. Energy law scholars have focused less attention on tracing the ways that fossil fuels permeate sectors other than electricity. But if the key strategy for decarbonization is cleaning up electricity *plus* electrifying everything, then the question of how—strategically and politically—to shift entire industrial and human systems from their current infrastructure to an electrified future merits equal attention. This query, however, requires focusing on topics beyond the material characteristics of energy supply and delivery.

These cross-sectoral questions are difficult. Even in states leading the charge on decarbonization, reducing transportation sector emissions has proven largely intractable.¹⁶⁹ The Obama Administration made valiant efforts to improve miles per gallon under the CAFE framework only to have these rebuffed by the Trump Administration.¹⁷⁰ New efforts toward decarbonization will need to redouble the commitment to figuring out the best strategies to rapidly electrify transportation, as well as transition our building stock away from

¹⁶⁶ See *supra* notes 144–154 (describing how advances in renewable energy use, technology, and cost-effectiveness has caused emissions to decline, but not enough).

¹⁶⁷ See *supra* notes 155–165 (outlining how political forces stymie climate policy).

¹⁶⁸ As this Article went to press, the House of Representatives had approved the outlines of a \$150 billion Clean Energy Performance Program (CEPP) as part of its budget reconciliation package—a program that would help decarbonize electricity 80% by 2030. The CEPP’s political fate, though, remained very much in question. See Nick Sobczyk, *Democrats Advance Climate Bill as Advocates Gird for a Fight*, E&E NEWS: E&E DAILY (Sept. 15, 2021), <https://www.eenews.net/articles/democrats-advance-climate-bill-as-advocates-gird-for-a-fight/> [<https://perma.cc/3ANE-X6PU>] (“Senate Energy and Natural Resources Chair Joe Manchin (D-W.Va.) has said he opposes the CEPP and the \$3.5 trillion in spending, complicating the path forward in the 50-50 Senate.”).

¹⁶⁹ NEXT 10, 2019 CALIFORNIA GREEN INNOVATION INDEX (11th ed. 2019), <https://www.next10.org/sites/default/files/2019-10/2019-california-green-innovation-index-final.pdf> [<https://perma.cc/GN2B-9JWS>] (finding that California’s clean energy transition may be delayed by decades due to transportation emissions).

¹⁷⁰ The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks, 85 Fed. Reg. 24,174 (Apr. 30, 2020) (to be codified at 40 C.F.R. pts. 86, 600, and 49 C.F.R. pts. 523, 531, 533, 536, 537).

reliance on natural gas for heating and cooking. Similarly, the work of decarbonizing industry needs more sustained focus.

Here, then, is an opening for energy law scholars to redefine what the contours of the field are in order to confront a new set of material challenges. If the challenge is decarbonization through and through, then the field can no longer focus only on physical and market challenges in energy extraction, movement, and distribution. Part III discusses ways to expand energy law to cover a broader scope of emissions.¹⁷¹ But first, the strictures of energy law warrant critique from a different angle.¹⁷²

B. The End of the Energy Law Silo

Decades of climate delay have left us with no good option other than radical and rapid restructuring of our fossil fuel dominated economy and society. Recognizing as much, activists, particularly young activists, are shifting the political conversation about what “solving” climate change requires. An increasingly prevalent organizing refrain among progressives is that climate change must be seen as one component of a larger struggle against corporate domination, rising inequality, and structural racism in the United States. Only by uniting these issues to galvanize a cohesive progressive agenda, this thinking goes, can true progress on climate change be accomplished.

As energy law scholars grapple with this new approach, I have frequently been involved in conversations involving some version of this question: Are these activists right? Do energy law scholars really need to tackle race and inequality as part of the charge of decarbonization? To many, it sounds like a lot to add to an already complex agenda. Here, I want to assert two critical reasons that I believe our scholarship needs to orient more toward these issues—one to do with political economy and the other to do with moral imperative.

On the topic of political economy, it is difficult to prognosticate about what kind of climate legislation, if any, might ultimately pass at the federal level. Nevertheless, many pundits are trying to parse potential ways to amass a sufficiently robust political coalition in favor of climate policy. One way to understand the GND is as a tactical response to past climate politics, rooted in concerns that conservative politicians have not been negotiating in good faith. The early predominant conservative position on climate change policy was to push for market mechanisms as key solutions while refusing to support more direct government interventions. But when congressional Democrats finally put forward a federal climate bill shaped along these lines in 2009, corporate and conservative supporters flipped, opposing action altogether and killing the

¹⁷¹ See *infra* Part III.

¹⁷² See *infra* Part II, Section B.

only serious attempt ever made at federal climate change legislation.¹⁷³ The issue has only become more politicized in the ensuing years, such that many on the left see little remaining point in negotiating across the aisle on climate change policy.¹⁷⁴

Consequently, the new thinking goes, climate change must be framed as an issue that unites *everyone* across the left, and draws in new working-class partners, to agglomerate enough support to move forward.¹⁷⁵ GND proponents compellingly trace not just the ways that energy facilities disproportionately benefit white people and burden people of color, but the more fundamental ways in which fossil fuels undergird a neoliberal economic system. This system depends on exploitation and oppression, in which racism is used to splinter class-based interests and a sense of common purpose, creating tremendous precarity that in turn breeds fear of change.¹⁷⁶ Thus, as Bill McKibben has argued, there is no way to enact sufficiently drastic climate policy “without simultaneously addressing the economic insecurity that makes it so hard for people to imagine change.”¹⁷⁷ And indeed, California, the state that has accomplished the most on climate change, has integrated distributive justice considerations much more thoroughly into its climate change policies than have other states.¹⁷⁸

Proponents of the GND believe it presents the kind of galvanizing force necessary to jointly tackle the issues of climate change, structural racism, and inequality. They are, however, quick to admit that so far it is more of a vision than a set of discrete policy proposals.¹⁷⁹ As outlined in a resolution Representative Alexandria Ocasio-Cortez and Senator Ed Markey introduced to both houses of Congress in February 2019, the central demand of the platform is a

¹⁷³ See generally Theda Skocpol, *Naming the Problem: What It Will Take to Counter Extremism and Engage American in the Fight Against Global Warming* (Jan. 2013) (unpublished symposium paper), https://scholars.org/sites/scholars/files/skocpol_captrade_report_january_2013_0.pdf [<https://perma.cc/R4Y9-8VW8>] (providing a history of opposition to climate legislation and suggesting avenues to place the issue at the forefront of the political agenda).

¹⁷⁴ See Sean Sweeney, *The Green New Deal's Magical Realism*, NEW LAB. F. (Feb. 19, 2019), https://newlaborforum.cuny.edu/2019/02/19/green_new_deal/ [<https://perma.cc/XL6Y-ACLJ>] (outlining the Green New Deal as a ground-breaking progressive legislation that even the more moderate democrats criticize).

¹⁷⁵ See, e.g., Ian Haney López, *Averting Climate Collapse Requires Confronting Racism*, in WINNING THE GREEN NEW DEAL, *supra* note 145, at 38, 41.

¹⁷⁶ See, e.g., *id.* at 39 (“Decades of right-wing narratives linking people of color, hostility toward government, and class war have culminated in a strong connection between racial resentment and climate denial.”).

¹⁷⁷ McKibben, *supra* note 145, at 61.

¹⁷⁸ See Kaswan, *supra* note 21, at 88–92 (explaining the central role of environmental justice in California’s climate change policy).

¹⁷⁹ Rhiana Gunn-Wright, *Policies and Principles of a Green New Deal*, in WINNING THE GREEN NEW DEAL, *supra* note 145, at 67, 70.

rapid, cross-sectoral transition to net-zero greenhouse gas emissions.¹⁸⁰ To ensure that these climate objectives are accompanied by economic and social transformation, the GND pairs these reforms with community ownership of resources, a federal jobs guarantee, “high-quality health care,” and “affordable, safe, and adequate housing” for all Americans.¹⁸¹

This broad agenda has faced considerable criticism from both conservatives and the more centrist wing of the Democratic party,¹⁸² making its political fate uncertain. At the state level, it has already met with some success. Following California’s lead,¹⁸³ both New Mexico and New York have recently passed climate legislation containing significant economic justice components.¹⁸⁴ At the federal level, even though President Biden has disavowed being a supporter of the GND, his climate change strategy has adopted many of its central tenets, including 100% clean electricity by 2035, two trillion dollars in federal infrastructure spending, and a dedicated 40% of all federal green spending targeted to disadvantaged communities.¹⁸⁵

¹⁸⁰ See H.R. Res. 109, 116th Cong., §§ 1(A)–(E), 2 (calling for a ten-year mobilization to reach net-zero emissions). Data for Progress—the most comprehensive blueprint to date—calls for achieving “100% clean energy” by 2035 and net-zero emissions by 2050. See GREG CARLOCK & EMILY MANGAN, DATA FOR PROGRESS, A GREEN NEW DEAL: A PROGRESSIVE VISION FOR ENVIRONMENTAL SUSTAINABILITY AND ECONOMIC STABILITY 4–5 (2018), https://www.filesforprogress.org/pdfs/Green_New_Deal.pdf [<https://perma.cc/96SB-JWKJ>]. See generally Rhiana Gunn-Wright & Robert Hockett, *Mobilizing for a Just, Prosperous, and Sustainable Economy: The Green New Deal* (Cornell L. Sch., Legal Stud. Rsch. Paper Series, Research Paper No. 19-09, 2019) (providing an overview of the Green New Deal).

¹⁸¹ H.R. Res. 109, § 4(O)(i)–(ii); see also Gunn-Wright & Hockett, *supra* note 180, at 10 (listing similarly worded goals).

¹⁸² See Dan Drollette, Jr., *We Need a Better Green New Deal—An Economist’s Take*, BULL. ATOMIC SCIENTISTS (Mar. 25, 2019), <https://thebulletin.org/2019/03/we-need-a-better-green-new-deal-an-economists-take/> [<https://perma.cc/5LGG-AJQ8>] (presenting an interview with a leading economist who suggests improvements to the Green New Deal); Noah Smith, *How to Design a Green New Deal That Isn’t Over the Top*, SALT LAKE TRIB. (Feb. 13, 2019), <https://www.sltrib.com/opinion/commentary/2019/02/13/noah-smith-how-design/> [<https://perma.cc/3SN9-HHUX>] (“[T]he plan overreaches in its desire to deliver a raft of expensive new entitlements—guaranteed jobs, benefits, health care, housing, education, income and more.”); Sweeney, *supra* note 174 (describing a “war between the rising left wing of the Democratic Party . . . and the party’s pro-market neoliberal mainstream” (internal quotations omitted)).

¹⁸³ See Kaswan, *supra* note 21, at 88–92.

¹⁸⁴ See Energy Transition Act, S.B. 489, 54th Legis., Reg. Sess. (N.M. 2019) (providing funds for just worker transition following plant closures); Climate Leadership and Community Protection Act, S. 6659, 2019–2020 Sess., Reg. Sess. (N.Y. 2019) (requiring at least 35% of the benefits of clean energy and energy efficiency funded to go to “disadvantaged” communities).

¹⁸⁵ Press Release, The White House Briefing Room, Executive Order on Tackling the Climate Crisis at Home and Abroad, Sec. 223 (Jan. 27, 2021), <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/> [<https://perma.cc/PCC8-9LN3>] (describing the Justice40 initiative to direct funding to disadvantaged communities); *The Biden Plan to Secure Environmental Justice and Equitable Economic Opportunity*, BIDEN HARRIS, <https://joebiden.com/environmental-justice-plan/> [<https://perma.cc/H3TQ-VS53>]; *The*

It is not clear whether the Biden Administration will succeed in helping to pass federal legislation that accomplishes these aims. Nevertheless, the broad contours of these agendas deserve careful consideration and development as alternatives—or additions—to a tax, cap-and-trade, or bare mandates approach to climate policy. The power of these approaches is that they reframe climate change away from being merely a problem that must be dealt with into an opportunity for real, durable change for the vast majority of Americans losing out in the current economic ordering.¹⁸⁶ Even if the GND moniker proves polarizing, its pivot toward focusing on economic opportunity offers room for creative cross-partisan thinking about new industrial development, economic recovery, and infrastructure investment centered on clean energy.

So far, I have focused on the politics of climate, suggesting that scholars should explore the possibility that sufficient progress on climate change might require forging broader and deeper coalitions and multi-purpose policy solutions that unite allied progressive causes. But the pivot of young activists towards framing climate change and decarbonization as part of a larger justice agenda is more than just a tactical one. It arises from a deep, considered understanding of how the issues of energy, environment, inequality, and racism are fundamentally interconnected.¹⁸⁷ This interconnection creates a deeper moral imperative for scholars focused on energy and decarbonization to think about how U.S. energy law has historically, and might in the future, exacerbate or ameliorate problems of structural racism and inequality.

As described in Part I, energy law typically traces its origins to the early days of fossil fuels. But one could imagine beginning the history of energy law in the United States where anthropologist Myles Lennon does, with the Trans-Atlantic Slave Trade.¹⁸⁸ As Lennon compellingly argues, this trade was “the first industrial-scale energy infrastructure” that “commoditized human beings by violently disciplining them to elicit profitable changes in matter through commercialized land transformations.”¹⁸⁹ This notion of converting energy into a commercialized force, Lennon asserts, then transferred over to fossil fuels, but under conditions where Black bodies and other people of color were al-

Biden Plan for a Clean Energy Revolution and Environmental Justice, BIDEN HARRIS, <https://joe.biden.com/climate-plan/#> [<https://perma.cc/2PYK-AT3R>].

¹⁸⁶ See Mildenberger & Stokes, *supra* note 156 (explaining why the dominant climate policy, carbon pricing, is flawed, and suggesting a new theory).

¹⁸⁷ Gunn-Wright & Hockett, *supra* note 180, at 1, 5–6 (outlining how the Green New Deal and other progressive movements have arisen out of a serious effort to combat racial injustice and inequality at their intersection with climate change).

¹⁸⁸ Myles Lennon, *Decolonizing Energy: Black Lives Matter and Technoscientific Expertise Amid Solar Transitions*, ENERGY RSCH. & SOC. SCI., Aug. 2017, at 18, 24.

¹⁸⁹ *Id.* at 24.

ready subjugated and continue to be so.¹⁹⁰ At the same time, both slavery and the rise of fossil fuels are intimately tied to the history of wealth in this country, with coal, oil, and railroad barons emerging as the nineteenth century “one percent” in a pattern that carries through to utility and oil company executives today.¹⁹¹

I would describe the role of energy law in facilitating the structural racism and inequality that has long pervaded the United States as largely one of neglect. To be sure, energy law has often focused on ensuring low consumer prices at the expense of producers who might like to pump oil more quickly, or monopoly utilities who might like to price gouge their captive customers. But the focus on “consumers” or “ratepayers” as a class in energy law serves to obscure differences between the people actually doing the consuming and rate-paying—differences that many Progressives found not only acceptable, but justifiable. This attitude continues to undergird energy law’s dominant strategy: “low prices for all!” In this way, energy law is a classic example of presumptive equality masking inequities and racism.

Consequently, even as energy law has proven successful at delivering electricity, natural gas, and oil to a majority of the U.S. population, it has not been able to ensure that everyone has access, that everyone can afford this energy, or that everyone equally shares in the burdens our fossil-fueled lifestyles create. The budding scholarly literature on energy justice has begun to interrogate many of these topics, critiquing a host of injustices in the contemporary energy system.¹⁹²

¹⁹⁰ See *id.* at 25 (“From the relegation of former black slaves and their descendants to the ‘least desirable jobs’ on coal-powered assembly lines to the exploitation of poor Chinese immigrants through the development of the first coal-powered transportation system, the railroad; from the swelling ranks of infirm, indigent black and white coal miners, to the proliferation of racist policies that pitted the white working masses against people of color for control over the wealth created by this industrialized system (such as redlining and the Chinese Exclusion Act), the transition to fossil fuels institutionalized racial hierarchies in ways that intersected with regimes of capitalist exploitation.” (citations omitted)); see also Hop Hopkins, *Racism Is Killing the Planet*, SIERRA (June 8, 2020), <https://www.sierraclub.org/sierra/racism-killing-planet> [<https://perma.cc/SBG2-DCS9>] (“You can’t have climate change without sacrifice zones, and you can’t have sacrifice zones without disposable people, and you can’t have disposable people without racism.” (emphasis omitted)); Timothy Mitchell, *Carbon Democracy*, in ENERGY HUMANITIES, *supra* note 17, at 160.

¹⁹¹ See Tim McLaughlin & David French, *Why U.S. Energy CEOs Will Get Big Payouts Despite Oil Meltdown*, REUTERS (May 27, 2020), <https://www.reuters.com/article/us-global-oil-shale-executives-insight/why-u-s-energy-ceos-will-get-big-payouts-despite-oil-meltdown-idUSKBN2331IC> [<https://perma.cc/GS5S-7PHH>] (“U.S. energy executives have retained . . . lavish payouts even as they have struggled for years to deliver shareholder returns—despite massive growth in domestic shale oil production.”).

¹⁹² For a sampling of scholarly work on energy justice, see generally Karen Bickerstaff, Gordon Walker & Harriet Bulkeley, *Introduction: Making Sense of Energy Justice* to ENERGY JUSTICE IN A CHANGING CLIMATE: SOCIAL EQUITY AND LOW-CARBON ENERGY (Karen Bickerstaff, Gordon Walker & Harriet Bulkeley eds., 2013); BRENDA BOARDMAN, *FIXING FUEL POVERTY: CHALLENGES*

These researchers have charted a growing problem of energy poverty, or the inability of low-income households to afford adequate energy services.¹⁹³ Two-thirds of low-income households in the United States now suffer from a high energy burden, defined as spending more than six percent of income on energy bills,¹⁹⁴ and in some places, low-income residents routinely spend over half of their income on energy.¹⁹⁵ These high energy burdens force difficult

AND SOLUTIONS (2013); BENJAMIN K. SOVACOO & MICHAEL H. DWORKIN, *GLOBAL ENERGY JUSTICE: PROBLEMS, PRINCIPLES, AND PRACTICES* (2014); Noel Healy & John Barry, *Politicizing Energy Justice and Energy System Transitions: Fossil Fuel Divestment and a "Just Transition,"* 108 ENERGY POL'Y 451 (2017); Raphael J. Heffron & Darren McCauley, *The Concept of Energy Justice Across the Disciplines*, 105 ENERGY POL'Y 658, 658 (2017) (noting "accelerating" research across disciplines into energy justice); Raphael J. Heffron, Darren McCauley & Benjamin K. Sovacool, *Resolving Society's Energy Trilemma Through the Energy Justice Metric*, 87 ENERGY POL'Y 168 (2015); Kirsten Jenkins, Darren McCauley, Raphael Heffron, Hannes Stephan & Robert Rehner, *Energy Justice: A Conceptual Review*, ENERGY RSCH. & SOC. SCI., May 2016, at 174, 175 ("Energy justice has emerged as a new crosscutting social science research agenda . . ."); Kirsten Jenkins, Darren McCauley, Raphael Heffron & Hannes Stephan, *Energy Justice, a Whole Systems Approach*, QUEEN'S POL. REV., Feb. 2014, at 74. For literature on climate justice, which more broadly interrogates the disparate causes and impacts of climate change, see Barry Barton & Jennifer Campion, *Energy Justice and the Design of Climate Change Legislation: Avoiding Regressive Measures*, in ENERGY JUSTICE AND ENERGY LAW 203 (Iñigo del Guayo, Lee Godden, Donald D. Zillman, Milton Fernando Montoya & José Juan González eds., 2020) (noting how climate change policy itself raises energy justice concerns); Maxine Burkett, *Behind the Veil: Climate Migration, Regime Shift, and a New Theory of Justice*, 53 HARV. C.R.-C.L. L. REV. 445, 447, 452 (2018); Maxine Burkett, *Just Solutions to Climate Change: A Climate Justice Proposal for a Domestic Clean Development Mechanism*, 56 BUFF. L. REV. 169, 170 (2008); Carmen G. Gonzalez, *Climate Justice and Climate Displacement: Evaluating the Emerging Legal and Policy Responses*, 36 WIS. INT'L L.J. 366, 370 (2019); Rachel Jean-Baptiste, Senior Att'y, Env't L. Inst., Randall S. Abate, Assoc. Dean for Acad. Affs. & Prof. of L., Fla. A&M Coll. of L., Maria Antonia Tigre, Senior Att'y, Cyrus R. Vance Ctr. for Int'l Just., Patricia Ferreira, Fellow, Ctr. for Int'l Governance Innovation, Wil Burns, Co-Director of the F. for Climate Eng'g Assessment, Am. U. Sch. of Int'l Serv., Seminar on Recent Developments in Climate Justice Before the Environmental Law Institute (2017), in 47 ENV'T L. REP. 11005 (2017) (describing interrelationship of environmental and climate justice literatures); see also Bickerstaff et al., *supra*, at 193 (observing that "climate mitigation policies could push increasing numbers of low-income households into energy poverty").

¹⁹³ See, e.g., Diana Hernández, *Sacrifice Along the Energy Continuum: A Call for Energy Justice*, 8 ENV'T JUST. 151, 154 (2015); Tony Gerard Reames, *Targeting Energy Justice: Exploring Spatial, Racial/Ethnic and Socioeconomic Disparities in Urban Residential Heating Energy Efficiency*, 97 ENERGY POL'Y 549, 549 (2016); Benjamin K. Sovacool, *Fuel Poverty, Affordability, and Energy Justice in England: Policy Insights from the Warm Front Program*, ENERGY, Dec. 2015, at 362.

¹⁹⁴ ARIEL DREHOBEL, LAUREN ROSS & ROXANA AYALA, AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON., *HOW HIGH ARE HOUSEHOLD ENERGY BURDENS?: AN ASSESSMENT OF NATIONAL AND METROPOLITAN ENERGY BURDEN ACROSS THE UNITED STATES*, at ii (2020).

¹⁹⁵ Adam Chandler, *Where the Poor Spend More Than 10 Percent of Their Income on Energy*, THE ATLANTIC (June 8, 2016), <https://www.theatlantic.com/business/archive/2016/06/energy-poverty-low-income-households/486197/> [<https://perma.cc/YCU5-QVP9>].

decisions between “heating and eating” and threaten physical and mental health and social stability.¹⁹⁶

Research has also revealed how the laws around energy production and generation have neglected considerations of racism and inequality.¹⁹⁷ Because conservation statutes have largely focused on waste minimization, they offer limited protection to surface landowners or other community members harmed by the efficient production of coal, oil, and gas.¹⁹⁸ Nor have state energy siting laws done much work to limit inequitable siting of production or generation facilities that tend to be concentrated in low-income communities of color.¹⁹⁹ More recent research into clean energy justice suggests that a transformation to renewable energy may exacerbate many of these long-standing inequalities, rewarding affluent homeowners for putting solar panels on their roofs while continuing to shunt the burdens of large renewable energy infrastructure onto marginalized rural communities.²⁰⁰

In the past, energy law’s focus on the material characteristics of fuels themselves has allowed it to disavow these challenges. Energy poverty can be cast as simply a logical corollary to poverty more generally—a topic outside the scope of energy law. Similarly, energy-related health and ecological challenges, including the energy industry’s egregious pollution of air and water, are typically left for environmental law to remedy—or fail to remedy.²⁰¹

More recently, several voices in the legal academy have begun to center these justice concerns within energy law scholarship. Three recent books, for example, explore the intersections of energy law and energy justice on an international scale.²⁰² These are welcome additions to a lean literature. Benjamin

¹⁹⁶ See Hernández, *supra* note 193, at 154 (explaining the difficulties of high energy burdens); Sovacool, *supra* note 193, at 362 (same).

¹⁹⁷ See *supra* note 192 (providing a list of scholarship concerning the implications of our current infrastructure on energy and climate justice).

¹⁹⁸ See *supra* notes 80–82 (describing the goals and effects of conservation statutes).

¹⁹⁹ Brian Bienkowski, *Poor Communities Bear Greatest Burden from Fracking*, SCI. AM. (May 6, 2015), <https://www.scientificamerican.com/article/poor-communities-bear-greatest-burden-from-fracking/> [<https://perma.cc/RP9R-9B7R>]; Maninder P.S. Thind, Christopher W. Tessum, Ines L. Azevedo & Julian D. Marshall, *Fine Particulate Air Pollution from Electricity Generation in the US: Health Impacts by Race, Income, and Geography*, ENV’T SCI. & TECH., Nov. 2019, at 14010 (finding Black Americans’ exposure to PM2.5 emissions from power plants exceed those of all other races).

²⁰⁰ See Tony Reames, *Distributional Disparities in Residential Rooftop Solar Potential and Penetration in Four Cities in the United States*, ENERGY RSCH. & SOC. SCI., Nov. 2020, at 2 (documenting disparate rooftop solar penetration); Welton & Eisen, *supra* note 21, at 357–60 (discussing rural burdens of utility-scale renewables).

²⁰¹ Aagaard, *supra* note 20, at 1531–33 (arguing that this divide between energy and environmental law, given their overlapping concerns, is problematic).

²⁰² See SOVACOO & DWORKIN, *supra* note 192, at 12–13. Michael Dworkin and Benjamin Sovacool published *Global Energy Justice* in 2014. *Id.* For the other books exploring the social justice implications of energy law, see generally Iñigo del Guayo, Lee Godden, Donald D. Zillman, Milton

Sovacool and Michael Dworkin's book has proven particularly influential, as many social scientists adopt and apply their eight principles of energy justice as an analytical tool.²⁰³ But I am concerned that, even here, energy law scholars sometimes fall back on in-the-box solutions. For example, in a chapter on utility and energy externalities, Sovacool and Dworkin suggest remedies such as the tools of carbon pricing, accurate energy price signals and taxation, and environmental bonds.²⁰⁴ These are useful tools, to be sure, but hardly radical new ideas for the field. Similarly, Roger Colton suggests that energy efficiency programming in the United States could be improved by better incorporating equity into considerations of how to allocate utility investments.²⁰⁵ And, he insists, such a shift "does not require a revolution in regulatory thinking," but instead "can be pursued using well-accepted legal, economic, and public policy doctrine."²⁰⁶

There is obvious appeal to couching solutions in these terms. Lawyers, as a rule, are cautious. We are ostensibly precedent-bound and taught to navigate within legal constraints. It is comforting to think that our existing frameworks might simply need adjustments to make them fairer. But as Section A suggested, the need for climate progress on a scale never realized to date is likely to require a more fundamental shift in our analysis.²⁰⁷ Shalanda Baker's formidable article, *Anti-Resilience: A Roadmap for Transformational Justice Within the Energy System*, is one of the few to make this case forcefully.²⁰⁸ Baker points out the perversity of efforts to create "resilience" in the energy system, or the ability to bounce back from stresses.²⁰⁹ In particular, she argues compellingly against efforts to simply fortify an energy system, and energy laws, that have inflicted so much violence upon communities of color and low-income communities.²¹⁰

Fernando Montoya & José Juan González, *Introduction to ENERGY JUSTICE AND ENERGY LAW*, *supra* note 192, at 3; ENERGY JUSTICE (Raya Salter, Carmen G. Gonzalez & Elizabeth Ann Kronk Warner eds., 2018).

²⁰³ See SOVACOO & DWORKIN, *supra* note 192, at 145–56; Jessica Smith & Mette M. High, *Exploring the Anthropology of Energy: Ethnography, Energy and Ethics*, ENERGY RSCH. & SOC. SCI., Aug. 2017, at 1 (noting the widespread use of this analytical framework in energy justice research).

²⁰⁴ See SOVACOO & DWORKIN, *supra* note 192, at 145–56.

²⁰⁵ See generally Roger Colton, *The Equities of Efficiency: Distributing Energy Usage Reduction Dollars* (proposing a economics-based approach for assessing the equity of energy efficiency investment efforts), in ENERGY JUSTICE, *supra* note 202, at 105.

²⁰⁶ *Id.* at 107; see also Welton, *supra* note 59, at 639–49 (considering how public utility commissions might incorporate equity within their mission).

²⁰⁷ See *supra* Part II, Section A.

²⁰⁸ Shalanda H. Baker, *Anti-Resilience: A Roadmap for Transformational Justice Within the Energy System*, 54 HARV. C.R.-C.L. L. REV. 1, 6 (2019).

²⁰⁹ *Id.*

²¹⁰ *Id.*

Even if one is untroubled by energy law's past inattention to these issues, the field can hardly continue to turn a blind eye to them going forward. The reason is simple: decarbonization requires a near-total material transformation not just in fuel delivery, but in how we live our lives together. We cannot decarbonize without enormous infrastructure investment—whether financed publicly or privately—and without substantial changes in life-shaping determinants including settlement patterns, modes of mobility, and a collective reexamination of what makes for a satisfying life.²¹¹ Because of the wide-ranging changes that decarbonization demands, it presents a critical juncture for either addressing inequality and structural racism, or shunting aside these concerns for another generation or more.

A focus on these intensive material realities of decarbonization casts energy law's debate over policy instruments in a new light. Many harbor an understandable hope that the Biden Administration might yet achieve a centrist, market-based solution to climate change that sidesteps these messy distributional issues.²¹² To be fair, some carbon tax proposals suggest eliminating regressivity through rebates or dividends to the poor—a good accommodation, but hardly the kind of structural fix that GND advocates have in mind.²¹³ I think it is worth making clear, however, that when energy law scholars, policy

²¹¹ See JEDEDIAH PURDY, *THIS LAND IS OUR LAND: THE STRUGGLE FOR A NEW COMMONWEALTH*, at xxiii (2019) (suggesting that to forge a new politics, we must “ask what wealth itself is and what is the value of life”); *id.* at 82 (discussing the importance of infrastructure to our species today); Frank W. Geels, Benjamin K. Sovacool, Tim Schwanen & Steve Sorrell, *Sociotechnical Transitions for Deep Decarbonization*, 357 *SCI.*, Sept. 22, 2017, at 1242 (“Rapid and deep decarbonization requires transformation of sociotechnical systems—the interlinked mix of technologies, infrastructures, organizations, markets, regulations, and user practices that together deliver societal functions such as personal mobility.”).

²¹² For articles expressing this hope, see Matthew DeBord, *Joe Biden's Election Could Give Elon Musk the Carbon Tax He's Wanted for Years*, *INSIDER* (Nov. 14, 2020), <https://www.businessinsider.com/elon-musk-might-get-a-carbon-tax-from-president-biden-2020-11> [<https://perma.cc/DL6H-VC48>]; Matthew Green, *U.S. Could Adopt Carbon Tax Under a Biden Presidency, Ex-Fed Chair Yellen Says*, *REUTERS* (Oct. 8, 2020), <https://www.reuters.com/article/us-usa-climate-tax/u-s-could-adopt-carbon-tax-under-a-biden-presidency-ex-fed-chair-yellen-says-idUSKBN26T23L> [<https://perma.cc/82AB-482X>]; Bob Inglis, Opinion, *Joe Biden Can Work with Conservatives on Climate Change. Many of Them Are Ready to Act.*, *USA TODAY*, <https://www.usatoday.com/story/opinion/2020/12/10/how-joe-biden-can-work-conservatives-climate-change-column/6505381002/> [<https://perma.cc/R3Z4-45XD>] (Dec. 10, 2020, 12:38 PM).

²¹³ See generally CHAD STONE, *CTR. ON BUDGET & POL'Y PRIORITIES, THE DESIGN AND IMPLEMENTATION OF POLICIES TO PROTECT LOW-INCOME HOUSEHOLDS UNDER A CARBON TAX* (2015), <https://www.cbpp.org/research/climate-change/the-design-and-implementation-of-policies-to-protect-low-income-households> [<https://perma.cc/E7Y7-95P3>] (advocating for rebates to benefit low-income households against the impacts of climate change); JOSEPH ROSENBERG, ERIC TODER & CHENXI LU, *TAX POL'Y CTR., DISTRIBUTIONAL IMPLICATION OF A CARBON TAX* (Noah Kaufman ed., 2018), <https://www.taxpolicycenter.org/publications/distributional-implications-carbon-tax/full> [<https://perma.cc/7UKB-57MR>] (arguing that the effect of distributing the proceeds from a climate tax may insulate vulnerable populations).

advocates, or politicians champion decarbonization bills that fundamentally overhaul U.S. infrastructure but do little to address structural distributional and racial inequities, they are making a conscious choice to lock in these inequities. In other words, just because gross inequity is the status quo does not mean it is a defensible choice during conversations about what the shape of infrastructure and social structure should look like over the next several generations. To pretend that it is the GND, or problematic progressives, who inject equity and racial justice considerations into an otherwise pure climate conversation is itself a convenient fiction.²¹⁴

In sum, this Part has suggested that energy law scholars need to approach decarbonization not from within the bounds of existing energy law, but instead from exigent planetary imperatives. If we begin here, however, it quickly becomes apparent that decarbonization is inescapably bound up with the pervasive issues of inequality and racism. For these reasons, I am eager to see scholars explore and develop the legal and policy contours of a climate change program that embraces these interconnections. But as tactically and ethically important as these new directions may be, they also pose a challenging agenda for energy law scholars who are used to operating within more technocratic domains. How exactly should we proceed if we accept the arguments of activists who insist that decarbonization be linked to larger challenges of systemic racism and inequality?

What we should do, Part III argues, is support this movement with a new generation of scholarship that rises to the scale of the challenge presented by climate change. Energy law scholars have considerable expertise they could offer in support of more capacious decarbonization agendas. But to do so, the field will have to leave the zone of tweaks and instead ask what an energy law centered around the imperatives and technologies of today might look like.

III. PUSHING THE BOUNDS OF ENERGY LAW

The climate change solution that can be derived from twentieth-century energy law may be nearing its end point. What the field now needs is an enlarged legal imaginary that matches the central material challenges the field confronts today. This new materiality demands less, and less unequal, energy consumption, dramatically altered energy production, and rapid action. To help achieve these goals, this final Part advocates for expanding energy law scholarship in three directions, which it elucidates in turn. Section A calls for more

²¹⁴ See, e.g., Heather Caygle & Sarah Ferris, *Dem Leaders Warn Liberal Rhetoric Could Blow Georgia Races*, POLITICO, <https://www.politico.com/news/2020/11/05/house-democrats-warn-caucus-left-434428> [<https://perma.cc/QM6L-TMHR>] (Nov. 5, 2020, 5:06 PM) (noting that in reality much of this rhetoric comes from Republicans attempting to scare their constituents).

attention to the politics impeding technologically feasible rapid decarbonization.²¹⁵ Section B highlights the importance of interrogating the intersection of energy policy with the pressing priorities of inequality and systemic racism.²¹⁶ Finally, Section C advocates for an expanded notion of what counts as “energy” worthy of attention from scholars of the topic.²¹⁷

A. Politics and Power as Central to the Analysis

Most economists emphasize the role of accurate price signals in decarbonizing the energy system.²¹⁸ And indeed, it is hard to argue with the basic premise that energy prices should better reflect true costs, including the costs of carbon. But the existence of pricing flaws in energy is not new information.²¹⁹ Yet economists have made limited real-world headway in redesigning retail rates and internalizing externalities.

The idea of fixing the energy system through pricing reforms has not failed theoretically—it has failed politically.²²⁰ There is ample evidence at this point that electricity decarbonization—at least up to ninety percent—is not only technologically possible, but might deliver electricity at lower cost by 2035.²²¹ There is simply not the political will, at least not yet, to adopt the policies needed to propel this transition in Congress or most sub-jurisdictions in

²¹⁵ See *infra* Part III, Section A.

²¹⁶ See *infra* Part III, Section B.

²¹⁷ See *infra* Part III, Section C.

²¹⁸ See, e.g., Kenneth Gillingham & James H. Stock, *The Cost of Reducing Greenhouse Gas Emissions*, J. ECON. PERSPS., Fall 2018, at 53, 53 (suggesting that basic economic incentives will encourage successful, and efficient reduction of greenhouse gas emissions if the marginal benefit equals the marginal cost).

²¹⁹ See, e.g., Harvey Averch & Leland L. Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 AM. ECON. REV. 1052, 1068 (1962) (suggesting that rate-regulated firms over-invest in capital projects on which they receive a guaranteed rate of return). For additional literature regarding carbon taxes and energy pricing see *supra* notes 123–125.

²²⁰ See generally DANNY CULLENWARD & DAVID G. VICTOR, MAKING CLIMATE POLICY WORK (2020) (arguing that market-based incentives are insufficient to address the climate crisis); Alice Kaswan, *Carbon Pricing: Essential But Insufficient* (Univ. S.F. Sch. L., Research Paper No. 2020-11, 2019), <https://cpr-assets.s3.amazonaws.com/documents/Kaswan-Carbon-Pricing-0619.pdf> [<https://perma.cc/8RK5-7GJS>] (advocating for an innovative solution beyond carbon pricing to address climate change). At a theoretical level, however, one might argue about whether price signals *alone* are enough to get us to the outcomes we want—and I fall in the camp that thinks they are not.

²²¹ See GOLDMAN SCH. OF PUB. POL’Y, UNIV. OF CAL. BERKELEY, 2035 THE REPORT: PLUMMETING SOLAR, WIND, AND BATTERY COSTS CAN ACCELERATE OUR CLEAN ELECTRICITY FUTURE 4 (2020), <https://www.2035report.com/wp-content/uploads/2020/06/2035-Report.pdf> [<https://perma.cc/8RLD-JLSX>] (providing a high-level and optimistic overview of alternative energies).

the United States.²²² After all, solutions like carbon taxes or cap-and-trade programs are only useful if they can survive the legislative process.²²³

For this reason, whereas the first generation of energy law scholarship to incorporate climate change focused on tools,²²⁴ the next generation must focus on tactics. Fossil fuel companies and utilities have a tremendous amount of structural power that goes unattended in technical discussions of decarbonization tools. Utilities can and do use their combined economic and political clout to block reforms at the state and federal levels and to roll back progress made in combating climate change.²²⁵ Accordingly, to rise to the scope and scale of the current climate crisis, energy law must become much more agonistic, ready to confront the “existential politics” that climate change presents.²²⁶

The notion that utilities and fossil fuel companies might use their power to privilege profits over the general welfare is no shocking revelation—quite the contrary. Progressives at the turn of the twentieth century were keenly attuned to the challenges of consolidated and monopoly power, in fact, cabining such power was a key goal of public utility commissions and rate regulation.²²⁷ Over a century later, we know that this model has strengths and weaknesses. It has largely kept prices low and supplies ample. Nevertheless, although not as thoroughly captured as the public choice theorists of the 1970s asserted, the field is rife with well-documented regulatory and legislative capture.²²⁸

Energy law has not yet developed an adequate set of responses to contend with the level of capture in the field—a prerequisite to implementing the kinds of incentive reforms popular among energy law scholars. There is, of course, a risk in dignifying concerns of capture. The conservative response to these alle-

²²² See *supra* note 168 (discussing the advocacy for a federal clean energy standard); Healy & Barry, *supra* note 192, at 452 (describing the energy transition as “a deeply political struggle”).

²²³ David Leonhardt, Opinion, *Less Hope, More Change*, N.Y. TIMES (May 6, 2019), <https://www.nytimes.com/2019/05/06/opinion/climate-change-beto-orourke-inslee.html> [<https://perma.cc/35BB-6XMC>]. Even in jurisdictions with carbon prices, these prices are too low to induce rapid decarbonization. See Mildenberger & Stokes, *supra* note 156 (outlining flaws with the traditional carbon pricing climate policy).

²²⁴ See *supra* notes 122–138 (discussing innovative ideas and scholarly articles from energy law scholars).

²²⁵ See *supra* notes 155–161 (outlining the lobbying efforts of utility companies, fossil fuel industry, and partisan groups to prevent climate change legislation).

²²⁶ Jeff D. Colgan, Jessica F. Green & Thomas N. Hale, *Asset Revaluation and the Existential Politics of Climate Change*, 75 INT’L ORG. 586, 592 (2021) (“[T]here is a contest over whose way of life gets to survive. Should we have Miami Beach and the Marshall Islands, or should we have coal miners, ExxonMobil and Chevron?” (footnote omitted)).

²²⁷ See *supra* notes 110–121 (describing regulatory attempts to limit the monopolistic control utilities operated over energy access).

²²⁸ See generally STOKES, *supra* note 11 (discussing how climate policy has been undermined by industry and corporations); Rule, *supra* note 155 (describing the ways in which utilities utilize fairness arguments to limit reform).

gations is to impugn the ability of government to ever rise above these tendencies.²²⁹ But there is an underdeveloped potential progressive response to these critiques as well, which is to ask: how can energy institutions be strengthened or reformed to act as the guardians of the evolving public interest?²³⁰

It is time for energy law scholars to return to the best of the field's Progressive roots and pay more attention to these structural challenges.²³¹ Scholars must diagnose what features of modern utility regulation allow for structural dominance in the twenty-first century and identify what must be done to combat this barrier to transformational change in the field. The scholarship of William Boyd and William Novak provides a useful starting point.²³² These scholars argue for the continued vitality of the concept of public utility that they describe not as a convoluted set of commission regulations but as "a normative effort,"²³³ or an "idea" once capable of rousing the very best minds to puzzle through the challenge of how to harness business in the public interest.²³⁴

In the spirit of this broad inquiry, energy law scholars need to focus, again, on institutions. If politics is the problem, scholarship on institutional design will prove more potent than additional scholarship on substance. And so, scholars might now ask: why are the forms of control that we set up to manage the energy industry—namely commissions—not enough to fully regulate utilities in the broader public interest? Why have so many of these commissions not implemented the host of excellent ideas for rationalizing electricity pricing and reducing consumption offered to them by the academy? Such analysis could lead to recommended antecedent institutional reforms that may be more politically feasible than direct climate change policy.²³⁵

²²⁹ See STEVEN P. CROLEY, REGULATION AND PUBLIC INTERESTS: THE POSSIBILITY OF GOOD REGULATORY GOVERNMENT 4 (2008) (arguing that "the cynical view of regulation shows far too little attention to the actual processes through which administrative agencies regulate, and that such inattention is largely responsible for the dominant, jaundiced view of regulation"); Purdy et al., *supra* note 19, at 1811 (tracing how the capture hypothesis caused "influential academics to argue that the only appropriate response was a move to market-mediated technocracy" (footnote omitted)).

²³⁰ See JERRY L. MASHAW, GREED, CHAOS & GOVERNANCE: USING PUBLIC CHOICE TO IMPROVE PUBLIC LAW 4 (1997) ("If we would reform or renew our democratic faith, we need a better understanding of what it is reasonable to expect from institutions of governance and how we might design them.").

²³¹ Cf. Novak, *supra* note 108, at 666 (noting the trend for scholars of law and policy "to systematically excavate earlier periods of American political-economic history in search of new foundations for the construction of alternative paradigms and policy proposals").

²³² See Boyd, *supra* note 21, at 1682–1707; Novak, *supra* note 54, at 139; Novak, *supra* note 108, at 686–93.

²³³ Boyd, *supra* note 21, at 1619.

²³⁴ Novak, *supra* note 54, at 140–41, 159.

²³⁵ For example, my home state of South Carolina—none too eager to embrace climate regulation as such—has recently "overhauled" its public service commission in the wake of a major utility scandal. Sammy Fretwell & Joseph Bustos, *South Carolina Utility Commission Overhauled Three Years*

Another area relating to power and politics that is ripe for more research is the level of corporate agglomeration in the energy sector. Facilitated by the 2005 repeal of New Deal-era protections limiting the size of these companies, the energy sector has recently reached the highest levels of consolidation since before the New Deal.²³⁶ As of 2016, there were fifty remaining utility systems, down from hundreds a few decades earlier.²³⁷ Experts are still working to analyze the effects of this rapid reconsolidation, but one can surmise that concentrating power in a limited number of companies may not help with problems of capture or political dominance.²³⁸ Tackling the regulation of consolidation may thus open up space for more substantive progress on climate change.

More broadly, at a moment of change in the industry nearly as monumental as the early days of the electricity grid, it is worth probing more thoroughly the idea of public utility as a *project*. One of the strengths of public utility, writ large, is its ability to socialize infrastructure costs—a vital component of the clean energy transition. But that ability has become cramped under public utility rate regulation by narrow in-fighting about cross-subsidization among classes and categories of consumers.²³⁹

If the goal is developing clean energy technologies and related infrastructure in the public interest, and against incumbent interests, forms other than commission-regulated utilities might prove the best agents of change. For example, Bernie Sanders proposed that federal clean energy authorities, modeled after the Tennessee Valley Authority (TVA), may prove a vital strategy for rapid clean energy infrastructure deployment.²⁴⁰ “Public options” of this sort²⁴¹ are

After Nuclear Project Fiasco, THE STATE (Sept. 24, 2020), <https://www.thestate.com/news/local/environment/article245953960.html> [<https://perma.cc/AJC9-5L9R>]. This new commission rapidly proved itself friendlier to renewable energy, rejecting a proposed rate increase from a major utility for failing to adequately consider renewables. Iulia Gheorghiu, *South Carolina Directs Dominion to Model Early Coal Fleet Retirement, Pre-2026 Additions of Solar and Storage*, UTILITYDIVE, <https://www.utilitydive.com/news/south-carolina-regulators-reject-dominion-irp-due-to-insufficient-renewable/592107/> [<https://perma.cc/BQ9B-XNKK>] (Jan. 5, 2021).

²³⁶ See Scott Hempling, *Inconsistent with the Public Interest: FERC's Three Decades of Deference to Electricity Consolidation*, 39 ENERGY L.J. 233, 265 (2018); Welton, *supra* note 121, at 261–64; see also Public Utility Holding Company Act of 1935, ch. 687, 49 Stat. 803 (codified as amended at 15 U.S.C. §§ 79–79z-6) (repealed 2005).

²³⁷ Hempling, *supra* note 236, at 251 n.32.

²³⁸ See Jim Rossi, *Lowering the Filed Tariff Shield: Judicial Enforcement for a Deregulatory Era*, 56 VAND. L. REV. 1591, 1593–94 (2003) (discussing the effect of the filed tariff doctrine on regulators, and arguing it has had the effect of discouraging the exercise of jurisdiction over utilities).

²³⁹ See generally Rule, *supra* note 155 (outlining the contentious dialogue about “fairness” between utilities and regulators).

²⁴⁰ *The Green New Deal*, BERNIE SANDERS, <https://berniesanders.com/en/issues/green-new-deal/> [<https://perma.cc/E3WB-HPWB>]; see also Novak, *supra* note 34, at 400 (tying the public utility concept to the creation of the TVA).

²⁴¹ See GANESH SITARAMAN & ANNE L. ALSTOTT, *THE PUBLIC OPTION: HOW TO EXPAND FREEDOM, INCREASE OPPORTUNITY, AND PROMOTE EQUALITY 2* (2019) (advocating for a more ex-

often derided based on the historical record of the TVA on clean energy, which is, in short, abysmal.²⁴² But simply pointing to the historical record of the TVA is an incomplete critique. A federally-owned utility specifically charged with deploying clean energy might behave quite differently from the TVA, which has long seen its mission as conflicting with clean energy development. We might also interrogate whether we have the right agencies overseeing the transition, or whether new or differently constituted entities could better perform this role.²⁴³

A focus on politics also demands more creative and careful thinking about how to cabin the political might of the oil and gas sectors that are fighting against their obsolescence. Energy law scholars have made limited headway in examining how to manage the clash between the U.S. fracking boom and planetary decarbonization imperatives. That is likely because there are few options for resolving this tension within current energy laws. But to ignore this issue presents peril. As observed by Noel Healy and John Barry, scientifically recommended levels of decarbonization “necessitate[] leaving approximately 33% of oil reserves, 50% of gas reserves, and over 80% of current coal reserves in the ground by 2050.”²⁴⁴ Meanwhile, fossil fuel companies continue to seek new reserves that would make these percentages even more challenging. Similarly, the International Energy Agency recently made headlines by proclaiming that nations around the world need to cease approving new coal-fired power plants and oil and gas fields in 2021, in order to avert catastrophic climate change.²⁴⁵ These

pansive view of the “public option,” a uniquely American phenomenon that utilizes public resources without invading “private provision”).

²⁴² See, e.g., Stephen Smith & Maggie Shober, *TVA Deceives the Public and the Press with Misleading Claim of Solar Commitment*, CLEANENERGY.ORG (Sept. 19, 2019), <https://cleanenergy.org/blog/tva-deceives-the-public-and-the-press-with-misleading-claim-of-solar-commitment/> [<https://perma.cc/SJK4-MXXN>] (arguing that TVA’s announcement that it was adding 14 gigawatts of solar to its system was misleading because it only budgeted for 5.5 gigawatts, and that this demonstrates TVA is not serious about sustainable energy); Daniel Tait & Joe Smyth, *TVA Attempts to Chain Local Power Companies to Longer Contracts in Effort to Prevent Defection Risk*, ENERGY & POL’Y INST. (Sept. 22, 2019), <https://www.energyandpolicy.org/tva-local-power-companies-defection/> [<https://perma.cc/C9YH-VSHD>] (describing barriers that TVA has erected to local communities’ efforts to adopt renewables).

²⁴³ See, e.g., Arianna Skibell, *Biden’s Clean Electricity Plan May Hinge on FERC*, E&E NEWS: ENERGYWIRE (Aug. 24, 2020), <https://www.eenews.net/stories/1063712293> [<https://perma.cc/2V6H-JL3D>] (noting suggestions from Elizabeth Warren and Bernie Sanders to turn FERC into a renewable energy agency); see also Sharon B. Jacobs, *Agency Genesis and the Energy Transition*, 121 COLUM. L. REV. 835, 836–861 (2021) (discussing how and why new agencies are created through the lens of state energy policy).

²⁴⁴ Healy & Barry, *supra* note 192, at 453.

²⁴⁵ Brad Plumer, *Nations Must Drop Fossil Fuels, Fast, World Energy Body Warns*, N.Y. TIMES, <https://www.nytimes.com/2021/05/18/climate/climate-change-emissions-IEA.html> [<https://perma.cc/QP24-HXVG>] (July 13, 2021).

figures suggest that the only way for the planet not to overshoot viable warming limits is for these companies to suffer the loss of planned profits.²⁴⁶

In October 2020, during the most substantive exchange on climate change ever in a presidential debate, President Biden committed to “transition from the oil industry,” acknowledging this as a “big statement.”²⁴⁷ Supporting this goal will require a two-fold effort from energy law scholars. First, we need fresh ideas about how the law might directly target fossil fuel extraction and production.²⁴⁸ Second, we need more robust thinking about how to support the interests of fossil fuel *workers*, even when the interests of their companies endure legislative challenges. A recent article by Alexandra Klass exemplifies the kind of creativity needed on the production side of energy law.²⁴⁹ In *Eminent Domain Law as Climate Policy*, Klass argues for overhauling state eminent domain laws to favor clean energy projects while disfavoring fossil fuel development.²⁵⁰ FERC Chair Richard Glick and General Counsel Matt Christiansen have also made the case for altering pipeline approval standards under the Natural Gas Act to account for climate change—a change that is well within their professional domain.²⁵¹ Steps like these, which chip away at the power of fossil fuel companies, will be critical building blocks to larger structural interventions.

On the topic of the fossil fuel workforce, energy law scholars could add considerably to the conversations underway in labor law and rural law about how to ensure a “just transition” for these workers.²⁵² For example, energy law scholars might consider: is there space within public utility law to support

²⁴⁶ See Colgan et al., *supra* note 226, at 587 (noting the centrality of asset re-evaluation to successful decarbonization policy); cf. Coleman, *supra* note 44, at 392 (“[F]or the first time, countries around the world are realizing that climate regulation may limit oil consumption long before dwindling oil supply does.”).

²⁴⁷ Scott Waldman, *Wind ‘Fumes’ and Ending Oil Roil Final Trump-Biden Debate*, E&E NEWS: CLIMATEWIRE (Oct. 23, 2020), <https://www.eenews.net/climatewire/2020/10/23/stories/1063716937> [<https://perma.cc/8HJS-EL9S>].

²⁴⁸ See Healy & Barry, *supra* note 192, at 454 (“In over 20 years of international climate negotiations (including Paris COP21), the issue of limiting fossil fuel extraction and production has been systematically ignored.” (citations omitted)).

²⁴⁹ Alexandra B. Klass, *Eminent Domain Law as Climate Policy*, 2020 WIS. L. REV. 49, 51.

²⁵⁰ See *id.* at 71–72 (suggesting that reforms to state eminent domain laws could bolster the efficacy of existing state-level clean energy policies).

²⁵¹ See Rich Glick & Matthew Christiansen, *FERC and Climate Change*, 40 ENERGY L.J. 1, 6 (2019).

²⁵² See generally David J. Doorey, *A Law of Just Transitions?: Putting Labor Law to Work on Climate Change* (Osgoode Hall L. Sch., Legal Stud. Rsch. Paper Series, Research Paper No. 35, 2016), <https://digitalcommons.osgoode.yorku.ca/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1166&context=olsrps> [<https://perma.cc/74R2-5V8Y>] (advocating for a reformulation of the term “just transition” to include labor law and environmental law); Ann M. Eisenberg, *Just Transitions*, 92 S. CAL. L. REV. 273 (2019) (assessing the use of the term “just transition” to describe shifting to a green economy, with a focus on impacts to labor).

transitional programs for utility employees? How might state or federal efforts to limit fossil fuel exploration or production be coupled with programs to aid affected workers? How might revenue-generating climate change policies be harnessed for just transition purposes? Again, a focus on the politics of such reforms will be key to the success of decarbonization and, in particular, the ability to splinter the very different interests of fossil fuel workers from those of fossil fuel executives and corporations.

The final point regarding politics relates back to the hopes of some for a nonantagonistic, centrist, market-based solution to emerge in the Biden Administration.²⁵³ In analyzing and potentially supporting these solutions, scholars should carefully consider how such legislation fits within the material exigencies of the moment—that is, the need to decarbonize completely by 2050. Here, the growing literature on policy feedback might prove instrumental.²⁵⁴ So too might the emerging law and political economy framework, whose proponents suggest a methodology that goes beyond policy feedback to examine broadly the ways in which politics shape the economy and the laws that undergird it.²⁵⁵ When analyzing policies like a new potential carbon tax, scholars should ask: is this proposal in accord with planetary imperatives? If not, is there a plausible theory of how the instrument will induce ratcheting over time based on the parties involved and their track records on climate? If not, then caution is due, as meliorative half-measures might damage more than they assist.²⁵⁶

This Section has suggested broadening the analytical lens of energy law scholarship to focus more on politics and power. But especially in the present political moment, this pivot alone is inadequate. The field also needs a deeper reckoning and consequent broadening into less comfortable analytical terrain.

²⁵³ See Josh Siegel, *Here's What Congressional Republicans Are Thinking on Climate Following the Election*, WASH. EXAM'R (Nov. 12, 2020), <https://www.washingtonexaminer.com/policy/energy/heres-what-congressional-republicans-are-thinking-on-climate-following-the-election> [<https://perma.cc/8BL9-Z5NM>] (“Republicans remain opposed to any policies that would reduce fossil fuel use . . .”). For a collection of scholarly works on the carbon tax, see *supra* note 125.

²⁵⁴ See *supra* note 11 (gathering sources approaching climate change policy from a policy feedback angle).

²⁵⁵ See Purdy et al., *supra* note 19, at 1792 (describing law as “the essential connective tissue between political judgment and economic order”).

²⁵⁶ See David Roberts, “*All of the Above*,” VOLTS (Dec. 10, 2020), <https://www.volts.wtf/p/all-of-the-above> [<https://perma.cc/GU7R-JQAF>] (arguing that legislation focused on carbon capture and storage—a plausible centrist strategy—might further empower the fossil fuel industry without transforming the energy sector toward much-needed clean electrification); see also Kevin Crowley & Akshat Rath, *Exxon Holds Back on Technology That Could Slow Climate Change*, BLOOMBERG GREEN (Jan. 8, 2021), <https://www.bloomberg.com/news/features/2020-12-07/exxon-s-xom-carbon-capture-project-stalled-by-covid-19> [<https://perma.cc/722R-ELEV>] (reporting interview suggesting that oil companies push carbon capture and storage “to help justify ongoing operations and persuade regulators not to intervene”).

B. Race, Inequality, and Energy

Both as a matter of politics and principle, progressives increasingly insist that “there can be no climate justice without racial and economic justice.”²⁵⁷ This resolve forms the backbone of a new political movement. It can be difficult to discern what role energy law scholars should play in this conversation. The new movement is centered on raising the voices and ideas of affected communities, thereby demanding something different and difficult of the scholarly community.²⁵⁸ Nevertheless, there is much support work that energy law scholars could do to help these communities link their goals to viable and fruitful policy reforms. A better accounting of these linkages could expand energy law in two meaningful directions. Subsection 1 details how energy law scholars might push the field to prioritize and frame reform proposals differently. Subsection 2 explores the viability and efficacy of more radical institutional reforms.

1. Adopting an Intersectional Framework for Energy Law Proposals

There is an understandable tendency to filter all reform proposals in energy law almost exclusively through the lens of economic efficiency.²⁵⁹ Why promote investment in energy efficient appliances? Because they cost less over time.²⁶⁰ Why allow net metering of rooftop solar? Because “value-of-solar” studies show that net-metered energy brings more benefits than costs to the system.²⁶¹ Why allow demand response technologies to participate in wholesale energy markets? Because, as the Supreme Court has explained, these peak-demand-reduction programs are “all about reducing wholesale rates.”²⁶²

The modern ratemaking formula is the cause for much of this narrow framing. It is difficult to articulate compelling theories of justice within this paradigm’s emphases on cost-causation and efficiency. But rapid decarboniza-

²⁵⁷ Press Release, Wilderness Soc’y, 39 Groups Launch Diverse Coalition for Clean Energy and Healthy Communities (June 25, 2020) (on file with author), <https://www.wilderness.org/articles/press-release/39-groups-launch-diverse-coalition-clean-energy-and-healthy-communities#> [<https://perma.cc/LK5J-Q6TG>] (quoting Ken Berlin, President and CEO of the Climate Reality Project).

²⁵⁸ Cf. Akbar et al., *supra* note 22, at 826 (calling for a turn to “movement law” that “approaches scholarly thinking and writing about law, justice, and social change as work done in solidarity with social movements, local organizing, and other forms of collective struggle”).

²⁵⁹ Cf. Purdy et al., *supra* note 19, at 1784, 1790 (chronicling a broader twentieth-century trend to filter legal proposals through a lens of efficiency that “encases ‘the market’ from claims of justice”).

²⁶⁰ KATHERINE FRIEDRICH, MAGGIE ELDRIDGE, DAN YORK, PATTI WITTE & MARTY KUSHLER, AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON., SAVING ENERGY COST-EFFECTIVELY 15 (2009), <https://www.aceee.org/sites/default/files/publications/researchreports/U092.pdf> [<https://perma.cc/Q5KF-SKB4>] (evaluating energy efficiency for its cost-effectiveness and explaining how commissions prioritize it when it is the least-cost resource).

²⁶¹ *Value of Solar Tariffs*, NAT’L RENEWABLE ENERGY LAB’Y, <https://www.nrel.gov/state-local-tribal/basics-value-of-solar-tariffs.html> [<https://perma.cc/M2ZK-Y9SY>].

²⁶² FERC v. Elec. Power Supply Ass’n, 577 U.S. 260, 279 (2016).

tion is going to require new legislative proposals, and possibly new or reformed bodies to carry them out. In thinking about the future of the field, then, scholars should consider moving beyond the constraints of present-day rate-making to think and talk about proposals in ways that highlight their intersectionality, not suppress it.²⁶³

In particular, energy law scholars might more explicitly and expansively explore the links between the energy system, racism, and inequality. For example, the same infrastructure that causes transportation to be the highest-emitting sector in the United States also has a long history of institutional racism. During the heyday of federal interstate construction in the 1950s, interstates were frequently built so as to destroy Black communities and keep Black and white neighborhoods apart.²⁶⁴ Today, these same highways running through communities of color create pockets of concentrated auto emissions linked to higher rates of many severe and chronic illnesses.²⁶⁵ Similarly, the suburban infrastructure that proliferated during this time was enabled by federal and local policies designed to limit Black homeownership and maintain segregated communities.²⁶⁶ All of these policies contributed to today's racial wealth gap and ingrained patterns of neighborhood segregation. President Donald Trump clearly understood the persistence of these patterns when he attempted to appeal to voters by marrying racism and climate denial through

²⁶³ See PEW CTR. ON GLOBAL CLIMATE CHANGE, U.S. DEPARTMENT OF ENERGY'S RECOVERY ACT SPENDING 7–8 (2009), <https://www.issuelab.org/resources/11536/11536.pdf> [<https://perma.cc/HX9Y-MF69>]. Energy and inequality have been successfully linked in recent legislation: in the wake of the great recession, Congress provided a short-term *five-fold* increase in the amount of money it typically gives to weatherize low-income houses, as part of the American Recovery and Reinvestment Act. *Id.*

²⁶⁴ HIGHWAY ROBBERY: TRANSPORTATION RACISM AND NEW ROUTES TO EQUITY (Robert D. Bullard, Glenn S. Johnson, Angel O. Torres eds., 2004); David Karas, *Highway to Inequity: The Disparate Impact of the Interstate Highway System on Poor and Minority Communities in American Cities*, NEW VISIONS PUB. AFFS., Spring 2015, at 9; Kevin M. Kruse, *What Does a Traffic Jam in Atlanta Have to do with Segregation? Quite a Lot.*, N.Y. TIMES MAG. (Aug. 14, 2019), <https://www.nytimes.com/interactive/2019/08/14/magazine/traffic-atlanta-segregation.html> [<https://perma.cc/LN6D-ERLJ>]; Alana Semuels, *The Role of Highways in American Poverty*, THE ATLANTIC (Mar. 18, 2016), <https://www.theatlantic.com/business/archive/2016/03/role-of-highways-in-american-poverty/474282/> [<https://perma.cc/5GFE-HUEW>].

²⁶⁵ Lee Paddock & Achinthy Vithanage, *Collaborating with Underserved Communities to Contribute to Decarbonization in the United States*, in ENERGY JUSTICE AND ENERGY LAW, *supra* note 192, at 105; Ann E. Carlson, *The Clean Air Act's Blind Spot: Microclimates and Hotspot Pollution*, 65 UCLA L. REV. 1036, 1036 (2018) (describing how microclimates of pollution, which are not captured by the Clean Air Act's design, "exacerbate asthma, increase respiratory and cardiac deaths, may cause developmental problems in children, and increase cancer risks").

²⁶⁶ See generally ROTHSTEIN, *supra* note 22 (providing an overview of policies at the federal, state, and local level that supported and advanced racial segregation).

dog whistle rhetoric such as “[t]hey want to eliminate single-family zoning, bringing who knows into your suburbs.”²⁶⁷

Racism and inequality are not topics that arise often in energy law, given its material focus on producing, moving, and delivering fossil fuels. But these topics are intimately related to an emerging set of energy policy challenges because decarbonization policy relies, in large part, on shifting the ways people settle and convene together to reduce building and transportation emissions.²⁶⁸ This draws out an important synergy: antiracist housing policy and antiracist transportation policy share considerable overlap with decarbonization strategies for these sectors.

Thus, scholars should spend more time considering what these interrelationships suggest about decarbonization priorities. For example, rezoning for density has the potential to address structural racism even as it reduces carbon emissions from the building and transportation sectors. Electrification of public transportation may deserve prioritization over the buildout of electric vehicle infrastructure because it transforms both the landscapes and the daily lives for communities of color.²⁶⁹ Net metering and community solar programs can redress energy poverty and build neighborhood solidarity around decarbonization—which may at times make them worthwhile initiatives even if they are more expensive than utility-scale renewables.²⁷⁰ More broadly, analysts might begin measuring decarbonization initiatives not only by their total carbon reduction, but also by their co-benefits and distributional consequences, such as the alleviation of conventional air pollutants in historically overburdened neighborhoods.²⁷¹ Currently, however, not enough scholars are evaluating poli-

²⁶⁷ See Lauren Sommer, *Why Sprawl Could Be the Next Big Climate Change Battle*, NPR (Aug. 6, 2020), <https://www.npr.org/2020/08/06/812199726/why-sprawl-could-be-the-next-big-climate-change-battle> [<https://perma.cc/4YFS-ENQD>].

²⁶⁸ KATE ARONOFF, ALYSSA BATTISTONI, DANIEL ALDANA COHEN & THEA RIOFRANCOS, *A PLANET TO WIN: WHY WE NEED A GREEN NEW DEAL* 53 (2019); JESSICA LEUNG, CTR. CLIMATE & ENERGY SOLUTIONS, *DECARBONIZING U.S. BUILDINGS 1* (2018), <https://www.c2es.org/wp-content/uploads/2018/06/innovation-buildings-background-brief-07-18.pdf> [<https://perma.cc/UT7A-DYG4>] (“Fossil-fuel combustion attributed to residential and commercial buildings accounts for roughly 29 percent of total U.S. greenhouse gas emissions.”).

²⁶⁹ See HIGHWAY ROBBERY, *supra* note 264, at 4 (documenting how people of color use public transportation at higher rates and how public transportation commutes are much longer than car commutes on average); cf. Paddock & Vithanage, *supra* note 265, at 105 (describing barriers that make it harder for low-income communities to take advantage of electric vehicles).

²⁷⁰ See Nikki Luke & Nik Heynen, *Community Solar as Energy Reparations: Abolishing Petro-Racial Capitalism in New Orleans*, 72 AM. Q. 603, 605 (2020) (conceptualizing “emancipatory energy futures” as a sort of reparations for Black communities).

²⁷¹ See REBECCA BRATSPIES, DATA FOR PROGRESS, *STRUGGLING TO BREATHE: ASTHMA, POLLUTION, AND THE FIGHT FOR ENVIRONMENTAL JUSTICE* 3 (2020), <https://www.filesforprogress.org/memos/struggling-to-breathe.pdf> [<https://perma.cc/67ME-WKDW>] (describing disparate rates of air-pollution-induced asthma across the United States); Carlson, *supra* note 265, at 1040.

cy ideas or efforts across the multiple frames of decarbonizing the economy, redressing racial discrimination, and reducing inequality.²⁷² Efforts in this vein could go a long way toward helping flesh out and test key elements of broader and deeper reforms.

2. Promoting Energy Democracy

A greater understanding of the joint legacy of fossil fuels and racism also demands an inquiry into how to better center long-marginalized voices in the shaping of energy institutions.²⁷³ Black Lives Matter activists have pointed out the ways in which the horrific utterance, “I can’t breathe,” relates to both police violence and violence perpetrated by energy injustices.²⁷⁴ Communities that have borne the brunt of this violence understandably harbor distrust of both police and energy institutions, which makes them more interested in dismantling these institutions than reforming them.²⁷⁵ Today, regulatory proceedings regarding energy infrastructure routinely exclude communities of color, who are seen as having limited useful knowledge to contribute.²⁷⁶ This marginalization then relegates these communities to the dual roles of ratepayers and sacrifice zones, disproportionately hosting the polluting infrastructure necessary to fuel society and bearing the brunt of climate impacts.²⁷⁷ Conversely, activists note that en-

²⁷² For notable exceptions to this statement, see generally Shalanda H. Baker, *Unlocking the Energy Commons: Expanding Community Energy Generation*, in LAW AND POLICY FOR A NEW ECONOMY 211 (Melissa K. Scanlan ed., 2017); Kaswan, *supra* note 21; Mormann, *supra* note 21; Outka, *supra* note 21. Uma Outka and Alice Kaswan have done pioneering work on incorporating justice considerations into clean energy policy. Kaswan, *supra* note 21, at 111–19; Outka, *supra* note 21, at 818–24. Shalanda Baker has considered the promise of community energy in this regard. Baker, *supra* note 272. Felix Mormann has proposed means for evaluating equity as a guiding criterion in renewable energy program design. Mormann, *supra* note 21, at 346–48.

²⁷³ Baker, *supra* note 208, at 43; Lennon, *supra* note 188, at 22 (observing how “solar’s material capacity to transform the grid coheres smoothly with [Black Lives Matter]’s vision for communal self-determination (as opposed to top-down governance)”).

²⁷⁴ Alexandria Herr, *An Illustrated Guide to Police Brutality and Pollution*, GRIST (Sept. 9, 2020), <https://grist.org/justice/illustration-what-does-the-fossil-fuel-industry-have-to-do-with-police-brutality/> [<https://perma.cc/SC5X-9B7C>]; see also Lennon, *supra* note 188, at 21 (noting that activists in support of energy democracy carry “I can’t breathe” signs “to connect the incidence of fossil fuel pollution and asthma in black communities with police brutality and the systematic de-mattering of black lives”).

²⁷⁵ See *Defund the Police*, MOVEMENT FOR BLACK LIVES (M4BL), <https://m4bl.org/defund-the-police/> [<https://perma.cc/ED5L-CW3G>] (presenting the defunding movement as one intended to enhance safety and accountability).

²⁷⁶ Lennon, *supra* note 188, at 19; Welton & Eisen, *supra* note 21, at 342–55 (documenting community group participation rates in clean energy rulemakings at public utility commissions).

²⁷⁷ See Hopkins, *supra* note 190 (connecting the fact that climate change often has substantial impacts in areas that society is willing to sacrifice, where “disposable people” live).

ergy regulators give limited priority to the promotion of clean energy technologies in these same communities.²⁷⁸

These alienating experiences with energy institutions have caused activists to call for “energy democracy” as a response to systemic energy injustices.²⁷⁹ Groups advocating for democratic reforms articulate their vision as “a shift from the corporate, centralized fossil fuel economy to one that is governed by communities, is designed on the principle of no harm to the environment, supports local economies, and contributes to the health and well-being for all peoples.”²⁸⁰

To this end, the material characteristics of renewable energy might prove advantageous. Unlike fossil fuel-fired electricity generation, which is best done at large scale, renewable energy is far more modular. Wind farms can range from a single turbine to seven thousand.²⁸¹ Solar arrays range from rooftop scale to 1.7 million panels spread out over an area four times the size of Central Park.²⁸² This variation in scale creates opportunities for projects of multiple sizes, from traditional, utility-scale endeavors, to community-based projects, to microgrids and off-grid operations.²⁸³ In turn, this scalability opens up possibilities for different ownership structures and forms of institutional oversight, such as more community control over energy and more equitable ownership of distributed energy resources.²⁸⁴ The question for energy law scholars,

²⁷⁸ See Lennon, *supra* note 188, at 22–23 (noting the disparate impacts of climate change on vulnerable communities, who are similarly de-prioritized for clean energy investment).

²⁷⁹ Climate Justice Alliance, <https://climatejusticealliance.org/workgroup/energy-democracy/> [<https://perma.cc/G24G-UTAC>]. See also Invest-Divest, Movement for Black Lives (M4BL), <https://m4bl.org/policy-platforms/invest-divest/> [<https://perma.cc/72G6-DAXA>] (calling for “investment in community-based sustainable energy solutions”); Energy Democracy Project, <https://energydemocracy.us> [<https://perma.cc/53SH-95SQ>] (same). See generally Denise Fairchild & Al Weinrub, *Introduction to ENERGY DEMOCRACY: ADVANCING EQUITY IN CLEAN ENERGY SOLUTIONS 1* (Denise Fairchild & Al Weinrub eds., 2017) (surveying various movements, individuals, and entities dedicated to “energy democracy” and reforming energy policy to address the looming threats to global climate).

²⁸⁰ Climate Justice Alliance, *supra* note 279.

²⁸¹ *Top 10 Biggest Wind Farms*, POWERTECHNOLOGY, <https://www.power-technology.com/features/feature-biggest-wind-farms-in-the-world-texas/> [<https://perma.cc/M3LM-3ULA>] (Jan. 20, 2021).

²⁸² Scott Becker, *A Look into America’s Largest Solar Farm*, SOLSTICE (Mar. 22, 2019), <https://solstice.us/solstice-blog/a-look-into-americas-largest-solar-farm/> [<https://perma.cc/9XFK-SDTW>].

²⁸³ See KEVIN BREHM, THOMAS KOCK BLANK & LEAH MOSIER, ROCKY MOUNTAIN INST., *PROGRESS AND POTENTIAL FOR COMMUNITY-SCALE SOLAR* (2018), <https://rmi.org/wp-content/uploads/2018/04/Progress-and-Potential-for-Community-Scale-Solar.pdf> [<https://perma.cc/HVV5-GWCM>] (pointing out how solar is growing and how it will present opportunities for everyday people who adopt the technology).

²⁸⁴ See Reames, *supra* note 200, at 2 (discussing disparities in rooftop solar); Welton, *supra* note 50, 285–89 (discussing public ownership).

then, is how to adapt institutional analysis to accommodate these different material characteristics and the long-ignored material needs of communities of color.

Many scholars of energy policy remain wary of the energy democracy agenda, viewing it as too locally focused, too expensive, and no panacea for racial justice.²⁸⁵ These are logical objections from the angle of maximum efficiency.²⁸⁶ But these critiques miss much of what energy democracy activists seek. Decentralizing energy decision-making is, in this conversation, centrally about empowering communities to protect their own health and welfare and to build “community wealth.”²⁸⁷ The desire for community control does not stem from a cost-benefit analysis of the most efficient scale for renewable energy systems; it stems from a profound distrust between communities of color and dominant energy institutions.²⁸⁸

Energy law scholars have not yet done much work to investigate the extent to which decentralizing energy decision-making might advance the dual aims of community empowerment and decarbonization. Nor have scholars thoroughly examined what tools—for example, community choice aggregation, municipalization efforts, community-owned energy, or targeted efforts at net metered rooftop solar—might be most effective at achieving these goals.²⁸⁹ Moreover, scholars might think about how to link and embed these community-level efforts within frameworks proposed at state and federal levels. These are all areas where energy law scholars could devote their research skills and time to serving a more diverse movement and project—rather than dismissing these conversations as a sideshow to the project of industrial decarbonization.

C. A Deeper Materiality

The final expansion that energy law needs is to get *a whole lot more material*. Right now, the field mostly concerns itself with Victorian-era units of

²⁸⁵ See Scott Burger, Jesse D. Jenkins, Samuel C. Huntington & Ignacio J. Pérez-Arriaga, *Why Distributed?: A Critical Review of the Tradeoffs Between Centralized and Decentralized Resources*, IEEE POWER & ENERGY MAG., Mar.–Apr. 2019, at 23–24 (weighing the costs and benefits of modern energy policy); Severin Borenstein, *What Can Distributed Generation Do for the Grid?*, ENERGY INST. AT HAAS: BLOG (Sept. 28, 2020), <https://energyathaas.wordpress.com/2020/09/28/what-can-distributed-generation-do-for-the-grid/> [<https://perma.cc/52BX-XGWD>] (remarking upon how needlessly costly the current energy agenda is).

²⁸⁶ See *supra* notes 259–262 and accompanying text.

²⁸⁷ Lennon, *supra* note 188, at 21.

²⁸⁸ See *id.* at 26 (calling for “decolonization” of the energy system, which insists that it is “inadequate to merely include people of color in untransformed institutions” (internal quotations omitted) (footnote omitted)).

²⁸⁹ For one notable exception, see Baker, *supra* note 272, at 211–12 (delving into community energy model that has benefits but fails to grant equal access to low-income and vulnerable communities).

energy, such as British thermal units (BTUs), megawatt-hours, and barrels.²⁹⁰ But some combination of fossil fuels, solar energy, and human labor is embedded in all things produced and consumed.²⁹¹ That means that large swaths of emissions are left unaccounted for if energy law stops tracking its barrels and electrons at the point of delivery. It also means that widening income and wealth inequality, which beget widening disparities in material consumption, create a growing gulf in energy usage between the wealthiest Americans and the rest of the country. And this gap is beyond what experts can measure by looking at energy expenditures alone. This final subpart urges energy law scholars to redefine the field by tracing energy more fully through its consumptive uses in our economy and society. This tracing, in turn, reveals the need for a renewed commitment to energy conservation.

The first expansion needed is sectoral. Existing energy law is all about ensuring robust markets in raw energy products. But the activity occurring in major sectors beyond the account of energy law creates the most carbon pollution.²⁹² The lack of scholarly attention to other high-energy sectors is most surprising with respect to transportation, which seems like a natural subject for energy law research. Until recently, scholars have largely ignored this oil-fueled sector because oil law has focused on production, and to a lesser extent, pipeline construction and siting challenges as key to ensuring widespread, accessible supplies.²⁹³ Now, however, the end-use side of transportation policy looms as a key underexplored conundrum for climate-aware energy law research. The challenges of decarbonizing transportation appear to be far more complex and intractable than those of electricity, as they are centered on where we work, live, and recreate, and how we navigate among these spaces.²⁹⁴

A few energy law scholars have made forays into transportation decarbonization by considering the ways in which the transportation sector is increasingly overlapping with public utility law through vehicle electrification

²⁹⁰ See generally CARA NEW DAGGETT, *THE BIRTH OF ENERGY: FOSSIL FUELS, THERMODYNAMICS, AND THE POLITICS OF WORK* (2019) (tracing the history of the modern energy field to thermodynamics and industrialization and discussing how certain antiquated tropes persist).

²⁹¹ See Lucy Baker, *Of Embodied Emissions and Inequality: Rethinking Energy Consumption*, ENERGY RSCH. & SOC. SCI., Feb. 2018, at 52 (situating energy consumption within the context of global inequalities, and supply and demand).

²⁹² Spence & Prentice, *supra* note 56, at 140.

²⁹³ Oil prices have long since eluded domestic regulation, because “the price for crude oil is now set largely by world supply and demand.” *Id.*

²⁹⁴ Nichola Groom, *A Climate Problem Even California Can’t Fix: Tailpipe Pollution*, REUTERS (Feb. 1, 2019), <https://www.reuters.com/article/us-usa-climatechange-california-insight/a-climate-problem-even-california-cant-fix-tailpipe-pollution-idUSKCN1PQ4MJ> [<https://perma.cc/WR6P-2SDX>]; Nathanael Johnson, *What’s Driving California’s Emissions? You Guessed It: Cars*, GRIST (Oct. 8, 2019), <https://grist.org/article/whats-driving-californias-emissions-you-guessed-it-cars/> [<https://perma.cc/N57K-P5M6>].

efforts.²⁹⁵ But the field could stand to push further into theories of how to best manage the energy flows that empower modern mobility, or how to reshape that mobility itself. Such research might also highlight the equity impacts of decarbonizing transportation. Wealthy people contribute far more transportation-related emissions, particularly due to frequent airplane flights but also due to increased vehicle usage.²⁹⁶ Solutions that address this wealth gap might look quite different from the current emphasis on personal vehicle electrification as a key policy aim—and might more deeply contend with the roles of public transportation, aviation, and shipping in an equitable no-carbon future.²⁹⁷

Many of the most impactful changes in transportation emissions may also come from shifts in what geographer Matt Huber terms the “social production of space.”²⁹⁸ To this end, many land use law scholars are already engaged in questions of how to reform the regulation of space to respond to climate change.²⁹⁹ But here too, energy law scholars have important perspective to offer. Energy and its flows through society are central to the way that spaces are designed and constructed—meaning that “new energy systems will also require new spatialities and new spatial imaginations.”³⁰⁰ Better connecting en-

²⁹⁵ See Alexandra B. Klass, *Public Utilities and Transportation Electrification*, 104 IOWA L. REV. 545, 567–77 (2019) (examining how state regulations differ on vehicle electrification and why).

²⁹⁶ See Oswald et al., *supra* note 6, at 235 (“[W]e measure greater inequality in air transport compared to public land transport. Large parts of the population are almost or entirely excluded from aviation, and a similar trend can be observed surrounding the private vehicle.” (citation omitted)); Damian Carrington, *1% of People Cause Half of Global Aviation Emissions—Study*, THE GUARDIAN (Nov. 17, 2020), https://www.theguardian.com/business/2020/nov/17/people-cause-global-aviation-emissions-study-covid-19?CMP=twl_a-environment_b-gdneco [<https://perma.cc/J3NW-T45F>].

²⁹⁷ For example, Alice Kaswan, Hannah Wiseman, and Alex Klass have recommended prioritizing mass transit programs in frontline and low-income communities as a key feature of a just transition in transportation policy. See Alexandra B. Klass, Hannah J. Wiseman & Alice Kaswan, *Transportation Policy and the Climate Crisis*, in CLIMATE, ENERGY, JUSTICE: THE POLICY PATH TO A JUST TRANSITION FOR AN ENERGY-HUNGRY AMERICA 19, 29–31 (2020).

²⁹⁸ Huber, *supra* note 23, at 327.

²⁹⁹ For land use scholars engaged in this issue, see generally Elizabeth Burleson, *Climate-Energy Sinks and Sources: Paris Agreement & Dynamic Federalism*, 28 FORDHAM ENV'T L. REV. 1 (2016); David Markell, *Climate Change and the Roles of Land Use and Energy Law*, 27 J. LAND USE & ENV'T L. 231, 233–34 (2012) (observing the importance of “land use legal regimes” in tackling decarbonization); John R. Nolon, *Low Carbon Land Use: Paris, Pittsburgh, and the IPCC*, 40 U. ARK. LITTLE ROCK L. REV. 661 (2018); John R. Nolon, *The Land Use Stabilization Wedge Strategy: Shifting Ground to Mitigate Climate Change*, 34 WM. & MARY ENV'T L. & POL'Y REV. 1 (2009); Lee Paddock & Caitlin McCoy, *Deep Decarbonization of New Buildings*, 48 ENV'T L. REP. NEWS & ANALYSIS 10130 (2018).

³⁰⁰ Huber, *supra* note 23, at 328 (utilizing the term “spatiality” to consider the spatial requirements of small- and large-scale energy infrastructure) (emphasis omitted).

ergy, transportation, and land use law will thus be a critical component of successfully decarbonizing these entrenched drivers of emissions.³⁰¹

Moreover, much of what must occur to change these spatialities—or in lay terms, the built environment—involves funding and executing infrastructure transformation. Here, scholars steeped in public utility law and energy infrastructure siting have many useful lessons and ideas to offer about how to build and finance the next generation of transformative infrastructure.³⁰² The same might be true as we think creatively about how to induce and fund changes in industrial and agricultural fossil fuel consumption, or to productively and equitably harness agricultural emissions.³⁰³

In sum, energy itself has never stopped at the point of delivery. Energy law long has, but only because the material-turned-intellectual goal was securing abundant fossil fuel resources. As goals shift to include limiting the emissions associated with energy use, intellectual inquiries must as well. We have to follow the BTUs, barrels, and electrons all the way to their catastrophic atmospheric detritus.

This full accounting of energy-related emissions must also extend beyond U.S. borders. Many modern carbon emissions come in the form of “embodied emissions,” or the emissions it takes to make the many consumer goods that affluent Western households acquire.³⁰⁴ These emissions are tricky to reduce through conventional domestic decarbonization policies, as production processes frequently span countries and continents in ways that elude traditional accounting mechanisms. U.S. research on this topic is scant, but research based in the United Kingdom highlights these difficulties. Political economist Lucy Baker finds that although the United Kingdom “has one of the least energy-intensive economies in the developed world . . . the country has one of the highest net imports of emissions in the world and is among the highest in terms

³⁰¹ One example of creative collaboration in this vein comes from Jim Rossi and Christopher Serkin, who examine how the land use law strategy of “exactions” might be extended to the energy context. Jim Rossi & Christopher Serkin, *Energy Exactions*, 104 CORNELL L. REV. 643, 669–90 (2019).

³⁰² Indeed, many scholars outside of energy law contend that public utility could prove a vital tool in this effort. See generally Ann M. Eisenberg, *Economic Regulation and Rural America*, 98 WASH. U. L. REV. 737 (2021); K. Sabeel Rahman, *The New Utilities: Private Power, Social Infrastructure, and the Revival of the Public Utility Concept*, 39 CARDOZO L. REV. 1621 (2018); Ganesh Sitaraman, Morgan Ricks & Christopher Serkin, *Regulation and the Geography of Inequality*, 70 DUKE L.J. 1763 (2021).

³⁰³ See Nicole G. Di Camillo, Note, *Methane Digesters and Biogas Recovery—Masking the Environmental Consequences of Industrial Concentrated Livestock Production*, 29 UCLA J. ENV'T L. & POL'Y 365, 386–92 (2011).

³⁰⁴ See Baker, *supra* note 291, at 53. Baker notes that the United Kingdom’s underdeveloped energy sector signals the deterioration in the country’s industrial sectors over the past several decades. *Id.*

of per capita emissions,” predominantly due to embodied emissions.³⁰⁵ Embodied emissions represent a new frontier of climate research and climate policy, given that they cannot be tackled through the existing predominant strategies of electrifying everything and moving to one-hundred-percent-clean electricity—unless this is accomplished everywhere on Earth relatively simultaneously.

This consumption-oriented inquiry is a critical but underdeveloped piece of the energy justice concept.³⁰⁶ Energy-overconsuming communities are the flip side of the same coin as the communities overburdened by the impacts of this consumption. Although most people think of between-country dispersions of greenhouse gas emissions as the key problem here—for example, the United States as compared to India—researchers have found that “within-country inequality makes up 50% of the global dispersion of CO₂e emissions,” making it “crucial to focus on high individual emitters rather than high-emitting countries.”³⁰⁷ This focus becomes more crucial in light of research revealing that income inequality in the United States actually *drives* higher carbon emissions, such that policies that reduce income inequality are climate policies themselves.³⁰⁸

Accounting for embodied emissions also has equity implications within and beyond the United States. Traditional energy sources have long created contentious waste problems, including coal ash and spent nuclear fuel rods, with disproportionate, racialized impacts.³⁰⁹ Although superior by comparison,

³⁰⁵ *Id.*; Kate Scott & John Barrett, *An Integration of Net Imported Emissions into Climate Change Targets*, ENV'T SCI. & POL'Y 150, Oct. 2015, at 150, 153.

³⁰⁶ Cf. Sarah Marie Hall, *Energy Justice and Ethical Consumption: Comparison, Synthesis and Lesson Drawing*, 18 LOCAL ENV'T 422, 432 (2013) (“[E]thical consumption literatures have largely marginalised energy justice, and vice versa, making the task of synthesizing them difficult.”); Oswald et al., *supra* note 6, at 231 (“[I]n energy transition research, the production and supply side have been the dominant focus. The demand side has received much less attention and, when it is considered, it is usually from a technological perspective.” (footnotes omitted)).

³⁰⁷ Lucas Chancel & Tomas Piketty, *Carbon and Inequality: From Kyoto to Paris*, VOX^{EU} (Dec. 1, 2015), <https://voxeu.org/article/carbon-and-inequality-kyoto-paris> [<https://perma.cc/A3Y4-8TLM>]; see JOHN HOWAT, JOHN T. COLGAN, WENDY GERLITZ, MELANIE SANTIAGO-MOSIER & KARL R. RÁBAGO, *REVERSING ENERGY SYSTEM INEQUITY: URGENCY AND OPPORTUNITY DURING THE CLEAN ENERGY TRANSITION 2* (2019), https://www.nclc.org/images/pdf/special_projects/climate_change/report-reversing-energy-system-inequity.pdf [<https://perma.cc/3JZH-ZPHW>] (observing that U.S. “households with the lowest incomes are on average the very lowest energy users”); see also Oswald et al., *supra* note 6, at 234.

³⁰⁸ See Andrew K. Jorgenson, Juliet B. Schor, Xiaorui Huang & Jared Fitzgerald, *Income Inequality and Residential Carbon Emissions in the United States: A Preliminary Analysis*, 22 HUM. ECOLOGY REV. 93, 95, 102 (2015) (investigating the connection between state carbon emissions and income inequality).

³⁰⁹ See Brian Bienkowski, *Toxic Coal Ash Hits Poor and Minority Communities Hardest*, SCI. AM. (Jan. 14, 2016), <https://www.scientificamerican.com/article/toxic-coal-ash-hits-poor-and-minority-communities-hardest/> [<https://perma.cc/U99Z-XC2U>]; Dean Kyne & Bob Bolin, *Emerging Environmental Justice Issues in Nuclear Power and Radioactive Contamination*, 13 INT'L J. ENV'T RSCH. &

renewable resources and electric vehicles still require significant material inputs, some with their own dangerous side effects for local populations in the places where they are produced.³¹⁰ Accordingly, any climate strategy that relies on perpetual economic growth powered by renewable energy will leave a host of justice-related challenges unaddressed.³¹¹

Policy enthusiasts and academics partially recognize this reality by frequently emphasizing the importance of energy efficiency or, in colloquial terms, doing more with less.³¹² In practical terms, this inclination to conserve translates to measures such as LED lightbulbs, better insulation, and improved production processes.³¹³ Serious decarbonization plans call for using efficiency improvements to cut energy demand by at least 20%, and up to 40%, by 2050.³¹⁴ Most of these proposals do not acknowledge, however, that domestic improvements in efficiency cannot save us from the challenge of embedded energy and likely cannot, on their own, get us far enough down the path to reduced energy usage.³¹⁵

PUB. HEALTH 700, 708 (2016) (noting disproportionate impact of nuclear waste on American Indian communities).

³¹⁰ See, e.g., Sérgio Faias, Jorge Sousa, Luís Xavier & Pedro Ferreira, *Energy Consumption and CO₂ Emissions Evaluation for Electric and Internal Combustion Vehicles Using a LCA Approach*, RENEWABLE ENERGIES & POWER QUALITY J., May 2011, at 1382, <https://icrepq.com/icrepq%2711/660-faias.pdf> [<https://perma.cc/DSJ2-S7S8>] (evaluating lifecycle emissions of electric vehicles); Lennon, *supra* note 188, at 23 (observing public health consequences of solar panel manufacturing); Maddi Stone, *Russian Indigenous Communities Are Begging Tesla Not to Get Its Nickel from this Major Polluter*, GRIST (Sept. 21, 2020), <https://grist.org/justice/russian-indigenous-communities-are-begging-tesla-not-to-get-its-nickel-from-this-major-polluter/> [<https://perma.cc/T9LB-E3DB>]; Maddie Stone, *Solar Panels Are Starting to Die. What Will We Do with the Megatons of Toxic Trash?*, GRIST (Aug. 13, 2020), <https://grist.org/energy/solar-panels-are-starting-to-die-what-will-we-do-with-the-megatons-of-toxic-trash> [<https://perma.cc/3GEB-3WBW>].

³¹¹ Cf. Alan Bradshaw, Norah Campbell & Stephen Dunne, *The Politics of Consumption*, EPHEMERA: THEORY & POL. IN ORG., May 2013, at 206 (“[C]itizens electing to lead a luxurious life within the ideal republic, Socrates demonstrates, must be co-related with the existence of otherwise needless toil and conquest.” (emphasis omitted)).

³¹² Michael B. Gerrard, *Introduction and Overview* to THE LAW OF CLEAN ENERGY: EFFICIENCY AND RENEWABLES 1 (Michael B. Gerrard ed., 2011) (“Energy conservation reduces the unnecessary use of energy services; it largely involves changes in behavior. Energy efficiency involves doing more with less by increasing the ratio of energy output to energy input; it largely involves technology.”); see also Canay Özden-Schilling, *Economy Electric*, 30 CULTURAL ANTHROPOLOGY 578, 586 (2015) (critiquing the field’s focus on “demand-side management”).

³¹³ *Checklists of Energy Saving Measures*, ENERGY STAR <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/save-energy/find-cost-effective-investments> [<https://perma.cc/X7SM-G2UQ>].

³¹⁴ See THE WHITE HOUSE, UNITED STATES MID-CENTURY STRATEGY FOR DEEP DECARBONIZATION 8 (2016), https://obamawhitehouse.archives.gov/sites/default/files/docs/mid_century_strategy_report-final.pdf [<https://perma.cc/VXP4-J8FA>].

³¹⁵ See, e.g., Paul E. Brockway, Harry Saunders, Matthew K. Heun, Timothy J. Foxon, Julia K. Steinberger, John R. Barrett & Steve Sorrell, *Energy Rebound as a Potential Threat to a Low-Carbon Future: Findings from a New Exergy-Based National-Level Rebound Approach*, 10 ENERGIES 51, 54

This position is an unpopular one. Largescale, mainstream studies of decarbonization in the United States often assert that “the impact of deep decarbonization on daily life in 2050 is likely to be barely perceptible to most people,” because “the day to day interaction of most people with using energy goods and services will change very little.”³¹⁶ But this position is tenable only if (1) one is comfortable with the current distribution of energy resources within the United States, and (2) one is willing to ignore the harm this causes beyond our borders. If one refuses to make these concessions, then it becomes unlikely that Americans could continue affluent Western lifestyles as they currently exist, aspire to raise all people and countries to developed status, and also deliver a sustainable energy system.³¹⁷ Instead, megawatt-hours will have to be distributed more evenly and more parsimoniously to succeed.

For this reason, it is time to begin to talk seriously again about energy conservation, that is, *doing less* and *consuming less*. It can be difficult to conceptualize what the role of energy law scholars should be in this conversation, focused as it often is on personal morality and psychology. Indeed, energy conservation as a policy topic seems to have fallen out of vogue around the time that President Jimmy Carter donned an infamous sweater in a poorly received White House plea to Americans to use less energy during the Arab Oil Embargo.³¹⁸ But in advocating for more attention to consumption-related emissions, I do not intend to embrace this individualized notion of conservation. Instead, I join those scholars troubled by the notion that we can or should craft a message of individual sacrifice as the cure to our climate woes.³¹⁹ Unnecessary

(2017) (gathering energy rebound studies and suggesting that most analyses underestimate the extent to which efficiency gains are offset by increased energy consumption in other areas); Steve Sorrell, *Energy Substitution, Technical Change and Rebound Effects*, 7 ENERGIES 2850, 2854 (2014) (explaining why “energy-augmenting technical change will not lead to a proportionate improvement in aggregate energy productivity”).

³¹⁶ JAMES H. WILLIAMS, BENJAMIN HALEY & RYAN JONES, ENERGY & ENV'T ECON., INC., DEEP DECARBONIZATION PATHWAYS PROJECT, 2 U.S. 2050: POLICY IMPLICATIONS OF DEEP DECARBONIZATION IN THE UNITED STATES 24 (2015), <https://usddpp.org/downloads/2015-report-on-policy-implications.pdf> [<https://perma.cc/CSS3-WYAJ>] (emphasis omitted).

³¹⁷ See Brockway et al., *supra* note 315, at 52 (postulating a “a simple truth: that reducing energy demand in the face of rising affluence is a hard task”).

³¹⁸ See *Examining Carter's 'Malaise Speech,' 30 Years Later*, NPR (July 12, 2009), <https://www.npr.org/templates/story/story.php?storyId=106508243> [<https://perma.cc/6RUR-77GX>] (highlighting how Carter “tried to push the energy crisis on to a kind of moral and civic plane” but also describing how strong initial positive reactions to the speech quickly caved into a crisis of confidence in the President (internal quotations omitted)).

³¹⁹ For authors that share this message, see LUCIA A. REISCH, CORINNA FISHER, RAINER GRIEBHAMMER, VIOLA MUSTER, ULF SCHRADER, CHRISTIAN THORUN & FRANZISKA WOLFF, SUSTAINABLE CONSUMPTION NOW! THE GERMAN NATIONAL PROGRAMME FOR SUSTAINABLE CONSUMPTION ON THE TEST BED 2 (2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3679773 [<https://perma.cc/87QK-2S8H>]; Purdy, *supra* note 211, at 86–87 (framing the problem as one of institutions rather than errors in personal preferences); Huber, *supra* note 23, at 328; Risa Palm, Toby

consumption should not be thought of as a “private affair,”³²⁰ but rather as a collective, though unequally distributed, affliction. This means the focus should be on *structural* energy conservation—or building social structures and infrastructures that empower us to live lower-energy, lower-carbon lives.

Many potential policy approaches to this empowerment lie within the expanded set of sectors discussed above, including changes to land use patterns, zoning laws, transportation options, and aviation regulation. When analyzing these sectors, scholars might prioritize efforts to reduce the structural need for energy consumption. For example, an emphasis on public transportation over individual electric vehicles might not only particularly assist communities of color, but also provoke a more effective shift in the structural determinants of carbon emissions by inducing denser living.³²¹

Other components of this agenda are newer. For example, distinguishing between luxury-based emissions and needs-driven emissions, and treating the two categories differently, may offer one potential policy solution for unequal emissions.³²² But scholars have devoted limited attention to operationalizing this idea. Another possibility is to assign carbon responsibility for embodied emissions to certain large, midstream domestic entities, such as the Amazons, Walmarts, and Targets of the world, to induce attentiveness to international supply chain emissions and the availability, durability, and cost of consumer goods.³²³

Increased attention to unequal emissions might also counsel for reexamining the relationships among energy, work, and affluence. Changes such as a mandatory four-day or forty-hour work week or universal basic income may

Bolsen & Justin Kingsland, “Don’t Tell Me What to Do”: Resistance to Climate Change Messages Suggesting Behavior Changes, 12 WEATHER, CLIMATE, & SOC’Y 827, 835 (2020).

³²⁰ Adam Arvidsson, *The Potential of Consumer Publics*, EPHEMERA: THEORY & POL. IN ORG., May 2013, at 367, 367 (“We are used to thinking of consumption as a private affair.”).

³²¹ See David Timmons, Nikolas Zirogiannis & Manuel Lutz., *Location Matters: Population Density and Carbon Emissions from Residential Building Energy Use in the United States*, ENERGY RSCH. & SOC. SCI., Dec. 2016, at 137 (analyzing the correlation between lower-emissions and urban living and addressing the policy issue of whether emissions might be reduced based on housing choices in more rural spaces).

³²² See GORE, *supra* note 5, at 7; LUCAS CHANCEL & TOMAS PIKETTY, WORLD INEQUALITY LAB, CARBON AND INEQUALITY: FROM KYOTO TO PARIS: TRENDS IN THE GLOBAL INEQUALITY OF CARBON EMISSIONS (1998–2013) & PROSPECTS FOR AN EQUITABLE ADAPTATION FUND, 35–38 (2015), <https://wid.world/document/chancel-l-piketty-t-carbon-and-inequality-from-kyoto-to-paris-wid-world-working-paper-2015-7/> [<https://perma.cc/CS7W-WV8H>] (proposing a global carbon tax to be paid by top individual emitters globally).

³²³ See Michael P. Vandenberg & Jonathan A. Gilligan, *Beyond Gridlock*, 40 COLUM. J. ENV’T L. 217, 270 (2015) (recounting how Walmart is already doing some of this on its own, in ways that could form the basis of broader legal requirements).

solve certain energy-related challenges in addition to social policy concerns.³²⁴ Choosing among these reforms is beyond the purview of energy law and should be a matter for democratic contestation at various scales. But energy law scholars could help build the energy-related case for structural efforts at energy conservation and could pursue case studies of potential promising reforms and their challenges.

CONCLUSION

This Article's goal is to push energy law scholarship beyond its twentieth-century bounds and illustrate why the field cannot continue to succeed within the confines of its fossil-fueled past. This piece suggests numerous new pathways that energy law scholars should explore to ensure that the field continues to improve lives, or at the very least, ceases to imperil them dramatically. It is also worth re-emphasizing the ways in which the bounds of our scholarship structure the topics we teach to our students. I hope that this Article might inspire us to expand not just our writing and thinking, but the materials that we present to students as constituting our field of study. Ultimately, our goal should be to launch the next generation of climate and energy advocates with analytical capacities commensurate with the scale of the climate change challenge today. They are going to need them.

³²⁴ See DAGGETT, *supra* note 290, at 158–59 (linking the Victorian effort to valorize “work ethic” and denigrate leisure and idleness to the rise of modern energy and capitalism); *id.* at 190 (“putting post-carbon movements into conversation with the post-work political tradition”).

