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Decarbonization in Democracy

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Shelley Welton

ABSTRACT

Conventional wisdom holds that democracy is structurally ill equipped to confront climate change. As the story goes, because each of us tends to dismiss consequences that befall people in other places and in future times, the people cannot be trusted to craft adequate decarbonization policies designed to reduce present-day, domestic carbon emissions. Accordingly, U.S. climate change policy has focused on technocratic fixes that operate predominantly through executive action to escape democratic politics—with vanishingly little to show for it after a change in presidential administration.

To help craft a more durable U.S. climate change strategy, this Article scrutinizes the purported incompatibility of decarbonization and democratic politics. It argues that well-designed citizen input and control could advance U.S. efforts to address climate change, rather than hinder them. To foster such input and control, the Article contends that decarbonization can be disaggregated into three distinct questions: (1) whether to decarbonize, (2) how fast to decarbonize, and (3) how to decarbonize. Although people's tendencies to prioritize the present and the local may render them ill equipped to answer the first two questions, the third question, how to decarbonize, is different. That question focuses on the shape we want our economy and communities to take in the decades to come and is thus amenable to more citizen engagement. The Article then traces how more citizen engagement and empowerment on this question of how to decarbonize could advance decarbonization efforts. Across partisan lines, Americans consistently prioritize clean energy to a degree not reflected in our national climate politics, institutions, or energy system. These dynamics suggest that reforms that shift decisionmaking authority away from the energy industry, and into the hands of communities and citizens, have the potential to transform the political economy of decarbonization.

After making the case for more citizen control of decisions around how to decarbonize, the Article offers two complementary reforms to help achieve this aim, which venture well beyond the standard administrative law solution set. It proposes that states should: (1) harness the power of public utility law to require utilities to better gauge and respond to their customers' values, and (2) offer communities more control over their energy supply to counteract utilities' economic and political dominance.



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INTRODUCTION

The *New York Times Magazine* recently devoted an entire edition to a seventy-page article on climate change, forebodingly entitled “Losing Earth.”¹ Ultimately, the piece essentializes the challenge as one of human nature: “Human beings,” it concludes, “are incapable of sacrificing present convenience to forestall a penalty imposed on future generations.”² This is hardly a new conclusion. Legal scholars, political scientists, psychologists, and philosophers have for years bemoaned the challenges of confronting climate change within democracy.³ Because each of us has a tendency to dismiss consequences that befall people in other places and in future times, it is feared that democratic politics are ill suited for crafting decarbonization policies—that is, policies designed to reduce U.S. carbon emissions for the

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1. Nathaniel Rich, *Losing Earth: The Decade We Almost Stopped Climate Change*, N.Y. TIMES MAG. (Aug. 1, 2018), <https://www.nytimes.com/interactive/2018/08/01/magazine/climate-change-losing-earth.html> [<https://perma.cc/5F8U-SHK2>].
 2. *Id.* When commentators criticize human nature as the root of the climate problem, they are typically referring to modern capitalist democracies. Of course, many cultures, present and past, have prioritized future generations in their decisionmaking, belying any claims to the “naturalness” of climate inaction. See, e.g., LINDA CLARKSON ET AL., INT’L INST. FOR SUSTAINABLE DEV., OUR RESPONSIBILITY TO THE SEVENTH GENERATION: INDIGENOUS PEOPLES AND SUSTAINABLE DEVELOPMENT (1992), https://www.iisd.org/pdf/seventh_gen.pdf [<https://perma.cc/8DDD-ANYM>]; cf. Jedediah Purdy, *The Politics of Nature: Climate Change, Environmental Law, and Democracy*, 119 YALE L.J. 1122, 1193–94 (2010) (arguing that certain local communities’ adoption of comprehensive climate goals undercuts claims about the inevitability of self-interested or short-term thinking on the topic). For present purposes, I use “human nature” as others writing in the field have, to refer to modern U.S. psychological and cultural tendencies. But I do so with some doubts as to whether modern U.S. tendencies really reflect human nature or instead reflect our particular economic system and cultural moment.
 3. See Stephen M. Gardiner, *A Perfect Moral Storm: Climate Change, Intergenerational Ethics and the Problem of Moral Corruption*, 15 ENVTL. VALUES 397, 397 (2006) (arguing that climate change implicates “a set of global, intergenerational and theoretical problems” that “justifies calling it a ‘perfect moral storm’”); Robert Gifford, *The Dragons of Inaction: Psychological Barriers That Limit Climate Change Mitigation and Adaptation*, 66 AM. PSYCHOLOGIST 290 (2011) (similar); Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153, 1160 (2009) (arguing that climate change belongs in the category of “super wicked” problems because “the longer it takes to address the problem, the harder it will be to do so” and “those who are in the best position to address the problem are not only those who caused it, but also those with the least immediate incentive to act”); Robert R.M. Verchick, *Culture, Cognition, and Climate*, 2016 U. ILL. L. REV. 969, 975–81 (detailing the cognitive challenges that prevent people from acting on climate change).

good of the planet.⁴ To work around these challenges, the Obama administration resorted to executive orders and notice-and-comment rulemaking as its predominant means of achieving decarbonization progress.⁵ Only a few years later, however, this strategy has proven fleeting, as the Trump administration has begun reversing the bulk of these policies.⁶

As federal leadership on climate change disintegrates, this Article contends that it is time to reexamine the assumption that the people are necessarily a barrier to climate progress. Instead, this Article argues, there are underappreciated ways in which well-designed and broad-based citizen input and control could be powerful steps in crafting a more durable U.S. decarbonization strategy.⁷

There are two key components to this argument. The first is to assert the value of more granular thinking around how to involve people in the project of decarbonization. Although often painted as a technocratic endeavor, decarbonization is better conceived of as a suite of complex choices about the future shape of our communities and economy.⁸ Broadly speaking, the choices involved in this effort can usefully be broken down into three interrelated but distinct questions: (1) *whether* to decarbonize, (2) *how fast* to decarbonize, and (3) *how* to decarbonize—the technologies and methods of decarbonization.

This Article contends that even if one believes that contemporary U.S. human nature is flawed when it comes to climate change, our nature does not struggle equally with all three questions. Questions (1) and (2)—whether and how fast to decarbonize—are susceptible to our fallibilities in addressing intertemporal and interspatial inequalities.⁹ In contrast, question (3)—regarding infrastructure and social structure preferences—is more amenable

4. See *infra* Subpart I.A for a fuller description of decarbonization and Subparts I.B–I.C for more on these democratic challenges.

5. See *infra* Subpart I.C.

6. See *infra* Subpart II.A.

7. I use the term “citizen” in this Article not in the narrow legal sense but to refer to people living together in a community. The extent to which citizen participation could extend beyond those with legally recognized citizenship will depend upon the particulars of any given proposal, but I would encourage the broadest conception of citizen possible in effectuating my proposals.

8. See Roger E. Kasperson & Bonnie J. Ram, *The Public Acceptance of New Energy Technologies*, DÆDALUS, Winter 2013, at 90, 91 (arguing that the energy transition is at heart a “social” question); Shelley Welton, *Electricity Markets and the Social Project of Decarbonization*, 118 COLUM. L. REV. 1067, 1093–97 (2018) (considering why decarbonization is a “social project”).

9. See *infra* Subpart I.B.

to broad input.¹⁰ This question lacks the temporal and other-regarding constraints that plague the first two questions, and instead focuses on more immediate, practical choices about energy and infrastructure in our communities. For example, would you rather live with an industrial-scale wind farm in your sight line, or bear the hidden but potentially catastrophic risks of a nuclear plant nearby? Is it worth paying more to have solar on every roof to avoid huge solar arrays and transmission lines taking up open space? Should you have to pay extra for your energy if you choose to live in a big house with a pool? Should public money be spent on electric buses or subsidies for individual electric vehicles? These are value-based questions that technical expertise can inform but not answer.¹¹

After developing this disaggregation of the questions involved in decarbonization, the Article's second key assertion is that climate scholars have underappreciated how increasing people's involvement in choices about how to decarbonize may advance U.S. efforts to tackle climate change. In fact, focusing first on the third question—that is, simply giving Americans more control over their energy system—would likely bring climate progress.¹² There is a fear—grounded largely in the energy industry's successful climate change denial campaign¹³—that if everyday Americans were given more say in how our economy and society are powered, many would choose to run on coal. But research consistently suggests that this outcome is unlikely. Over 80 percent of Americans rank increasing renewable energy as a top energy priority.¹⁴ It seems, then, that Americans want a clean energy system but live

10. See *infra* Subpart II.B.

11. See *infra* Part III; see also Sheila Jasanoff, *Just Transitions: A Humble Approach to Global Energy Futures*, 35 ENERGY RES. & SOC. SCI. 11, 13 (2018) (“Policymakers need to understand, as Pope Francis suggested in his climate encyclical of 2015, that looking to science is not equivalent to finding ethical solutions.”).

12. See generally STEPHEN ANSOLABEHRE & DAVID M. KONISKY, CHEAP AND CLEAN: HOW AMERICANS THINK ABOUT ENERGY IN THE AGE OF GLOBAL WARMING (2014) (documenting Americans' widespread preference for clean energy across political parties and geographies).

13. See ANTHONY LEISEROWITZ ET AL., YALE PROGRAM ON CLIMATE CHANGE COMM'C'N & GEO. MASON UNIV. CTR. FOR CLIMATE CHANGE COMM'C'N, POLITICS & GLOBAL WARMING: APRIL 2019, at 4 (2018) (finding that 41 percent of U.S. registered voters do not believe that global warming is caused mostly by human activities), <https://climatecommunication.yale.edu/wp-content/uploads/2019/05/Politics-Global-Warming-April-2019b.pdf> [<https://perma.cc/D8GT-AXMA>]; see also *infra* Subpart I.C.

14. CARY FUNK & BRIAN KENNEDY, PEW RESEARCH CTR., PUBLIC DIVIDES OVER ENVIRONMENTAL REGULATION AND ENERGY POLICY 3 (2017), https://www.pewinternet.org/wp-content/uploads/sites/9/2017/05/PS_2017.05.16_Energy-Priorities_FINAL.pdf [<https://perma.cc/HV9A-F2BQ>]; see also Michael Greenberg, *Energy Sources, Public Policy, and Public Preferences: Analysis of US National and Site-Specific Data*, 37 ENERGY POL'Y

in a democracy that has failed to deliver it to them.¹⁵ Americans also appear to value the ability to choose the technologies and strategies that are used to respond to climate change rather than have them dictated to them.¹⁶ For these reasons, incorporating more citizen input and control into our decarbonization methods might prove a vital element of advancing the aim of an eventual federal decarbonization mandate.¹⁷

After making the case for greater citizen control of the choices surrounding how we decarbonize, the Article considers how to practically accomplish such a thing. Focusing on energy law and the energy sector, which will bear the brunt of necessary changes,¹⁸ it argues for a more capacious understanding of citizen engagement than is typically contemplated in administrative law.¹⁹ Given the entrenched power of the energy industry,²⁰ reforms must go beyond expanding the numbers and locales of public hearings or striving for widespread participation in classical notice-and-comment rulemaking, toward creating institutional structures in which more successful and impactful citizen participation can occur. Reforms must also go beyond consumer choice and corporate purchasing initiatives, which do nothing to foster a sense of greater collective control over the shape of our future lower-carbon society.²¹

3242, 3242 (2009) (finding over 90 percent support for greater reliance on solar and wind in a broad U.S. survey).

15. See *infra* Subparts II.B–II.C.

16. See *infra* Subpart II.C; cf. Dan M. Kahan et al., *Geoengineering and Climate Change Polarization: Testing a Two-Channel Model of Science Communication*, 658 ANNALS AM. ACAD. POL. & SOC. SCI. 192, 192 (2015) [hereinafter Kahan et al., *Geoengineering*] (finding that knowledge about the broad range of solutions to climate change increases worry about the problem itself).

17. See *infra* Part III; see also 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, 402 (2013) (documenting how intermediate steps can foster supportive interest groups, which help build coalitions that advance ever-tougher climate policies); Jonas Meckling et al., *Winning Coalitions for Climate Policy: Green Industrial Policy Builds Support for Carbon Regulation*, 349 SCI. 1170 (2015).

18. See *infra* Subpart II.A.

19. Cf. David Arkush, *Democracy and Administrative Legitimacy*, 47 WAKE FOREST L. REV. 611 (2012) (examining how to increase citizen participation within existing administrative constructs); 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) (similar); Mariano-Florentino Cuéllar, *Rethinking Regulatory Democracy*, 57 ADMIN. L. REV. 411, 470 (2005) (similar).

20. See *infra* Subpart I.C.

21. See Shelley Welton, *Grasping for Energy Democracy*, 116 MICH. L. REV. 581 (2018) (exploring three different emerging conceptions of "energy democracy" and critiquing the consumerist version); see also *infra* Part II.

The Article proposes two concrete, complementary reforms that could engender meaningful citizen participation in decarbonization policy. First, states could harness the power of public utility law to require utilities to gauge and report to regulators on their customers' energy resource preferences as part of utilities' mandatory long-term planning. Through this requirement, utilities and their regulators would gain a better understanding of what consumers want out of their energy system, and participants might feel like more than just ratepayers stuck with the bill for whatever infrastructure decisions their utility makes on their behalf.

This reform alone would be unlikely to shift utility behavior dramatically since these companies are state-sanctioned monopoly corporations with captive customer bases.²² To make utilities respond, customers need structural, collective alternatives to utility service to which they can turn if their utility proves indifferent to their demands.²³ Accordingly, the Article also celebrates—at least as worthy experiments—emerging amendments to state laws that allow communities to assume more direct control over their energy supply.²⁴

In making the case for more citizen involvement in decarbonization, this Article draws from and contributes to several strands of literature. Jedediah Purdy has provided the most poignant pushback against the accepted incompatibility of climate change and democratic politics, tracing the ways in which the collective meaning of environmentalism has shifted over time through American democratic politics and arguing that American values on climate change are similarly mutable.²⁵ But Purdy acknowledges that the goal of changing American values about climate change feels “utopian, in the pejorative sense,” in the present moment.²⁶ This Article articulates concrete strategies for engaging people more in the fight against climate change to help shift the project from the realm of utopian possibility into legal reform efforts.

This Article also builds upon the literature on how to frame and communicate climate change to persuade a broader swath of Americans to care.²⁷ Prior research on these questions illuminates which messages might

22. See William Boyd, *Public Utility and the Low-Carbon Future*, 61 UCLA L. REV. 1614, 1638–43 (2014) (explaining the conceptual origins of “public utility”).

23. Cf. ALBERT O. HIRSCHMAN, EXIT, VOICE, AND LOYALTY: RESPONSES TO DECLINE IN FIRMS, ORGANIZATIONS, AND STATES 4 (1970) (explaining how “voice” and “exit” are complementary strategies in organizational dynamics, because increased ease of exit enhances the power of internal protests to force organizational change).

24. See *infra* Subparts III.B–C.

25. Purdy, *supra* note 2, at 1125.

26. JEDEDIAH PURDY, AFTER NATURE: A POLITICS FOR THE ANTHROPOCENE 269 (2015).

27. See Dan M. Kahan et al., *Cultural Cognition of Scientific Consensus*, 14 J. RISK RES. 147 (2011); Dan Kahan, *Fixing the Communications Failure*, 463 NATURE 296 (2010) [hereinafter

help more Americans accept the challenge of climate change—but often with limited discussion of the institutional mechanisms that will allow this acceptance to translate into better policy outcomes.²⁸ Indeed, given widespread agreement among Americans that increasing investments in renewable energy should be a policy priority,²⁹ framing may not be the key to decarbonizing energy. What is lacking is the structural control to translate our values into policy outcomes.³⁰

Of course, shifting structural control of the economic and political system takes time. All the while, climate change is accelerating.³¹ These dynamics stoke a fear that there may not be time to avert dangerous or catastrophic warming by working through state and local channels to build more durable, widespread support for federal climate action.³² Emerging research suggests that even two degrees Celsius of warming may be enough to send the earth past a tipping point, past which runaway warming becomes difficult to reverse.³³

The risk that citizen empowerment will yield too little, too late is both real and unavoidable. We know, scientifically, what decarbonization will take.³⁴ But our politics and our institutions are failing us—and must become the focus of reform. This Article's focus on institutional structures situates it within a

Kahan, *Fixing Failure*]; Hari M. Osofsky & Jacqueline Peel, *Energy Partisanship*, 65 EMORY L.J. 695, 697–98 (2016); Edward L. Rubin, *Rejecting Climate Change: Not Science Denial, But Regulation Phobia*, 32 J. LAND USE & ENVTL. L. 103 (2016); Per Espen Stoknes, *Rethinking Climate Communications and the "Psychological Climate Paradox,"* 1 ENERGY RES. & SOC. SCI. 161 (2014); Verchick, *supra* note 3.

28. See sources cited *supra* note 27.

29. See ANSOLABEHRE & KONISKY, *supra* note 12; FUNK & KENNEDY, *supra* note 14; Greenberg, *supra* note 14.

30. Cf. THOMAS PIKETTY, CAPITAL IN THE TWENTY-FIRST CENTURY 745 (Arthur Goldhammer trans., 2014) ("If democracy is someday to regain control of capitalism, it must start by recognizing that the concrete institutions in which democracy and capitalism are embodied need to be reinvented again and again."); K. SABEEL RAHMAN, DEMOCRACY AGAINST DOMINATION 3 (2017).

31. See MYLES ALLEN ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, GLOBAL WARMING OF 1.5°C: SUMMARY FOR POLICYMAKERS 4 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf [<https://perma.cc/Q7C8-EEBW>].

32. See, e.g., GEOFF MANN & JOEL WAINWRIGHT, CLIMATE LEVIATHAN: A POLITICAL THEORY OF OUR PLANETARY FUTURE 39 (2018) ("If climate science is even half-right in its forecasts, the liberal model of democracy is at best too slow, at worst a devastating distraction.").

33. See Will Steffen et al., *Trajectories of the Earth System in the Anthropocene*, 115 PROC. NAT'L ACAD. SCI. 8252, 8256 (2018).

34. See ALLEN ET AL., *supra* note 31, at 12 (describing modeled pathways to "limit global warming to 1.5°C with no or limited overshoot," which "can involve different portfolios of mitigation measures, striking different balances between lowering energy and resource intensity, rate of decarbonization, and the reliance on carbon dioxide removal").

growing conversation about the political economy of decarbonization,³⁵ which is the critical frontier of climate law scholarship. The key challenge for climate change law scholars is no longer devising theoretically sound legal strategies for guiding the clean energy transition. Instead, it is time to confront the raw political struggle that has prevented numerous ideas from gaining traction for forty years.³⁶ The Article contributes to this endeavor by interrogating how more citizen involvement may advance the goal of substantial society-wide decarbonization.

This Article proceeds in three Parts. Part I lays out my exposition of the democratic challenges confronting decarbonization policies and traces how these challenges have shunted policymakers away from seeking widespread public engagement. Part II develops my theory that decisionmaking around decarbonization can be usefully disaggregated into three distinct questions, which do not all equally confront cognitive and cultural challenges. It then considers how this disaggregation could advance U.S. efforts to stem the tide of climate change. Finally, Part III sets forth my suggestions as to how energy governance could be reformed to better respond to citizens' and communities' energy preferences and values.

I. CLIMATE CHANGE AND THE “DOUBLE DEMOCRATIC DEFICIT”

[T]he heart of the problem is that climate change has many of the properties of being the world's largest collective action problem, and it is difficult for any country that is responsive to its citizens to do its fair share in securing the global public good of climate stability.³⁷

Over the forty-year history of efforts to respond to climate change, numerous scholars have examined why it has proven so difficult to craft an adequate, comprehensive solution. Some make claims that relate to the structure of human reasoning and democratic societies in general.³⁸ Others

35. See Biber, *supra* note 17; Eric Biber et al., *The Political Economy of Decarbonization: A Research Agenda*, 82 BROOK. L. REV. 605 (2017); see also MICHAEL P. VANDENBERGH & JONATHAN M. GILLIGAN, *BEYOND POLITICS: THE PRIVATE GOVERNANCE RESPONSE TO CLIMATE CHANGE* (2017) (looking for politically viable workarounds through private governance); David E. Adelman & David B. Spence, *Ideology vs. Interest Group Politics in U.S. Energy Policy*, 95 N.C. L. REV. 339 (2017); William W. Buzbee, *Federalism Hedging, Entrenchment, and the Climate Challenge*, 2017 WIS. L. REV. 1037, 1044, 1053–54 (arguing for the importance of state and local climate action as a “hedging” strategy to build stakeholder and coalition support for a federal regime).

36. The first congressional hearing on climate change took place on April 3, 1980. See Rich, *supra* note 1.

37. DALE JAMIESON, *REASON IN A DARK TIME: WHY THE STRUGGLE AGAINST CLIMATE CHANGE FAILED—AND WHAT IT MEANS FOR OUR FUTURE* 99 (2014).

38. See *infra* notes 68–90.

illuminate why the challenge of responding to climate change has proven acute in the United States in recent decades.³⁹ My aim in this Part is to synopsise the many components of this argument. In brief, I argue that existing research points to a “double democratic deficit” when it comes to climate change in the United States. First, as many scholars have explored, efforts to decarbonize are challenging even within an ideal democracy because our minds, culture, and political institutions are poorly equipped to deal with such an expansive, creeping problem. Second, critics from all political valences agree that democracy in the United States is far from ideal at the present moment—and it is broken in ways that can make efforts to empower citizens to combat climate change appear foolhardy.

A. Some Terminological Preliminaries

This Article argues for greater citizen engagement and empowerment in the project of decarbonizing the U.S. energy system. Before plunging in any further, it may be helpful to specify what I mean by these terms. The idea of engaging and empowering citizens to make choices about their energy future is often subsumed into the emerging buzz phrase “energy democracy.” Proponents of energy democracy generally argue for more citizen control over the energy system through a divergent set of reforms that variously include consumer purchasing initiatives, localism, changing ownership structures, and more participatory governance.⁴⁰ To avoid the vagueness that accompanies an undifferentiated call for energy democracy, I speak specifically in terms of *citizen engagement* and *citizen empowerment*.

I use the term “citizen engagement” to describe efforts to solicit greater citizen input and involvement in the project of government, without giving citizens reins over final outcomes.⁴¹ The theory driving these reforms is that

39. See *infra* notes 107–111.

40. See Denise Fairchild & Al Weinrub, *Introduction*, in *ENERGY DEMOCRACY: ADVANCING EQUITY IN CLEAN ENERGY SOLUTIONS* 1, 13 (Denise Fairchild & Al Weinrub eds., 2017) (“[Energy democracy] initiatives focus on community control of, access to, and ownership of energy assets.”); CRAIG MORRIS & ARNE JUNGJOHANN, *ENERGY DEMOCRACY: GERMANY’S ENERGIEWENDE TO RENEWABLES*, at vii (2016) (defining “energy democracy” as “when citizens and communities can make their own energy, even when it hurts energy corporations financially”); Welton, *supra* note 21 (exploring three different emerging conceptions of “energy democracy”).

41. Proposals aimed at citizen engagement often employ the terminologies administrative democracy, new governance, and—in at least some of its forms—deliberative democracy. See Arkush, *supra* note 19; Bull, *supra* note 19; Cuéllar, *supra* note 19; see also James S. Fishkin, *The Televised Deliberative Poll: An Experiment in Democracy*, 546 ANNALS AM. ACAD. POL. & SOC. SCI. 132, 140 (1996) (championing deliberative polling

citizens have valuable information to offer decisionmakers regarding priorities, strategies, and desired outcomes—such that well-constructed means of participation should enhance both the quality of decisions and citizens’ satisfaction with the decisionmaking process.⁴²

These methods of citizen engagement contrast with reforms aimed at what I call “citizen empowerment.”⁴³ Citizen empowerment seeks to enhance citizens’ direct control over outcomes rather than just giving them more of a say in a technocrat-controlled process. Advocates for citizen empowerment thus argue for “devolving decision making or administrative power to venues that are directly accessible to citizens.”⁴⁴ Such reforms might include modes of direct democracy like referenda and recalls⁴⁵ or localist reforms that devolve authority to governmental units that operate “closer to the people.”⁴⁶

as a way to obtain high-quality citizen engagement); Jody Freeman, *Collaborative Governance in the Administrative State*, 45 UCLA L. REV. 1, 4, 6 (1997) (offering a “normative vision of collaborative governance,” *id.* at 4 (emphasis omitted) in which “parties share responsibility for all stages of the rule-making process,” *id.* at 6); Orly Lobel, *The Renew Deal: The Fall of Regulation and the Rise of Governance in Contemporary Legal Thought*, 89 MINN. L. REV. 342, 345 (2004) (proposing an agency governance model that “promotes a movement downward and outward, transferring responsibilities to states, localities, and the private sector—including private businesses and nonprofit organizations”).

42. See Arkush, *supra* note 19; Cuéllar, *supra* note 19; Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism*, 98 COLUM. L. REV. 267, 283 (1998) (proposing a new model of “institutionalized democratic deliberation”); Cynthia R. Farina et al., *Rulemaking vs. Democracy: Judging and Nudging Public Participation That Counts*, 2 MICH. J. ENVTL. & ADMIN. L. 123, 124 (2012) (arguing that successful “civic engagement systems” within rulemakings “must involve a purposeful and continuous effort to balance ‘more’ and ‘better’ participation”).
43. Cf. Edward L. Rubin, *Getting Past Democracy*, 149 U. PA. L. REV. 711, 729 (2001) (contrasting proponents of “participatory democracy” with those who “seek ways of improving the representative, administrative government we actually possess”).
44. Archon Fung, *Associations and Democracy: Between Theories, Hopes, and Realities*, 29 ANN. REV. SOC. 515, 531 (2003) (describing a strong version of associative democracy in these terms); see, e.g., BENJAMIN R. BARBER, *STRONG DEMOCRACY: PARTICIPATORY POLITICS FOR A NEW AGE* 132 (2003) (defining “strong democracy” as a “participatory process of ongoing, proximate self-legislation” (emphasis omitted)); Archon Fung & Erik Olin Wright, *Deepening Democracy: Innovations in Empowered Participatory Governance*, 29 POL. & SOC’Y 5, 7 (2001) (describing a family of reforms they call “Empowered Deliberative Democracy” (emphasis omitted)); Ethan J. Leib & Christopher S. Elmendorf, *Why Party Democrats Need Popular Democracy and Popular Democrats Need Parties*, 100 CALIF. L. REV. 69, 70 (2012) (describing “popular democracy” as including “initiatives, referenda, and more innovative forays in participatory democracy”).
45. Direct democracy’s democratic pedigree has been called into question by many. See, e.g., THOMAS E. CRONIN, *DIRECT DEMOCRACY: THE POLITICS OF INITIATIVE, REFERENDUM, AND RECALL* (1999); JOHN G. MATSUSAKA, *FOR THE MANY OR THE FEW: THE INITIATIVE,*

There is considerable debate among democratic theorists as to whether one of these modes of citizen involvement is superior to the other. Critics of citizen engagement accuse it of being too anemic a form of participation;⁴⁷ critics of citizen empowerment suggest it is too trusting of the capacities of nonexperts.⁴⁸ I do not intend to settle this debate here, as I think both theories of reform can be useful in energy governance.⁴⁹ In fact, I contend that the best strategies will involve complementary pursuits of citizen engagement and empowerment.⁵⁰

Finally, a word about the other term central to this Article, “decarbonization.” By now, most people are familiar with the problem of climate change and the ways in which human-created greenhouse gas emissions are contributing to a gradual warming of the earth’s temperature with dire geophysical, economic, and social consequences.⁵¹ There are, basically, three ways the world can respond: mitigate, adapt, or suffer.⁵²

PUBLIC POLICY, AND AMERICAN DEMOCRACY (2004). Because I do not advocate for classic direct democracy like referenda in this Article, I set this debate aside.

46. See CAROLE PATEMAN, PARTICIPATION AND DEMOCRATIC THEORY 42 (1970) (arguing that “for maximum participation by all the people . . . democracy must take place” beyond “representative institutions at [the] national level” in order to create capable citizens); Kathryn Abrams, *Law’s Republicanism*, 97 YALE L.J. 1591, 1605 (1988) (arguing for the superiority of localities as sites for citizen participation); Robert A. Dahl, *The City in the Future of Democracy*, 61 AM. POL. SCI. REV. 953, 954 (1967); Gerald E. Frug, *The City as a Legal Concept*, 93 HARV. L. REV. 1057, 1061 (1980) (advocating for “city power” on democratic justifications).
47. See David Alan Sklansky, *Police and Democracy*, 103 MICH. L. REV. 1699, 1766, 1770 (2005) (contrasting a “radical” form of participatory democracy focused on dramatically rethinking how people participate in making the decisions that govern their lives with a “mainstream” version focused on tweaking existing processes, *id.* at 1770, and observing that “participation in government can be pacifying,” *id.* at 1766).
48. See JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY 261–62 (1942) for a classic critique. For a contemporary polemic against citizens’ democratic capabilities, see JASON BRENNAN, AGAINST DEMOCRACY (2016).
49. See Daniel J. Fiorino, *Environmental Risk and Democratic Process: A Critical Review*, 14 COLUM. J. ENVTL. L. 501, 535 (1989) (observing that “modern participation theorists recognize the implausibility of pure democracy, and they look to institutional forms that can be adapted to the demands of a modern state”); Archon Fung, *Varieties of Participation in Complex Governance*, 66 PUB. ADMIN. REV. (SPECIAL ISSUE) 66, 66 (2006) (“[T]here is no canonical form of direct participation in modern democratic governance; modes of contemporary participation are, and should be, legion.”).
50. See *infra* Part III.
51. See 2 U.S. GLOBAL CHANGE RES. PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT: IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES (David R. Reidmiller et al. eds., 2018), https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf [<https://perma.cc/KEF7-LJEW>].
52. See WAINWRIGHT & MANN, *supra* note 32, at 60 n.18 (attributing this formulation to John P. Holdren, former climate advisor to President Barack Obama).

Mitigation refers to actions to stem the pace of climate change—including, most critically, decarbonization.⁵³ Decarbonization is the process of eliminating fossil fuel–powered activities and technologies that contribute carbon to the atmosphere and thereby induce climate change⁵⁴ or enhancing activities that remove carbon from the atmosphere (such as planting forests).⁵⁵ The second option, adaptation, refers to adjustments in our modes of living to cope with a hotter, more unpredictable planet.⁵⁶ The third option, suffering, should be all too self-explanatory—although such suffering will not be distributed evenly across the planet.⁵⁷ Realistically, the world is likely to pursue or endure some combination of these three outcomes. But their interrelationship is clear: More decarbonization yields less need for adaptation and helps prevent suffering, particularly among the most vulnerable—such that many consider it an “ethical and planetary imperative.”⁵⁸

In 2015, international negotiators achieved a landmark climate accord, the Paris Agreement, which sets a goal of limiting planetary warming to “well

53. *Id.* at 59; see also John C. Dernbach, *Introduction*, in LEGAL PATHWAYS TO DEEP DECARBONIZATION IN THE UNITED STATES 1 (Michael B. Gerrard & John C. Dernbach eds., 2019) (sketching a “playbook of legal pathways” to reduce U.S. greenhouse gas emissions). While carbon dioxide is the main driver of climate change, as Dernbach observes, “[a]ny comprehensive effort to address climate pollutants must also address methane, nitrous oxide, fluorinated gases, and black carbon.” *Id.* at 3. These additional greenhouse gases are sidelined in my analysis here; for more on their reduction, see Emily Baer, *Pulling the Second Lever: Regulating Black Carbon to Combat Global Warming*, 46 ENVTL. L. REP. 11,034 (2016) (examining the role of black carbon, a component of soot, in climate change); Jonathan Lovvorn, *Climate Change Beyond Environmentalism Part II: Near-Term Climate Mitigation in a Post-Regulatory Era*, 30 GEO. ENVTL. L. REV. 203, 211–22 (2018) (examining the importance of reducing methane emissions “as a near-term mitigation strategy,” *id.* at 211).

54. “Eliminating” in this context might refer to replacing fossil fuels with another energy source or to capturing fossil fuel emissions to prevent their escape to the atmosphere through a process known as “carbon capture and storage.” See, e.g., DEEPIKA NAGABHUSHAN & JOHN THOMPSON, CLEAN AIR TASK FORCE, CARBON CAPTURE & STORAGE IN THE UNITED STATES POWER SECTOR: THE IMPACT OF 45Q FEDERAL TAX CREDITS 4 (2019), https://www.catf.us/wp-content/uploads/2019/02/CATF_CCS_United_States_Power_Sector.pdf [<https://perma.cc/32AG-GLJ5>].

55. Dernbach, *supra* note 53.

56. Verchick, *supra* note 3, at 972.

57. See, e.g., CHRISTOPHER B. FIELD ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY: SUMMARY FOR POLICYMAKERS 6 (2014), https://www.ipcc.ch/site/assets/uploads/2018/02/ar5_wgII_spm_en.pdf [<https://perma.cc/FSN5-3HZM>] (charting differences in vulnerability based on climatic and nonclimatic factors, and observing that “[p]eople who are socially, economically, culturally, politically, institutionally, or otherwise marginalized are especially vulnerable to climate change and also to some adaptation and mitigation responses”).

58. WAINWRIGHT & MANN, *supra* note 32, at 61.

below 2°C above pre-industrial levels.”⁵⁹ Experts widely agree that achievement of the 2°C goal will require reaching 80 percent fewer carbon emissions in the United States by 2050 and negative carbon emissions by 2100—a level of decarbonization often referred to as “deep decarbonization.”⁶⁰

Given how thoroughly fossil fuels permeate the U.S. economy, we will need a broad and deep transformation of the ways in which we live, work, travel, and play to reach these targets. Transportation and electricity generation each account for around 28 percent of U.S. carbon emissions today, together composing roughly 56 percent of total U.S. emissions.⁶¹ Industry, agriculture, and direct commercial and residential consumption make up the rest (at 22 percent, 9 percent, and 12 percent, respectively).⁶² To reach deep decarbonization, it is likely that the transportation sector and commercial and residential heating will need to almost entirely electrify—at the same time that the electricity sector switches to carbon-free generation sources and doubles in size.⁶³ This dramatic shift would eliminate over 60 percent of U.S. emissions, which is why the electricity sector is a critical focus for decarbonization policy generally and for this Article in particular.⁶⁴

That said, the tentacles of decarbonization will need to reach beyond the energy sector to achieve the necessary targets. Attention must also be paid to

59. Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104. Science increasingly suggests that 1.5° Celsius would better protect against “dangerous anthropogenic interference.” Dernbach, *supra* note 53, at 4; *see also* ALLEN ET AL., *supra* note 31, at 7–11 (charting the differences between 1.5° Celsius and 2° Celsius of warming).

60. *See* THE WHITE HOUSE, UNITED STATES MID-CENTURY STRATEGY FOR DEEP DECARBONIZATION 6–7 (2016), https://unfccc.int/files/focus/long-term_strategies/application/pdf/mid_century_strategy_report-final_red.pdf [<https://perma.cc/24WZ-4DWW>]; 2 JAMES H. WILLIAMS ET AL., SUSTAINABLE DEV. SOLUTIONS NETWORK, POLICY IMPLICATIONS OF DEEP DECARBONIZATION IN THE UNITED STATES 4 (2015), <http://usddpp.org/downloads/2015-report-on-policy-implications.pdf> [<https://perma.cc/HB44-F9NB>]; Dernbach, *supra* note 53; James Hansen et al., *Young People’s Burden: Requirement of Negative CO₂ Emissions*, 8 EARTH SYS. DYNAMICS 577, 590 (2017).

61. *See Sources of Greenhouse Gas Emissions*, U.S. ENVTL. PROTECTION AGENCY, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> [<https://perma.cc/7FXX-Y4YQ>] (last updated Apr. 11, 2020) [hereinafter *Sources of GHGs*].

62. *Id.*

63. *See* Dernbach, *supra* note 53, at 8 (noting that the leading analyses agree that deep decarbonization will require all sectors to switch “from fossil fuel use to decarbonized energy carriers, principally electricity”).

64. *See* James H. Williams et al., *The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity*, 335 SCI. 53, 54 (2012) (finding through modeling that to reach deep decarbonization in California, “there was no alternative to widespread switching of direct fuel uses (e.g., gasoline in cars) to electricity in order to achieve the reduction target”).

ways of shifting transportation modalities toward electricity, transforming industrial and manufacturing processes, better managing soil and agricultural waste, and rethinking land use and development patterns.⁶⁵ When thinking about the role of the citizenry in decarbonization, each of these sectors requires a different analysis. Citizen input is likely less useful in, say, reducing emissions from cement manufacturing than it might be in changing land use patterns.⁶⁶ In focusing on the energy sector, I necessarily leave aside this comparative analysis and thus neglect some elements of a full decarbonization agenda. I leave for others, hopefully moved by my analysis, the question of whether more citizen engagement and empowerment might also enhance the decarbonization of other sectors.

B. The Fallibility of Citizens, Society, and Political Institutions

You most likely contributed to the problem of climate change in the amount of time it took you to read this sentence—at least, you did if you exhaled. You contributed considerably more if you turned on lights when you woke up this morning, ate breakfast, or drove to work. Yet it is hard to feel guilty for undertaking these daily tasks.⁶⁷ The difficulty of moralizing greenhouse gas emissions presents the first challenge to an adequate response to the problem: Each of us contributes in such miniscule, accretive ways that it is difficult to conceptualize exactly what we are doing wrong that needs to change.⁶⁸

65. See, e.g., Vicki Arroyo et al., *New Strategies for Reducing Transportation Emissions and Preparing for Climate Impacts*, 44 FORDHAM URB. L.J. 919, 920 (2017). In 2018, U.S. forests and managed lands absorbed around 11 percent of our national greenhouse gas emissions. See *Sources of GHGs*, *supra* note 61 (follow “Land Use/Forestry” hyperlink under page title).

66. See David Markell, *Climate Change and the Roles of Land Use and Energy Law: An Introduction*, 27 J. LAND USE & ENVTL. L. 231, 233–34 (2012) (observing the importance of “land use legal regimes” in tackling decarbonization); *Controlling Industrial Greenhouse Gas Emissions*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, <https://www.c2es.org/content/regulating-industrial-sector-carbon-emissions> [https://perma.cc/43JJ-WFSF] (noting that industrial emissions account for one-fifth of U.S. greenhouse gas emissions, and describing potential reduction strategies).

67. See PURDY, *supra* note 26, at 250–51; Katrina Fischer Kuh, *Capturing Individual Harms*, 35 HARV. ENVTL. L. REV. 155, 156 (2011) (noting that these behaviors are legally and socially sanctioned).

68. See JAMIESON, *supra* note 37, at 150. Of course, many corporations have caused emissions that contribute to the problem in far from miniscule ways—a fact that is intimately linked to the climate denial campaigns discussed *infra* Subpart II.C. See, e.g., Complaint at 3, *City of Santa Cruz v. Chevron Corp.*, No. 17CV03243 (Cal. Super. Ct. Dec. 20, 2017) (alleging that named fossil fuel defendants were “directly responsible for 215.9 gigatons of CO₂ emissions between 1965 and 2015, representing 17.5% of total emissions of that potent greenhouse gas during that period”).

Nevertheless, it is clear at this point that the rational thing to do is to change, and change dramatically. Even if we struggle to see our individual contributions as moral wrongs, we still could take steps to alleviate our collective harm—but we largely do not. Many have suggested that the reasons why lie in the fallibilities of our minds, our communities, and our political systems.

Psychology contributes greatly to our understanding of how individuals process climate change, and several legal scholars have already collected this evidence.⁶⁹ In short, as Rob Verchick argues, the key problem facing climate change is that “we don’t care enough.”⁷⁰ Stated more technically, there are numerous cognitive heuristics and biases that make it difficult for the human mind to adequately process and respond to climate change.⁷¹ Climate change is a problem with bedeviling links between causation and harm: Many of those countries that historically have created the greatest amount of carbon emissions will suffer the fewest consequences of its effects.⁷² Moreover, although people across the globe have experienced some negative effects from climate change, future generations will bear the brunt of the consequences.⁷³ These characteristics of climate change make it what Richard Lazarus has called a “super wicked problem.”⁷⁴

Many behavioral economists have demonstrated why our brains may be particularly poor at processing precisely this type of challenge. We operate under “bounded rationality,” influenced by our “limited computational skills and seriously flawed memories.”⁷⁵ A number of common cognitive errors are at work with respect to climate change. The availability heuristic posits that

69. See Lazarus, *supra* note 3, at 1173–79; Purdy, *supra* note 2, at 1132–35; Jeffrey J. Rachlinski, *The Psychology of Global Climate Change*, 2000 U. ILL. L. REV. 299; Carol M. Rose, *Commons, Cognition, and Climate Change*, 32 J. LAND USE & ENVTL. L. 297, 301–12 (2017); Cass R. Sunstein, *On the Divergent American Reactions to Terrorism and Climate Change*, 107 COLUM. L. REV. 503 (2007); Barton H. Thompson, Jr., *Tragically Difficult: The Obstacles to Governing the Commons*, 30 ENVTL. L. 241, 253–56 (2000); Verchick, *supra* note 3.

70. Verchick, *supra* note 3, at 973 (emphasis omitted).

71. See *supra* note 2 for caveats to the breadth of these claims. On heuristics and biases in general, the pathbreaking work of Amos Tversky and Daniel Kahneman is of central importance. See, e.g., Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124 (1974).

72. See Lazarus, *supra* note 3, at 1170–73.

73. Jedediah Purdy argues that this temporal challenge is more difficult than the geographical one. PURDY, *supra* note 26, at 247.

74. Lazarus, *supra* note 3, at 1160.

75. See Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1477 (1998).

people worry most about risks they can readily conjure to mind.⁷⁶ But the slow creep of climate change—as well as the challenge of directly attributing any particular catastrophe directly to increased emissions⁷⁷—makes it hard to visualize the danger.⁷⁸ The optimistic bias compounds this underestimation of climate change’s risks because “people tend to show an unrealistic belief in their own immunity from certain risks . . . [that] will not be faced until the distant future.”⁷⁹ In particular, humans “extravagantly discount” future consequences of present behaviors that will not occur for generations.⁸⁰

Moreover, people particularly hate changes that require them not to simply forgo gains but to actively give up something, such as the lifestyles enabled by fossil fuel consumption.⁸¹ And the list of cognitive failings goes on—Carol Rose recently added to this stewpot the challenges of “distrust, ignorance and insouciance,” which are acute in the climate context because cooperation is needed on a massive scale.⁸²

Researchers have suggested that these cognitive limitations collectively create a “massive social trap” on climate change by making each of us predisposed to underrespond to the problem.⁸³ But the story is worse than these cognitive limitations alone. Dan Kahan and colleagues have persuasively documented how “cultural cognition” causes people to process information about climate change on the basis of how it aligns, or misaligns,

76. Sunstein, *supra* note 69, at 534.

77. See Sophie Marjanac & Lindene Patton, *Extreme Weather Event Attribution Science and Climate Change Litigation: An Essential Step in the Causal Chain?*, 36 J. ENERGY & NAT. RESOURCES L. 265 (2018) (explaining the advancing science of linking particular weather events to climate change).

78. Sunstein, *supra* note 69, at 523, 534–35, 539–40; see also Lazarus, *supra* note 3, at 1177 (arguing that people’s “weak intuitive understanding” of the mechanisms of atmospheric gas concentration contributes to this challenge).

79. Sunstein, *supra* note 69, at 545 (footnote omitted); see also Jolls et al., *supra* note 75, at 1479 (describing the related phenomenon of “bounded willpower,” whereby “human beings often take actions that they know to be in conflict with their own long-term interests”); Thompson, *supra* note 69, at 263 (describing experiments that show that people “willingly gamb[e] on the future, where the risk is characterized by significant uncertainty and avoiding the risk would require giving up something today”).

80. Thompson, *supra* note 69, at 262.

81. Rachlinski, *supra* note 69, at 308 (describing loss aversion and the status quo bias); see also Lazarus, *supra* note 3, at 1175 (explaining why this dynamic makes reducing consumption “especially difficult to accomplish”).

82. Rose, *supra* note 69, at 299 (arguing that “[t]hese impediments are in a sense prior to cognitive issues” because they “can stop people from even getting to any evidence about commons problems, or can cause despair at the very outset about arriving at any solution”).

83. Rachlinski, *supra* note 69, at 300.

with their worldview.⁸⁴ In short, cultural cognition research demonstrates that for most people, the desire to get along with others in their community dictates their stance on climate change, and science and facts have little to do with it.⁸⁵ Although such selective filtering of information may make perfect sense on an individual level,⁸⁶ it can have severe negative consequences for policymaking when such filtering moves a polity away from socially beneficial outcomes, including responding adequately to climate change.⁸⁷

These moral, cognitive, and cultural hurdles to good decisionmaking around climate change are compounded in the realm of politics. In addition to falling prey to individual fallibilities, politicians face the pressure of reelection cycles, which demand quick results.⁸⁸ Decarbonization legislation, in contrast, “imposes costs on the short term for the realization of benefits many decades and sometimes centuries later.”⁸⁹ Moreover, our fragmented

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84. Dan M. Kahan et al., *The Polarizing Impact of Science Literacy and Numeracy on Perceived Climate Change Risks*, 2 NATURE CLIMATE CHANGE 732, 732 (2012) [hereinafter Kahan et al., *Polarizing Impact*]; see also P. Sol Hart & Erik C. Nisbet, *Boomerang Effects in Science Communication: How Motivated Reasoning and Identity Cues Amplify Opinion Polarization About Climate Mitigation Policies*, 39 COMM. RES. 701, 715 (2012) (finding that “climate change messages, especially those talking about impacts on socially distant groups, are likely to amplify polarization about the issue”). Some scholars include the “cultural cognition” challenges described here as one aspect of bounded rationality. See Sunstein, *supra* note 69, at 548; Cass R. Sunstein, *Misfearing: A Reply*, 119 HARV. L. REV. 1110, 1117–18 (2006) (“In my view, cultural cognition is actually a reflection of bounded rationality and a part of the general framework that it offers.”); see also Rachlinski, *supra* note 69, at 304–07 (discussing “biased assimilation”); Rose, *supra* note 69, at 298–99 (parsing these different ways of approaching the issue). Dan Kahan, in contrast, sees cultural cognition as an alternative causal explanation for climate change disbelief—one that disproves the idea that bounded rationality is the main challenge. See Kahan et al., *Geoengineering*, *supra* note 16, at 194–95; Kahan et al., *Polarizing Impact*, *supra*, at 732. The particulars of this debate do not matter for this Article’s purposes.
85. See Kahan et al., *Polarizing Impact*, *supra* note 84, at 734; Kahan, *Fixing Failure*, *supra* note 27, at 296; Verchick, *supra* note 3, at 976–77; Dan M. Kahan et al., *Fear of Democracy: A Cultural Evaluation of Sunstein on Risk*, 119 HARV. L. REV. 1071, 1083 (2006) (book review) [hereinafter Kahan et al., *Fear of Democracy*] (concluding that “culture is prior to facts” (emphasis omitted)).
86. See Kahan et al., *Fear of Democracy*, *supra* note 85, at 1072 (“[I]ndividuals effectively conform their beliefs about risk to their visions of an ideal society.”).
87. Kahan, *Fixing Failure*, *supra* note 27, at 296 (“The ability of democratic societies to protect the welfare of their citizens depends on finding a way to counteract this culture war over empirical data.”); Kahan et al., *Polarizing Impact*, *supra* note 84, at 734; cf. Verchick, *supra* note 3, at 989 (explaining why we can be confident that the overwhelming scientific consensus favoring action on climate change is not itself just a product of cultural bias).
88. Lazarus, *supra* note 3, at 1179–80; see also Sunstein, *supra* note 69, at 531–32 (contrasting politicians’ high political incentives to prevent terrorist attacks “on [their] watch” to their relatively lower incentives to prevent climate change).
89. Lazarus, *supra* note 3, at 1157.

government system—with authority divided among branches—is designed to force incremental government action in ways that misalign with the magnitude of the long-term response needed to mitigate climate change.⁹⁰

All of these factors have helped scholars explain why it has been difficult for the United States to respond adequately to the problem. For purposes of this Article, I accept that these tendencies are real and challenging⁹¹—although I find them to be overemphasized relative to the challenges of political and economic power distribution. And indeed, these cognitive limitations appear to be slackening as the toll of climate disasters mounts. After 2018 delivered a brutal hurricane season in the East and California fires that killed record numbers,⁹² the cognitive availability of climate change rose, since people became less able to delude themselves into believing that climate change is a problem of the distant future.⁹³ In coming decades, people's concern about climate change is likely to naturally rise alongside the predicted increase in disastrous events.⁹⁴ The fact that people may be growing more rational (that is, appropriately attuned to the dangers) when it comes to climate risks only strengthens my arguments in favor of citizen control—although it is a shame that the toll for enhanced rationality is real human suffering and ecological damage.

90. *Id.* at 1180.

91. As emphasized *supra* note 2, I share the concerns of scholars who think these challenges are better explained as the result of our current political and cultural moment rather than human nature. See Purdy, *supra* note 2. Nevertheless, since imminent climate reforms must work within this moment, I take these constraints as presently accurate.

92. See Cleve R. Wootson Jr., *The Deadliest, Most Destructive Wildfire in California's History Has Finally Been Contained*, WASH. POST (Nov. 26, 2018, 4:22 AM), <https://www.washingtonpost.com/nation/2018/11/25/camp-fire-deadliest-wildfire-californias-history-has-been-contained> [https://perma.cc/UG7Z-8YZZ]; *Destructive 2018 Hurricane Season Draws to an End*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Nov. 28, 2018), <https://www.noaa.gov/media-release/destructive-2018-atlantic-hurricane-season-draws-to-end> [https://perma.cc/C5G3-Y2RT].

93. See, e.g., John Schwartz, *Global Warming Concerns Rise Among Americans in New Poll*, N.Y. TIMES (Jan. 22, 2019), <https://www.nytimes.com/2019/01/22/climate/americans-global-warming-poll.html> [https://perma.cc/LEW2-F9HH] (“A record number of Americans understand that climate change is real, according to a new survey, and they are increasingly worried about its effects in their lives today.” (emphasis added) (citation omitted)).

94. See 2 U.S. GLOBAL CHANGE RES. PROGRAM, *supra* note 51, at 88–91, 94–98 (describing the dire health, economic, and infrastructure impacts of increasing severe weather events).

C. The Double Deficit: Decarbonization in Troubled Times

The challenges detailed above should, theoretically, plague decarbonization policy even in the most perfect of democracies.⁹⁵ But the United States is at present far from such an ideal. Many scholars and commentators have exposed critical fissures and flaws in our democracy over the past several years.⁹⁶ In the words of Jedediah Purdy, the result of these flaws is that “[d]emocratic citizens’ capacity to rework their own common lives has been hollowed out in overt and explicit ways.”⁹⁷ This Subpart describes in broad brushstrokes two of the most prominent forms of this diminishment—political polarization and elite domination—and then connects them to the climate change challenge.

Americans are becoming more extreme in their viewpoints and more vociferous in their disdain for the other side.⁹⁸ At the same time, changes in campaign finance laws have allowed shadow parties and major donors to drive political agendas,⁹⁹ and these politically active elites tend to be far more

95. Considerably more comparative work is needed to understand why different democracies seem to display these predicted behavioral tendencies to quite different degrees, with some countries able to establish much more aggressive climate change targets than others. Compare, for example, the description of U.S. climate policies *infra* Subparts I.D–II.A, with those of Denmark, which is “working for a climate-neutral society by 2050, which means that Denmark will absorb at least as much greenhouse gas as [it] emit[s].” DANISH MINISTRY OF CLIMATE, ENERGY, & UTILS., TOGETHER FOR A GREENER FUTURE (2018), <https://en.efkm.dk/media/12351/climate-air-proposal-summary.pdf> [<https://perma.cc/5U9V-HTQX>].

96. See sources cited *infra* notes 98–107.

97. PURDY, *supra* note 26, at 257.

98. See Joseph Fishkin & Heather K. Gerken, *The Two Trends That Matter for Party Politics*, 89 N.Y.U. L. REV. ONLINE 32, 33 (2014) (“The divide between the parties in terms of both ideology and voting patterns is deeper and clearer than it has been for at least sixty years.”); Richard H. Pildes, *Why the Center Does Not Hold: The Causes of Hyperpolarized Democracy in America*, 99 CALIF. L. REV. 273, 273 (2011) (“Over the last generation, American democracy has had one defining attribute: extreme partisan polarization.”); Cass R. Sunstein, *Partyism*, 2015 U. CHI. LEGAL F. 1, 2. Or, at least, elite Americans and politicians have polarized. See MORRIS P. FIORINA, HOOVER INST., SER. NO. 2, HAS THE AMERICAN PUBLIC POLARIZED? 1, 12 (2016), https://www.hoover.org/sites/default/files/research/docs/fiorina_finalfile_0.pdf [<https://perma.cc/VSX6-K7DU>] (arguing that it is a “misperception” that polarization has increased among everyday Americans, *id.* at 1, and attributing this trend only to the “political class” of politicians, donors, and activists, *id.* at 12).

99. See Heather K. Gerken, *The Real Problem with Citizens United: Campaign Finance, Dark Money, and Shadow Parties*, 97 MARQ. L. REV. 903, 911 (2014); Samuel Issacharoff, *Outsourcing Politics: The Hostile Takeover of Our Hollowed-Out Political Parties*, 54 Hous. L. REV. 845, 845, 849 (2017) (exploring the trends that have led to diminished formal party power); Richard H. Pildes, *Romanticizing Democracy, Political Fragmentation, and the Decline of American Government*, 124 YALE L.J. 804, 830 (2014) (“Political fragmentation has drained partisan elected

partisan than “normal people.”¹⁰⁰ In concert, these trends give more power to the highly ideological poles of the American political spectrum and create less movement toward moderate positions capable of producing successful legislation.¹⁰¹ The results are a gridlocked Congress, a disenchanted public, and ever more vitriolic battles between hyperpartisan candidates and positions that exacerbate the public’s disenchantment.¹⁰²

Increasing economic inequality amplifies the challenge of hyperpartisanship. As Thomas Piketty’s work has brought to the fore, inequality in the United States (and most other wealthy Western democracies) has increased significantly since the 1970s, to the point where the richest Americans today are richer than the famed tycoons of the early twentieth century.¹⁰³ In other words, we are in a new Gilded Age.

Together, these trends produce heightened political responsiveness to the few Americans with significant money.¹⁰⁴ Martin Gilens and Benjamin Page have found that politicians are overwhelmingly responsive to the policy

leaders of much of the power to control, unify, and discipline members of their own party.”).

100. “Normal People” is Morris Fiorina’s term, *supra* note 98, at 4–5. Alan Abramowitz similarly distinguishes the “engaged public” from the public at large. ALAN I. ABRAMOWITZ, *THE DISAPPEARING CENTER: ENGAGED CITIZENS, POLARIZATION, AND AMERICAN DEMOCRACY* 4 (2010). The list of potential causes of this polarization is long and disparate, and it includes passage of the Voting Rights Act of 1965, *see* Pildes, *supra* note 98, at 274, an increasingly polarized media, *see* Sunstein, *supra* note 98, at 12, and the growing importance of “dark money” and “shadow parties” in American politics, *see* Fishkin & Gerken, *supra* note 98, at 35; Gerken, *supra* note 99, at 905.
101. *See* Fishkin & Gerken, *supra* note 98, at 34 (explaining party leaders’ difficulty in building coalitions under these conditions); Issacharoff, *supra* note 99, at 848 (discussing lack of a Congressional leadership structure that can “corral hot-headed members . . . in order to just get things done”); Pildes, *supra* note 99, at 809; Sunstein, *supra* note 98, at 1.
102. *See* ABRAMOWITZ, *supra* note 100, at 168 (“[P]olls show that many Americans dislike the excessive partisanship that has characterized American politics in recent years and favor bipartisan compromise.”); Gerken, *supra* note 99, at 919–22 (on the loss of “party faithful”); Sunstein, *supra* note 98, at 16 (on gridlock); Lee Drutman, *How Partisanship is Fracturing America [sic] Democracy, and Why We Need More of It* 10 (Nov. 7, 2017) (unpublished manuscript) (on file with author) (explaining why parties have been critical to mobilizing citizens in the past).
103. PIKETTY, *supra* note 30, at 19 (“[C]oncentration of income in the first decade of the twenty-first century . . . slightly exceeded . . . the level attained in the second decade of the previous century.”).
104. *See* Gerken, *supra* note 99, at 922; Ganesh Sitaraman, *The Puzzling Absence of Economic Power in Constitutional Theory*, 101 CORNELL L. REV. 1445, 1448 (2016) (collecting this evidence). The interrelationship of these trends is complex and multidirectional. As K. Sabeel Rahman explains, “As greater political power is concentrated in economic and financial elites and big business, and as labor unions and other forms of countervailing power have been broken, the concentration of political power helps drive widening inequality.” RAHMAN, *supra* note 30, at 178.

preferences of the elite, whereas “the preferences of the vast majority of Americans appear to have essentially no impact on which policies the government does or doesn’t adopt.”¹⁰⁵ Accordingly, it makes sense for most Americans to deprioritize political participation,¹⁰⁶ as they correctly gauge that their investments of time and money will have limited influence on policy outcomes.

The effects of these trends have been pernicious in the realm of climate change. Corporate elites have carefully manipulated the climate change conversation to drive a wedge among Americans and prevent politicians from responding adequately to the challenge.¹⁰⁷ They have done so by exploiting many of the cultural and cognitive challenges documented above. During the 1990s, a group of fossil fuel–tied industries deceptively called the “Global Climate Coalition”—which included oil companies, coal companies, and electric utilities—led what the *New York Times* described as “an aggressive lobbying and public relations campaign against the idea that emissions of heat-trapping gases could lead to global warming,” even though their own scientists internally confirmed these causal pathways.¹⁰⁸ Today, there are active fraud and tort lawsuits against major oil companies for their role in obscuring climate science evidence that cuts against their profit

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105. MARTIN GILENS, *AFFLUENCE AND INFLUENCE: ECONOMIC INEQUALITY AND POLITICAL POWER IN AMERICA* 1 (2012); *see also* Sitaraman, *supra* note 104, at 1448 (“In a battery of studies over the last decade, political scientists have confirmed populist suspicions and demonstrated that economic elites dominate the American political system.”).
 106. *See* Phil Gregory, *Jaded View of U.S. Government Deters Many From Political Involvement, Survey Finds*, WHY (July 9, 2015), <https://why.org/articles/jaded-view-of-us-government-deters-many-from-political-involvement-survey-finds> [<https://perma.cc/L5EC-GNDL>] (reporting survey findings that “54 percent of Americans say that they can be more effective in the world around them by getting involved in nonpolitical activities” (quoting survey director)).
 107. *See generally* MICHAEL E. MANN, *THE HOCKEY STICK AND THE CLIMATE WARS: DISPATCHES FROM THE FRONT LINES* (2012) (describing that famed climate scientist’s run-ins with the climate denial movement); 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).
 108. Andrew C. Revkin, *Industry Ignored Its Scientists on Climate*, N.Y. TIMES (Apr. 23, 2009), <https://www.nytimes.com/2009/04/24/science/earth/24deny.html> [<https://perma.cc/ST99-94NE>]; *see also* Sara Jerving et al., *What Exxon Knew About the Earth’s Melting Arctic*, L.A. TIMES (Oct. 9, 2015), <http://graphics.latimes.com/exxon-arctic> [<https://perma.cc/Y522-YTGQ>] (exposing Exxon’s inside knowledge of climate change); Neela Banerjee et al., *Exxon’s Own Research Confirmed Fossil Fuels’ Role in Global Warming Decades Ago*, INSIDE CLIMATE NEWS (Sept. 16, 2015), <https://insideclimatenews.org/news/15092015/Exxons-own-research-confirmed-fossil-fuels-role-in-global-warming> [<https://perma.cc/L5UN-AYD7>] (similar).

motives.¹⁰⁹ But much of the damage has already been done: Through targeted campaign contributions aimed at persuadable politicians and persistent public messaging falsely casting climate science as uncertain, these companies have succeeded in rendering climate change a hyperpartisan issue and engendering much of the climate skepticism that now pervades the American populace.¹¹⁰

The current political climate thus puts U.S. decarbonization policy at a *double* democratic deficit. Even in the best of times, we all appear predisposed to underestimate the severity of the climate change problem and reject facts that do not fit our communities' worldviews. But to engage citizens in decarbonization policy now is doubly difficult: In these times of deep polarization and elite domination of politics, corporate spending has exploited cognitive weaknesses to split Americans' beliefs about climate change along partisan lines in ways that are severely misaligned with the scale of the problem and the necessary response to it.¹¹¹

D. The Understandable Fallout: Decarbonization Through Workarounds

In the face of these challenges, the predominant and quite understandable conclusion of many is that we should work around people and politics to devise rational solutions to climate change.¹¹² Three preferred alternative avenues emerge: (1) look to agencies and their expertise as the place where reason most often prevails,¹¹³ (2) rely on markets to drive

109. *E.g.* County of Santa Cruz v. Chevron Corp., No. 3:18-CV-00450 (N.D. Cal. Jan. 19, 2018) (remanded to state court on July 10, 2018); *People v. Exxon Mobil Corp.*, No. 452044, 2019 WL 6795771 (N.Y. Sup. Ct. Dec. 10, 2019).

110. See Kate Aronoff, *What the 'New York Times' Climate Blockbuster Missed*, NATION (Aug. 2, 2018), <https://www.thenation.com/article/new-york-times-climate-blockbuster-misses> [<https://perma.cc/9MS3-KPEB>] (“[T]o pretend that this massive PR campaign by polluting interests has nothing to do with the current impasse we face in the US on climate policy is to be naive at best and disingenuous at worst.” (quoting climate scientist Michael Mann)).

111. See ORESKES & CONWAY, *supra* note 107, at 169–215 (describing industry’s climate science denial tactics); Ryan Lizza, *As the World Burns*, NEW YORKER (Oct. 3, 2010), <https://www.newyorker.com/magazine/2010/10/11/as-the-world-burns> [<https://perma.cc/42NA-9MZX>] (chronicling the failure of the most significant carbon cap-and-trade bill).

112. See Osofsky & Peel, *supra* note 27, at 701–02 (proposing a range of “going around” strategies for climate progress); Sunstein, *supra* note 98, at 2; *cf.* Pildes, *supra* note 99, at 824 (cautioning against “romanticizing a more engaged public as a vehicle that will save us from hyperpolarized partisan government”).

113. See, *e.g.*, CASS R. SUNSTEIN, *LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* 126 (2005) (making the case for insulated institutions based on cognitive errors); Gillian E. Metzger, *Agencies, Polarization, and the States*, 115 COLUM. L. REV. 1739, 1742 (2015) (noting that during polarized times, “agencies’ preexisting powers mean that the policy

change,¹¹⁴ or (3) downscale ambitions to the state and local level, where at least certain pockets of the United States agree enough on climate action to make progress.¹¹⁵ This Subpart discusses trends in these three directions.

The first strategy, agency authority, was on full display in the Obama administration as a way to navigate the challenging politics of climate change.¹¹⁶ The Obama administration's boldest executive action on climate change was the Clean Power Plan, which used a relatively obscure provision of the 1970 Clean Air Act¹¹⁷ to craft power plant greenhouse gas emissions limitations.¹¹⁸ Similarly, the Obama administration advanced significant improvements in vehicle emissions standards through rulemaking.¹¹⁹ These steps—which were complemented by many state initiatives to reduce greenhouse gas emissions—allowed the United States to credibly pledge under the Paris Agreement to cut U.S. emissions 26–28 percent below 2005 levels by 2025, even absent any new legislative efforts by the U.S. Congress to reduce these emissions.¹²⁰

The second celebrated strategy for sidestepping climate politics has been to look to markets to drive change, by promoting cost-effective technological improvements¹²¹ and engaging “companies as crucial partners.”¹²² Several

gridlock produced by polarization at the political level does not forestall policy development altogether”); Sunstein, *supra* note 98, at 21 (“In many cases, the best response to partyism lies in reasonable delegation, and in particular in strengthening the hand of technocratic forces within government.”); *see also* Lazarus, *supra* note 3, at 1220 (arguing for embedding a greater role for more “neutral, objective scientific expertise” into future climate legislation on these grounds); Osofsky & Peel, *supra* note 27, at 696 (endorsing “other branches of the federal government,” such as agencies, as more fruitful loci of climate policy).

114. *See* sources cited *infra* notes 121–125.

115. *See* sources cited *infra* notes 126–127.

116. *See* Kenneth S. Lowande & Sidney M. Milkis, “We Can’t Wait”: Barack Obama, *Partisan Polarization and the Administrative Presidency*, 12 *FORUM* 3, 6–8 (2014) (documenting President Barack Obama’s robust use of unilateral authority to advance climate change initiatives).

117. Clean Air Amendments of 1970, Pub. L. No. 91-604, sec. 4(a), § 111, 84 Stat. 1676, 1683–84.

118. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015) (codified at 40 C.F.R. pt. 60) [hereinafter Clean Power Plan]; *see also* Osofsky & Peel, *supra* note 27, at 702, 774 (suggesting that this rule was a prime example of “going around” the partisan politics of climate change, *id.* at 702, and noting how contentious it was, *id.* at 774).

119. *See* Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 75 Fed. Reg. 25,324 (May 7, 2010).

120. U.S. Cover Note, *INDC and Accompanying Information*, UNFCCC (Mar. 31, 2015), <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/U.S.A.%20First%20NDC%20Submission.pdf> [https://perma.cc/8HT7-Y8N9].

121. *See* Rachlinski, *supra* note 69, at 318; Rose, *supra* note 69, at 328, 331.

scholars argue for building upon momentum in the corporate sector for certain public-facing companies to brand themselves as responsible environmental stewards. Already, many such corporations—including Google, Amazon, and Walmart—have adopted clean energy goals and put pressure on suppliers and utilities to change their investments and practices to help meet these goals.¹²³ Michael Vandenberg and Jonathan Gilligan argue that in a time of partisan gridlock, these strategies form an important stopgap measure to buy time on climate mitigation.¹²⁴ Jeff Rachlinski makes a related argument that the best way around partisan gridlock will simply be to make renewable energy so cheap that the market will have no choice but to move toward decarbonization.¹²⁵

A final predominant strategy for moving forward on decarbonization has been to look to cities and certain states as leaders on climate action, particularly in the face of federal retreat.¹²⁶ Numerous cities and states are continuing aggressive climate action, with a leading group launching the *We Are Still In* movement in 2017, which pledges to achieve international climate commitments even in the absence of national support.¹²⁷

It is less clear whether this strategy of downscaling should also be labeled a workaround of climate politics—but let me make the case as to why it partially should. Local climate action—at least in its predominant form—essentially sidesteps many of the most challenging elements of decarbonization, focusing instead on well-established spheres of city

122. Osofsky & Peel, *supra* note 27, at 784; see also VANDENBERGH & GILLIGAN, *supra* note 35 (providing book-length discussion of private governance responses to climate change).

123. See VANDENBERGH & GILLIGAN, *supra* note 35, at 138–44, 211–12 (describing how corporations can act as regulators of their supply chain and put pressure on utilities to invest in more clean energy); Osofsky & Peel, *supra* note 27, at 784–86.

124. VANDENBERGH & GILLIGAN, *supra* note 35, at 13. Beyond corporate activity, Vandenberg and Gilligan also make the case for engaging households and the not-for-profit sector in a larger strategy of “private governance.”

125. Rachlinski, *supra* note 69, at 318.

126. See Welton, *supra* note 8, at 1083–87 (describing state leadership on climate action); see also Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 *ECOLOGY L.Q.* 183 (2005) (explaining why local action on climate change may be rational); Osofsky & Peel, *supra* note 27; Jim Rossi, *Carbon Taxation by Regulation*, 102 *MINN. L. REV.* 277, 298–320 (2017) (cataloguing state laws on low-carbon energy); Katherine A. Trisolini, *All Hands on Deck: Local Governments and the Potential for Bidirectional Climate Change Regulation*, 62 *STAN. L. REV.* 669 (2010) (arguing for the importance of multiscalar strategies).

127. See *Who’s In, WE ARE STILL IN*, <https://www.wearestillin.com/signatories> [<https://perma.cc/59TZ-WMGK>] (showing membership comprises 287 cities and counties, ten states, and thousands of corporations as of October 2019).

control.¹²⁸ But cities that want to make a meaningful dent in their emissions often quickly realize that doing so requires the ability to control the source of their energy.¹²⁹ In most places, legal responsibility for energy supply falls to state public utility commissions, rather than local governments,¹³⁰ such that downscaling does not allow a city's residents to change their energy mix.

States, on the other hand, have substantial control over the resources that power their energy systems.¹³¹ However, relying only on those states eager to pursue decarbonization cuts out an enormous swath of the country—and the most carbon-intensive swath at that.¹³² Thus, a climate strategy that looks to states where the political economy is presently amenable to climate action misses a substantial portion of U.S. emissions. This challenge is compounded by the physical reality of an interconnected grid—which means that state efforts to reduce in-state emissions might just push those emissions around the country rather than resulting in true reductions.¹³³

All that said, the turns to executive action, the private sector, and downscaling are understandable responses to the intractability of political progress on climate change at the federal level and in many states. Yet they are clearly not enough. The next Part explains why, before turning to ask what more can be done.

128. That is not to say that some traditional areas of local control are not themselves impactful: In particular, state and local control over building codes, transportation, and development patterns can be critical to emissions reductions efforts. See Garrick B. Pursley & Hannah J. Wiseman, *Local Energy*, 60 EMORY L.J. 877, 879 (2011) (tracing the ways in which local governments can “facilitat[e] the development and adoption of distributed renewable technologies”); Trisolini, *supra* note 126 (describing importance of local governments in addressing climate change).

129. See Shelley Welton, *Public Energy*, 92 N.Y.U. L. REV. 267, 272–73 (2017); see also Al Weinrub, *Democratizing Municipal-Scale Power*, in ENERGY DEMOCRACY: ADVANCING EQUITY IN CLEAN ENERGY SOLUTIONS, *supra* note 40, at 139, 141–42 (describing how electricity consumers are traditionally trapped in their utility with “nowhere to turn” but the “state’s regulatory body” for relief).

130. See William Boyd & Ann E. Carlson, *Accidents of Federalism: Ratemaking and Policy Innovation in Public Utility Law*, 63 UCLA L. REV. 810, 813–14 (2016) (tracing the central role of state public utility commissions in decarbonization).

131. See 16 U.S.C. § 824 (2018) (reserving to the states control over electricity generation and retail sales of electricity).

132. States that typically vote Republican—“red states”—are less likely to support action on climate change and (relatedly) have higher carbon emissions. Analysts reported that “[t]he 12 states with the highest per person emissions of the main heat-trapping gas, carbon dioxide, voted for Trump in 2016. The 10 states with the lowest per person carbon emissions voted for Hillary Clinton.” Seth Borenstein & Steve Peoples, *Too Hot to Handle: Politics of Warming Part of Culture Wars*, AP NEWS (June 20, 2018), <https://apnews.com/7b1f8a502f1843e8b562cd2fece9f6a2/Too-hot-to-handle-Politics-of-warming-part-of-culture-wars> [<https://perma.cc/3JS7-NQ39>].

133. See *infra* notes 317–320.

II. DISAGGREGATING DECARBONIZATION

The double democratic deficit facing efforts to mitigate climate change helps explain why recent efforts to decarbonize have largely worked around the people rather than through them. But as this Part explains, these workarounds deliver only a fraction of the decarbonization we need. In light of our anemic progress, this Part argues for a reassessment of the accepted wisdom on the irrationality of citizen control of decarbonization. It asserts that there are cracks in the wall of insistence that people are ill equipped to contribute to decarbonization policymaking—and that an analysis of the choices to be made *within* decarbonization exposes room for more productive engagement.

A. Evanescent Federal Law, Private and Local Stopgaps

In an August 3, 2015 speech to announce the promulgation of the Clean Power Plan, President Barack Obama called it “the single most important step America has ever taken in the fight against global climate change,” critical “[f]or the sake of our kids and the health and safety of all Americans.”¹³⁴ Five years later, the plan’s dismemberment is complete.¹³⁵ The Trump administration has similarly dismantled the updated fuel economy standards¹³⁶ and announced its planned withdrawal from the world’s leading climate accord, the 2015 Paris Agreement.¹³⁷

134. Press Release, Office of the Press Sec’y, The White House, Remarks by the President in Announcing the Clean Power Plan (Aug. 30, 2015), <https://obamawhitehouse.archives.gov/the-press-office/2015/08/03/remarks-president-announcing-clean-power-plan> [<https://perma.cc/X5C5-9HS7>].

135. See Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations, 84 Fed. Reg. 32,520 (July 8, 2019) (codified at 40 C.F.R. pt. 60) (replacing the Clean Power Plan with a state-controlled process); Jean Chemnick & Niina H. Farah, *How the Numbers on the EPA’s New Climate Rule Stack Up*, SCI. AM. (June 21, 2019), <https://www.scientificamerican.com/article/how-the-numbers-on-the-epas-new-climate-rule-stack-up> [<https://perma.cc/8W3V-CGYN>] (explaining that the rule does “little itself to lower emissions”).

136. See Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks (finalized March 30, 2020) (to be codified at 40 C.F.R. pts. 85 and 86).

137. See Note from Stéphane Dujarric, Spokesman, United Nations Sec’y-Gen., to Correspondents on the Paris Climate Agreement (Aug. 4, 2017), <https://www.un.org/sg/en/content/sg/note-correspondents/2017-08-04/note-correspondents-paris-climate-agreement> [<https://perma.cc/D6NZ-HLMZ>] (confirming receipt of U.S. communication stating intention to withdraw when eligible to do so in November 2020).

Just like that, the risks of relying on executive action as a key climate change mitigation strategy became glaring.¹³⁸ What the Obama administration constructed in eight years, the Trump administration undid in fewer than four.

The tumult of federal climate policy has been smoothed somewhat by private, state, and local initiatives. Largely due to these initiatives, U.S. renewable energy installations have surged in the past decade and achieved a level of cost competitiveness that should continue to propel their growth.¹³⁹ In addition, the dramatic deployment of hydraulic fracturing technology has caused a substantial shift from coal to natural gas, creating a 14 percent drop in U.S. greenhouse gas emissions between 2005 and 2017.¹⁴⁰

Nevertheless, even the most ardent proponents of these workarounds are quick to acknowledge that they are at best stopgaps.¹⁴¹ Although hydraulic fracturing has helped lower U.S. emissions in recent years, natural gas is far from a carbon-free source of energy, and the climate benefits it offers may be diminishing.¹⁴² Preliminary figures estimate that U.S. emissions rose 3.4 percent in 2018, despite a continued drop in the use of coal.¹⁴³ These trends are likely to prevent the United States from meeting its

138. The Obama administration was pushed into using executive action after a comprehensive cap-and-trade bill failed to clear the U.S. Senate in 2009. See The American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009) (as passed by House, June 26, 2009); see also Amanda Reilly & Kevin Bogardus, *7 Years Later, Failed Waxman-Markey Bill Still Makes Waves*, E&E NEWS (June 27, 2016), <https://www.eenews.net/stories/1060039422> [https://perma.cc/PW2F-FCMW] (quoting White House advisor John Podesta on how the administration pivoted from a “legislative fix” to “coordinating the agencies”).

139. See U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2018 WITH PROJECTIONS TO 2050, at 94 (2018), <https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf> [https://perma.cc/WJY7-CN3A] (projecting that even absent any additional policies, renewable generation will increase 139 percent through 2050, with most growth in wind and solar).

140. Hydraulic fracturing and climate change, however, have a difficult relationship: Fracked gas is likely, in the long term, to prove an impediment to substantial decarbonization, even as it offers an improvement over coal. See Ramón A. Alvarez et al., *Assessment of Methane Emissions From the U.S. Oil and Gas Supply Chain*, 361 SCL 186 (2018).

141. See, e.g., VANDENBERGH & GILLIGAN, *supra* note 35, at 14 (arguing that ultimately, we need a “longer-term strategy of adopting more sweeping measures that can address the whole scope of the climate problem”).

142. See Ellen Knickmeyer & Seth Borenstein, *Americans’ Energy Use Surges Despite Climate Change Concern*, AP NEWS (Apr. 18, 2019), <https://www.apnews.com/7d4c9cc8f8c344fb9b800a5fd9c48866?hootPostID=a01ce7fe3ddb461beeac635b1aa0bf7> [https://perma.cc/EG27-T5VY] (explaining that “Americans burned a record amount of energy in 2018, with a 10% jump in consumption from booming natural gas helping to lead the way”).

143. *Preliminary U.S. Emissions Estimates for 2018*, RHODIUM GROUP (Jan. 8, 2019), <https://rhg.com/research/preliminary-us-emissions-estimates-for-2018> [https://perma.cc/RLF5-5Y2R].

pledge under the Paris Agreement.¹⁴⁴ And the Paris pledges themselves are hardly the right measure of performance on decarbonization: The United Nations calculates that even full implementation of countries' Paris pledges would "very likely" lead to a 3° Celsius warmer planet by 2100.¹⁴⁵

This gap between national pledges to date and necessary reductions means that long-term federal efforts to reduce carbon emissions will have to do far more than just recreate the federal policies in place before the 2016 presidential election. In the meantime, executive actions, private governance solutions, and work through amenable state and local governments are all worthy efforts to chip away at the problem. But as we plug the proverbial dike through these efforts—and sometimes see it spring new leaks—we must also think about how to build toward the longer term, more comprehensive effort that will be necessary.¹⁴⁶ That is this Article's aim: to take stock of the rationales that have brought us to the land of stopgaps, and to ask whether there is room to revisit any of their underlying assumptions.

B. Decarbonization Dismantled: Three Distinct Questions

Skeptics of more citizen involvement in the project of decarbonization suggest that the challenge is ill-suited for the people for reasons that Rob Verchick has pithily summed up as "scale, tangibility, and accessibility."¹⁴⁷ The problem is abstract, the solutions are technical, and the benefits are distant in time and space.¹⁴⁸ There are reasons to question whether these barriers remain as intractable as they are sometimes painted to be.¹⁴⁹ But even if one accepts that human nature presents these challenges, it is worth

144. Benjamin Storrow, *Report: U.S. Falling Far Short of Paris Goals*, CLIMATEWIRE (June 28, 2018), <https://www.eenews.net/climatewire/2018/06/28/stories/1060087183> [<https://perma.cc/R9L9-EF3R>].

145. *Country Pledges Still Long Way From Meeting Paris Goals—Latest UNEP Emission Gap Report Urges Faster Action*, UNITED NATIONS CLIMATE CHANGE (Oct. 31, 2017), <https://unfccc.int/news/country-pledges-still-long-way-from-meeting-paris-goals-latest-unep-emission-gap-report-urges-faster> [<https://perma.cc/CTY8-FL86>].

146. See Theda Skocpol, *Naming the Problem: What It Will Take to Counter Extremism and Engage Americans in the Fight Against Global Warming* 11 (Jan. 2013) (unpublished manuscript), https://scholars.org/sites/scholars/files/skocpol_captrade_report_january_2013_0.pdf [<https://perma.cc/YV8K-9H2Z>] ("Climate change warriors will have to look beyond elite maneuvers and find ways to address the values and interests of tens of millions of U.S. citizens.").

147. Verchick, *supra* note 3, at 991 (emphasis omitted).

148. *See id.*

149. *See supra* notes 93–94 and accompanying text.

analyzing whether these barriers permeate decarbonization policy as thoroughly as has been assumed.

Decarbonization is often painted as a singular aim: get rid of the carbon. But in fact, decarbonization can be broken down into three distinct questions: (1) whether to decarbonize (*what is our goal?*), (2) how fast to decarbonize (*what is our timetable?*), and (3) how to decarbonize (*what changes should we make in our lives?*).

Once you break decarbonization down into these component questions, it becomes clear that all three are not equally implicated by the flaws of our contemporary nature. The first two questions—whether and how fast—are indeed susceptible to the cognitive and cultural challenges detailed in Part I. These are the classic “targets and timetables” questions that have bedeviled international negotiators throughout decades of climate change conferences.¹⁵⁰ Getting the answers right depends on assigning adequate weight to the interests of people in other places and other times, and on accepting evidence that butts up against extensive cultural animosity in many parts of the country. Our cognitive failings may thus provide good reasons for not asking people to vote directly on appropriate U.S. decarbonization targets to reach by 2050.

But one need not necessarily take these three questions in order—that is, climate policy need not necessarily proceed entirely top-down.¹⁵¹ Instead, we might consider beginning conversations about decarbonization with the third question—the how—which does not suffer from the same challenges.¹⁵² The question of how we want our decarbonized world to look is one that has immediate, localized impacts that do not require immense technical skills to understand.

150. See Todd Stern, Senior Fellow, Cross-Brookings Initiative on Energy & Climate, *The Future of the Paris Climate Regime* (Apr. 10, 2018), <https://www.brookings.edu/on-the-record/the-future-of-the-paris-climate-regime> [<https://perma.cc/3H8J-VP8S>] (explaining why countries rejected the legally binding targets and timetables approaches taken in climate accords prior to the Paris Agreement).

151. Cf. Dorf & Sabel, *supra* note 42, at 267 (proposing a model of governance where “power is decentralized to enable citizens and other actors to utilize their local knowledge to fit solutions to their individual circumstances”); Jessica F. Green et al., *A Balance of Bottom-Up and Top-Down in Linking Climate Policies*, 4 *NATURE CLIMATE CHANGE* 1064 (2014).

152. The question of how to decarbonize is of course interrelated with the questions of whether and how much to decarbonize—but it need not necessarily be asked *last*. See *infra* notes 174–176 and accompanying text on this interrelationship. That is to say, a community does not have to work from established, top-down decarbonization targets in order to make infrastructure or lifestyle changes that might have decarbonization benefits.

Consider some of the choices to be made regarding the how of decarbonization: The United States (or individual states) could embrace a renaissance of nuclear power, pouring substantial resources into researching and testing small, modular, next-generation nuclear plants that would be located in communities across the country.¹⁵³ Or nuclear could be rejected—as it has been in many countries—as presenting too many of its own unacceptable risks of catastrophe.¹⁵⁴ Alternatively, states and localities could accept the need for significant industrial-scale wind—and perhaps the marring of shorelines with offshore wind farms—as one of the most economical ways to generate new electricity.¹⁵⁵ Of course, such industrial-scale renewables come with the need for many new transmission lines—typically a controversial proposition.¹⁵⁶ Perhaps residents prefer pricier distributed rooftop solar, combined with storage, for the sake of preserving a more pristine landscape.¹⁵⁷ Or as they consider these options, residents might come to decide that they would prefer stricter building codes with dwelling size limitations, greater density requirements, or more rigorous energy efficiency provisions so as to limit having to build out new energy infrastructure.

These considerations are largely local and near term. Wind and solar development and their transmission lines present predominantly localized, land use and aesthetic impacts.¹⁵⁸ Nuclear energy, too, presents the risk of near-term local catastrophe and substantial upfront costs, which a community must take into account when selecting this technology.¹⁵⁹ To be sure, nuclear energy also presents a long-term, unsolved waste challenge that

153. See James A. Lake et al., *Next Generation Nuclear Power*, SCI. AM. (Jan. 26, 2009), <https://www.scientificamerican.com/article/next-generation-nuclear> [<https://perma.cc/BB6L-AM9X>].

154. See, e.g., Kerstine Appunn, *The History Behind Germany's Nuclear Phase-Out*, CLEAN ENERGY WIRE (Jan. 2, 2018), <https://www.cleanenergywire.org/factsheets/history-behind-germanys-nuclear-phase-out> [<https://perma.cc/6TLN-CD5E>] (explaining the history of Germany's phaseout of nuclear power).

155. See *Levelized Cost of Energy 2017*, LAZARD (Nov. 2, 2017), <https://www.lazard.com/perspective/levelized-cost-of-energy-2017> [<https://perma.cc/5Z3T-HXA7>] [hereinafter *Levelized Cost*] (showing land-based, utility-scale wind to be the cheapest renewable source).

156. See Alexandra B. Klass & Elizabeth J. Wilson, *Interstate Transmission Challenges for Renewable Energy: A Federalism Mismatch*, 65 VAND. L. REV. 1801 (2012).

157. See *Levelized Cost*, *supra* note 155 (showing that rooftop solar is three to six times more expensive than utility-scale solar).

158. See Uma Outka, *The Renewable Energy Footprint*, 30 STAN. ENVTL. L.J. 241, 243–44 (2011). Interstate transmission lines, however, present more complicated interregional tradeoffs. See sources cited *infra* note 169.

159. See Sylvia Pfeifer, *High Costs and Renewables Challenge the Case for Nuclear Power*, FIN. TIMES (June 14, 2018), <https://www.ft.com/content/21305834-5376-11e8-84f4-43d65af59d43> [<https://perma.cc/Q9E2-PU8N>].

creates many of the same pathologies as climate change, such as pushing costs onto future generations while reaping present-day benefits.¹⁶⁰ But the lack of long-term nuclear waste storage itself creates a more immediate risk: Most of this waste must be temporarily stored onsite, creating its own risks of terrorist attacks or accidental contamination.¹⁶¹ That means that a community contemplating nuclear energy ultimately shoulders many of these risks in the relatively near-term. Thus, although one can never entirely escape the cognitive errors caused by intertemporal tradeoffs when making long-lived infrastructure decisions, the effects are at least dampened in the case of many clean energy technologies.

The challenges of cultural cognition are also lessened by a focus on the question of how to decarbonize. When focused on questions of infrastructure and physical landscape, communities are not forced to disavow or accept culturally charged facts but rather can explore how they want to shape their community together.¹⁶² Still, one might think that infrastructural decisions are best left for the experts. And indeed, decarbonization strategies clearly involve some technical elements that require expertise to properly analyze and communicate. But experts are hardly in agreement themselves about the best way to achieve these goals—suggesting that there is no obvious technocratic fix and at least some room for values-based citizen input.¹⁶³

160. See Bruce R. Huber, *Checks, Balances, and Nuclear Waste*, 48 ARIZ. ST. L.J. 1169 (2016) (detailing the federal government's abysmal management of the nuclear waste challenge).

161. See *id.* at 1197–1201.

162. See Verchick, *supra* note 3 (arguing, with respect to climate adaptation, that communities will be more receptive to climate change messages when framed as part of a conversation about future community character). These less charged questions could be explored by a community either in response to a decarbonization mandate from the state or federal government or independently, before such a mandate is in place. There are strong indications that many communities might choose to pursue renewable energy even absent a mandate from above. See *infra* Subpart II.C.

163. See, e.g., Frank Ackerman & Lisa Heinzerling, *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection*, 150 U. PA. L. REV. 1553, 1566 (2002) (observing that people “value the lives of others” and care about fairness in ways that technocratic analyses often fail to take into account); Sunstein, *supra* note 84, at 1121 (“[R]isk regulation is no mere technocratic exercise. If people’s values lead them to show special concern with certain risks, government should take that concern into account.”); Verchick, *supra* note 3, at 987 (“[E]motional responses have political content that are valuable, even necessary, for democratic deliberation.”); Kahan et al., *Fear of Democracy*, *supra* note 85, at 1106 (arguing that experts “have no special competence to identify what vision of society . . . the law should endorse” and that it “should be a matter of public deliberation”); David Roberts, *A Beginner’s Guide to the Debate Over 100% Renewable Energy*, VOX (Feb. 6, 2018, 8:53 AM), <https://www.vox.com/energy-and-environment/2017/4/4/14942764/100-renewable-energy-debate> [https://perma.cc/LD83-

We still do not know enough about the public's energy preferences—likely because energy law has long been such a technocratic space that we hardly thought to ask.¹⁶⁴ But emerging research suggests some striking trends in public preferences: Americans of all stripes rank considerations of environmental harms as twice as important as considerations of cost.¹⁶⁵ Concerns in particular about local environmental harms push people to favor clean sources of energy.¹⁶⁶ We know far less about how Americans might view the tradeoffs among clean sources of energy—but given people's predilections to focus on local harms, strong opinions in this respect are likely to emerge as the environmental tradeoffs among cleaner energy sources become clearer.¹⁶⁷ All of these preferences speak to the question of how we should decarbonize.

Moreover, recent research suggests that widespread support for clean energy translates beyond the resources themselves to the infrastructure necessary to support them. In a 2019 study, researchers found that survey participants' knowledge that a transmission line was carrying electricity produced from renewable energy, rather than fossil fuels, made respondents "significantly more supportive" of such a line being sited nearby—even though the physical characteristics of the transmission infrastructure would be identical in either case.¹⁶⁸ This finding has important implications regarding citizen support of the substantial buildout in transmission infrastructure necessary to support decarbonization—suggesting that it may be easier to obtain approval for these lines than it has been for past projects, and that citizen involvement in these decisions may be less problematic than presumed.¹⁶⁹

2B5L] (cataloguing disagreements among experts as to the role that technologies other than renewables should or must play in decarbonization).

164. See ANSOLABEHERE & KONISKY, *supra* note 12, at 5–13 (noting dearth of social science research on what the public wants from the energy system).

165. See *id.* at 14, 98 (finding that in people's thinking about energy, "the weight of perceived harms is at least twice the weight of perceived costs," *id.* at 98).

166. See *id.* at 169 (explaining that opinions about energy sources are driven primarily by local concerns about "air pollution, water pollution, and toxic wastes").

167. Stephen Ansolabehere and David Konisky suggest that people do not care about the source of their energy—just its attributes. *Id.* at 69. Thus, people will only differentiate clean energy sources from one another if they perceive that these sources carry different localized environmental burdens. The examples I lay out, see text accompanying *supra* notes 155–157, are intended to illustrate that, in fact, clean energy sources are not all created equal in terms of community and environmental impacts.

168. See Sanya Carley et al., *Are All Electrons the Same? Evaluating Support for Local Transmission Lines Through an Experiment*, PLOS ONE, July 2019, <https://doi.org/10.1371/journal.pone.0219066> [<https://perma.cc/DN3A-V7V4>].

169. There is a long literature on the difficulty of siting transmission lines and the challenges this poses to renewable energy development. See Klass & Wilson, *supra* note 156;

In arguing that we should give people more say on the question of how to decarbonize, I am pursuing somewhat of a theoretical inversion. Classically, scholars of administration and democracy suggest that the ends of a particular policy should be democratically determined, whereas the means should be left to administrative, technocratic experts.¹⁷⁰ But this Article has already explored why, for climate change mitigation, popular determination of the ends—targets and timetables—may be ill-advised.¹⁷¹ For this reason, I do not advocate devolving decisions around whether and how fast to decarbonize any further to citizen control without state (or federal) law at least setting a floor.¹⁷² In this way, communities could decide to rise above the many tendencies that make it hard for us to embrace adequate decarbonization targets, but they would not be legally allowed to unilaterally succumb to these tendencies.¹⁷³

But although there are good reasons for cabining citizen control of the ends of decarbonization, the means of decarbonization are ripe for more citizen input. These are questions about how we want to live our lives and the tradeoffs we are willing to make between cost and other values. Put another way, although decarbonization strategies—such as nuclear, wind, solar, building codes, and denser housing—are means in the eyes of decarbonization policymakers, they are ends for the people living under them, in them, or next to them. These are questions about how we want our communities to look, in our lifetimes and in our children’s lifetimes.

So far in this Part, I have made the case that the question of how to decarbonize is particularly suited to broader citizen input and control.

Alexandra B. Klass & Jim Rossi, *Reconstituting the Federalism Battle in Energy Transportation*, 41 HARV. ENVTL. L. REV. 423 (2017); Alexandra B. Klass, *Takings and Transmission*, 91 N.C. L. REV. 1079 (2013); Ashley C. Brown & Jim Rossi, *Siting Transmission Lines in a Changed Milieu: Evolving Notions of the “Public Interest” in Balancing State and Regional Considerations*, 81 U. COLO. L. REV. 705, 710–13 (2010).

170. See MAX WEBER, *ECONOMY AND SOCIETY* 218 (Guenther Roth & Claus Wittich eds., Ephraim Fischhoff et al. trans., Univ. of Cal. Press 1978) (1922) (observing that legal authority in the bureaucratic context is legitimated by the existence of a sphere of jurisdiction where “the necessary means of compulsion are clearly defined and their use is subject to definite conditions”); Patrick von Maravic & B. Guy Peters, *Reconsidering Political and Bureaucratic Representation in Modern Government*, in *POLITICS OF REPRESENTATIVE BUREAUCRACY: POWER, LEGITIMACY AND PERFORMANCE* 65, 69 (B. Guy Peters et al. eds., 2015) (“This view that bureaucracy shall function outside of political turmoil and conflict, has turned into a cornerstone of normative democratic theory.”).

171. See *supra* Part I.

172. See Jim Rossi & Thomas Hutton, *Federal Preemption and Clean Energy Floors*, 91 N.C. L. REV. 1283 (2013).

173. See William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547, 1555 (2007) (“[F]ederal floors retain the benefits of multiple regulatory voices, protections, and diverse regulatory modalities.”).

However, whatever infrastructure a community chooses to pursue must be located somewhere. I want to emphasize that my argument in favor of enhanced citizen roles does not necessarily extend to energy siting. More work needs to be done to understand whether preferences for renewable energy translate into citizens' approaching siting decisions with more careful attunement to the fair distribution of clean energy infrastructure. Because classic "not in my backyard" concerns and the challenges of environmental justice plague siting processes,¹⁷⁴ we should be cautious in allowing majoritarian politics too much sway in specific siting decisions.

One additional observation is in order about the interrelatedness of the questions of whether, how fast, and how to decarbonize. If there were no technologies capable of replacing fossil fuels, the answer to whether to decarbonize would likely be a resounding "no." Similarly, if there were a cheap and easy substitute available, the world might already be cooling down.¹⁷⁵ But climate change strategies are neither prohibitively expensive nor within easy reach. The decarbonization technologies currently available certainly inform emissions goals and limitations, but solutions also emerge from the innovation that legal mandates induce.¹⁷⁶ There is, then, an iterative relationship between the questions of how fast and how, with the success of certain solutions empowering the adoption of stricter targets and timetables, which then drive a search for further solutions.¹⁷⁷

Finally, it is worth noting that my parsing of the how from the whether and how fast within decarbonization policy is hardly a radical move. This delineation between targets and timetables, on the one hand, and the question of how to achieve them, on the other, should feel familiar to environmental

174. For more information on environmental justice and facility siting, see ROBERT D. BULLARD, *DUMPING IN DIXIE: RACE, CLASS, AND ENVIRONMENTAL QUALITY* (1990); Vicki Been, *What's Fairness Got to Do With It? Environmental Justice and the Siting of Locally Undesirable Land Uses*, 78 CORNELL L. REV. 1001 (1993); Gerald Torres, *Environmental Burdens and Democratic Justice*, 21 FORDHAM URB. L.J. 431, 435–36 (1994). For similar reasons, many scholars advocate against the use of direct democracy initiatives in land use planning. See Daniel P. Selmi, *Reconsidering the Use of Direct Democracy in Making Land Use Decisions*, 19 UCLA J. ENVTL. L. & POL'Y 293, 295 n.11 (2001) (collecting articles taking this stance).

175. See Cass R. Sunstein, *Of Montreal and Kyoto: A Tale of Two Protocols*, 31 HARV. ENVTL. L. REV. 1 (2007) (attributing the success of the Montreal Protocol to the availability of cheap substitutes).

176. See David E. Adelman & Kirsten H. Engel, *Reorienting State Climate Change Policies to Induce Technological Change*, 50 ARIZ. L. REV. 835 (2008); Zachary Liscow & Quentin Karpilow, *Innovation Snowballing and Climate Law*, 95 WASH. U. L. REV. 387 (2017).

177. I return to explore how this iterative relationship creates space for democratic input *infra* Subpart I.C.

law scholars. It is the same distinction that underpins many federal environmental statutes, which operate on a model of cooperative federalism that leaves many compliance decisions to state regulators.¹⁷⁸ Of course, this cooperative federalist model does not go so far as to devolve these questions below state-level administrators. Nevertheless, the model operates on a similar theory that different states, with different resource endowments and political preferences, might choose different means of accomplishing the same ends.¹⁷⁹ My contention here is that the importance of allowing variability in the how of decarbonization counsels for seeking out deeper and more impactful citizen engagement.

C. What Will Citizen Engagement and Empowerment Yield?

If one accepts that people's opinions about how to decarbonize are worth considering, the next critical question is: What results can enhanced participation expect to yield? After all, this Article is driven by a consequentialist argument that more citizen control will improve the state of the climate. I adopt this consequentialist stance largely as a reaction to the vast climate change literature that has adopted antidemocratic positions for similarly consequentialist reasons (to wit: because human nature is bad at dealing with the problem).¹⁸⁰ Although compelling nonconsequentialist

178. Most relevantly, the Clean Air Act's cooperative federalist system operates through the establishment of national ambient air quality standards, which states are given flexibility to meet through self-determined "state implementation plans." See 42 U.S.C. § 7410 (2018); Holly Doremus & W. Michael Hanemann, *Of Babies and Bathwater: Why the Clean Air Act's Cooperative Federalism Framework is Useful for Addressing Global Warming*, 50 ARIZ. L. REV. 799, 800 (2008). This same federalist structure undergirds the provision of the Clean Air Act used to craft the Clean Power Plan, which established a firm carbon emissions reductions commitment for each state but allowed the states to craft their own strategies for achieving the required reductions. See 42 U.S.C. § 7411; Clean Power Plan, *supra* note 118. Michael Livermore has championed this architecture for its ability to not only induce technological innovation but also produce information about what decarbonization pathways might prove politically viable in various states across the country. Michael A. Livermore, *The Perils of Experimentation*, 126 YALE L.J. 636, 644 (2017); see also Doremus & Hanemann, *supra* note 178, at 800, 826 (arguing that a state emissions reduction plan requirement, modeled on State Implementation Plans, is an intelligent way to go about reducing carbon emissions in the United States).

179. See Doremus & Hanemann, *supra* note 178, at 828; Livermore, *supra* note 178, at 694. The Clean Air Act contains some public consultation requirements during development of "State Implementation Plans"—but these take the form of government-to-government consultations and public hearings. See 42 U.S.C. § 7410(a)(M). My suggestions go beyond this limited form of citizen engagement.

180. See *supra* Subpart I.B.

rationales are often advanced in support of participatory democracy and may well apply here,¹⁸¹ these are unlikely to convince those who think that citizen control of decarbonization would lead to humanity's self-inflicted demise via climate change.

In this Subpart, I build the case for why asking people *how* they want their energy system to look is unlikely to bring on climate catastrophe, and to the contrary, might be an important part of advancing federal climate policy. The argument has three components, which focus in turn on (1) divergent preferences between people and their elected politicians, (2) the psychology of enhanced control, and (3) the political economy of energy policy across the United States.

1. Divergent Preferences Between People and Politicians

To a certain extent, the premise of this Article springs from a simple fact: People are not getting what they want out of the U.S. energy system. Although representative government is in theory supposed to be more enlightened than direct democratic rule,¹⁸² it appears to be failing in delivering the clean energy that people want. In 2018, fossil fuels still produced 64 percent of U.S. electricity (with coal at 27 percent and natural gas at 35 percent), while nuclear energy produced 19 percent, hydropower and wind each produced around 7 percent, and solar energy produced only 1.5 percent.¹⁸³ Based on present policies, the U.S. Energy Information Administration projects that fossil fuels will continue to supply 56 percent of U.S. electricity in

181. See BARBER, *supra* note 44, at 7–9 (critiquing theorists of liberal, “thin” democracy for their focus on the preservation of individual rights as the end goal); Sklansky, *supra* note 47, at 1758, 1770 (explaining that historically, “[a]dvocates of participatory democracy thought much of the value of democracy lay in the way it facilitated individual development and enriched social interaction,” *id.* at 1758, and made “people feel connected to and satisfied with their government,” *id.* at 1770). See Conclusion *infra* for a few thoughts regarding the potential intrinsic benefits of democratizing decarbonization.

182. See THE FEDERALIST NO. 10, at 81–82 (James Madison) (Clinton Rossiter ed., 1961).

183. What is U.S. Electricity Generation by Energy Source?, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/tools/faqs/faq.php?id=427&it=3> [https://perma.cc/9U6S-PEEA] (last updated Feb. 27, 2020).

2050¹⁸⁴—a time by which climate experts calculate that the electricity mix needs to be carbon-free.¹⁸⁵

As mentioned in Subpart II.B, recent research has overwhelmingly documented that Americans want more clean energy than the political system currently demands that utilities produce. In their ten-year project to survey American attitudes about energy, Stephen Ansolabehere and David Konisky find that Americans across the political spectrum prefer greater investment in solar and wind energy above all other sources, even if they cost a little more—which they often now do not.¹⁸⁶ These findings should give us comfort that inviting more citizen engagement with the project of energy governance—even in red states with no climate change laws on the books—is not a dangerous proposition for the state of the climate. It is unlikely that we will see many Americans, if given a greater say in their energy system, opting to run on 100 percent coal. To the contrary, there is reason to believe that most communities will choose a cleaner system than their utility is delivering. Hence, giving people more control over how the energy system looks—even without any decarbonization mandate in place—is likely to yield climate-friendly results.

Nevertheless, it is important to acknowledge the motivations that Ansolabehere and Konisky uncover in their research: Americans' clean energy preferences have less to do with climate change and more to do with local environmental harms like air and water pollution.¹⁸⁷ This focus on local impacts will bring side benefits for the climate, given that solar and wind produce fewer local emissions in addition to being carbon-free. But locally clean energy sources do not align fully with the goal of deep decarbonization: Although people tend to “hate coal and love solar,”¹⁸⁸ they also display substantial acceptance of natural gas, which burns much cleaner locally than

184. See U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2019 WITH PROJECTIONS TO 2050, at 21 (2019), <https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf> [<https://perma.cc/J87J-UB2C>] (projecting natural gas will supply 39 percent and coal will supply 17 percent of U.S. electricity in 2050).

185. See sources cited *supra* note 60.

186. See ANSOLABEHRE & KONISKY, *supra* note 12, at 51–53; see also Reed Landberg & Anna Hirtenstein, *Coal Is Being Squeezed Out of Power by Cheap Renewables*, BLOOMBERG (June 21, 2018, 1:16 AM), <https://www.bloomberg.com/news/articles/2018-06-19/coal-is-being-squeezed-out-of-power-industry-by-cheap-renewables> [<https://perma.cc/9JSJ-Q4XR>].

187. See ANSOLABEHRE & KONISKY, *supra* note 12, at 127 (noting that climate change concern does seem to increase support for nuclear power, but otherwise, the issue “is felt very much in local terms”).

188. *Id.* at 97.

coal but may be almost as devastating for the planet.¹⁸⁹ And Americans are far less supportive of nuclear energy than natural gas, even though carbon-free nuclear energy is more appealing from the vantage of climate change.¹⁹⁰

Accordingly, citizen-led energy decisionmaking is likely to help with decarbonization by bringing the U.S. energy supply more in line with Americans' desires for clean energy. But it will still leave a substantial "emissions gap" to fill between realized preferences and necessary decarbonization targets.¹⁹¹ However, there is reason to hope that enhanced citizen control might also enhance people's understanding of the magnitude of the climate challenge itself, for reasons that have to do with emerging insights into the psychology of climate change.

2. The Psychology of Climate Change: Control and Action

Part I of this Article explored what psychology teaches us about the reasons for inaction on climate change. This same research also points to some important conclusions about how citizen control might induce more action.

Recall the discussion about cultural cognition: People's feelings about climate change and decarbonization largely follow their worldviews, as we all engage in motivated reasoning that causes us to filter our interpretations of science through cultural lenses.¹⁹² The next question becomes, *why*, exactly, we are motivated to engage in this rationalizing process.¹⁹³ One important answer to this question in the context of climate change is "solution

189. Even if cleaner than coal, natural gas extraction and combustion still create considerable carbon emissions and, by some estimates, may result in nearly as many overall greenhouse gas emissions as coal. See Alvarez et al., *supra* note 140, at 186 (finding natural gas emissions may be 60 percent higher than EPA estimates). In Ansolabehere and Konisky's surveys, 43–65 percent of people rated coal as moderately or very harmful, whereas 14–25 percent of people rated natural gas as moderately or very harmful, suggesting that Americans are far more willing to accept natural gas than coal as an energy source. See ANSOLABEHHERE & KONISKY, *supra* note 12, at 86–87.

190. See ANSOLABEHHERE & KONISKY, *supra* note 12, at 59 (stating that in 2011, 60.4 percent of Americans "somewhat" or "strongly" supported natural gas, whereas that figure was 30.1 percent for nuclear).

191. See *supra* notes 145–146; see also Stephen Ansolabehere & David M. Konisky, *The American Public's Energy Choice*, DÆDALUS, Spring 2012, at 61, 69 ("[E]ven if all Americans thought climate change required immediate action, support for coal would decline by only 0.10 on a scale from zero to one, support for solar and wind power would increase by only 0.20, and support for nuclear power would actually decline.").

192. See *supra* Subpart I.B.

193. See Troy H. Campbell & Aaron C. Kay, *Solution Aversion: On the Relation Between Ideology and Motivated Disbelief*, 107 J. PERSONALITY & SOC. PSYCHOL. 809, 809 (2014) (inquiring about the source of climate change denial).

aversion”—that is, people do not discount the exigency of climate change because they hate the idea of the problem so much as they hate the *solutions* available to solve the problem.¹⁹⁴

Oftentimes, climate activists—in sincere attempts to call attention to the importance of dramatic action—emphasize that responding to climate change will require massive governmental intervention that fundamentally reshapes the nature of modern capitalism.¹⁹⁵ Unsurprisingly, this message does not sit well with many Republicans, who tend to favor less government intervention and more reliance on markets.¹⁹⁶ But researchers have demonstrated that emphasizing to Republicans that market-oriented climate change policies are available decreases their skepticism of climate change science. Most notably, Dan Kahan and colleagues found that when it was emphasized to Republicans¹⁹⁷ that geoengineering (intentional, largescale human manipulation of the atmosphere to cool the planet) is a method of responding to climate change, their level of concern about climate change *as a problem* rose substantially.¹⁹⁸ Kahan posits that communicating geoengineering as a solution was effective because “[g]eoengineering is consonant with a narrative that depicts human technological ingenuity as the

194. *Id.* at 811 (“The solution aversion model proposed here predicts that people will be skeptical of scientific evidence supporting the existence of a problem, to the degree that the existence of the problem directly implies solutions that threaten a person’s cherished beliefs and ideological motives.” (citations omitted)); *see also* Kahan et al., *Geoengineering*, *supra* note 16; Isabel L. Rossen et al., *The Desire to Maintain the Social Order and the Right to Economic Freedom: Two Distinct Moral Pathways to Climate Change Scepticism*, 42 J. ENVTL. PSYCHOL. 42, 43 (2015) (suggesting that it is “the notion of acting on climate change” that is “morally threatening to conservatives”).

195. Journalist Naomi Klein perhaps captured this sentiment best in the title of her 2015 book on climate change, *This Changes Everything*. In her view, the rise in climate denial among conservatives stems from their realization that “as soon as they admit that climate change is real, they will lose the central ideological battle of our time—whether we need to plan and manage our societies to reflect our goals and values, or whether that task can be left to the magic of the market.” NAOMI KLEIN, *THIS CHANGES EVERYTHING: CAPITALISM VS. THE CLIMATE* 40 (2014).

196. Campbell & Kay, *supra* note 193, at 811 (explaining that common climate policy solutions, including taxes and emissions restrictions, “contradict the ideologies of many Republicans; in particular, ideological beliefs in the efficacy of free markets and limited government regulation”); *see also* Rossen et al., *supra* note 194, at 42 (identifying “maintenance of social order and free market ideology” as two independent drivers of climate change skepticism).

197. Kahan’s research focuses on “hierarchical individualists” as a category—a group that is generally, but not perfectly, correlated with membership in the Republican party. *See* Kahan, *Fixing Failure*, *supra* note 27, at 296; Kahan et al., *Geoengineering*, *supra* note 16, at 194, 199. *But see* Verchick, *supra* note 3, at 974, 976–77, 988 (“Those values may, but do not always, correspond with partisan commitments.”).

198. *See* Kahan et al., *Geoengineering*, *supra* note 16, at 201–03.

principal means by which our species has succeeded in overcoming environmental constraints on its flourishing.”¹⁹⁹ Consequently, geoengineering affirms Republican values.²⁰⁰ Kahan derives from these findings a recommendation that climate change communicators “look[] for ways to dissipate the meanings that make large, politically consequential segments of the population dismissive” of climate change.²⁰¹

I read the solution aversion research to offer another potential takeaway: a feeling of enhanced control over the solutions to climate change might help bolster acceptance of the problem and of laws that drive forward solutions.²⁰² Communities with enhanced decisionmaking control could decide to decarbonize in ways that felt most consonant with their character—and solutions might include nuclear power, local self-sufficiency, and a host of other ideologically diverse options. Just as a broadened understanding of the solution set to climate change leads to greater acceptance of the challenge, we might expect this enhanced control to augment people’s willingness to tackle the problem.

Here, then, is the iterative potential of pursuing more citizen engagement with energy: The devolution of more control over the energy supply to everyday citizens would likely lead to a decision to pursue more clean energy, which might both drive down prices of clean energy technologies and fuel enhanced acceptance of decarbonization targets and timetables. The necessity of meeting targets and timetables, in turn, might create a push for even more citizen control of the energy system, as people came to understand the desirability of shaping their own energy supply during a period of rapid change. And so on.²⁰³

More citizen-centered energy governance could thus create a virtuous cycle between the questions of whether and how fast to decarbonize, and enhanced citizen control of the question of how to build a decarbonized

199. *Id.* at 206.

200. *See id.* at 200; *see also* Campbell & Kay, *supra* note 193 (producing similar results).

201. Kahan et al., *Geoengineering*, *supra* note 16, at 206.

202. *See* Gifford, *supra* note 3, at 293 (explaining that “people sometimes do not act because they perceive that they have little behavioral control over the outcome,” and that “[p]erceived behavioral control can be a very strong predictor” of willingness to act). Moreover, according to findings by Isabel L. Rossen, Patrick D. Dunlop, and Carmen M. Lawrence, placing value on the “maintenance of social order” leads to climate skepticism—such that the ability to choose solutions that accord with one’s views of an ordered society should help lessen skepticism. *See* Rossen et al., *supra* note 194, at 42.

203. *See infra* notes 308–311 for an example of this dynamic at work in California.

world. Even though climate change cannot be solved on the local scale,²⁰⁴ providing agency at the community level might ultimately help people become comfortable supporting more stringent state and national decarbonization targets because they will have more control in the shape of how these targets are met.²⁰⁵ In this way, enhancing citizen input into energy governance may be an important step in reshaping American values on energy and climate change to accord with the new biogeophysical reality we all face today.²⁰⁶

3. The Political Economy of Citizen Control

More citizen engagement and empowerment in energy decisionmaking can only improve climate outcomes if efforts to reform energy governance are more successful than efforts to directly mandate reduced carbon emissions. After all, such reforms will themselves require legislative or regulatory changes.²⁰⁷ And if citizen control of energy is to make a meaningful dent in climate pollution, it will have to spread beyond the bright blue zones of the U.S. electoral map.²⁰⁸

I contend that the prospect of enhancing citizen control over energy holds much broader political appeal than decarbonization—such that it might flourish as a strategy even where direct efforts to address climate change fail. The reasons that one might prefer greater control over one’s energy system go far beyond climate change (and, indeed, may have little to do with climate change).²⁰⁹ Those who support independent local government and the freedom to “break up” with monopoly utilities will find much to like about proposals to give citizens greater control over their energy

204. See Jonathan B. Wiener, *Think Globally, Act Globally: The Limits of Local Climate Policies*, 155 U. PA. L. REV. 1961, 1962 (2007) (“[L]ocal action is not well suited to regulating mobile global conduct yielding a global externality.”).

205. This theory accords with the logic underlying the recent strand of scholarship celebrating federalism as the “new nationalism” for its ability to “integrat[e] rather than divid[e] the national polity.” Heather K. Gerken, *Federalism as the New Nationalism: An Overview*, 123 YALE L.J. 1889, 1889–92 (2014); see also Abbe R. Gluck, *Our [National] Federalism*, 123 YALE L.J. 1996, 1997 (2014) (showing how state-level implementation renders federal legislation “more politically palatable”).

206. See Purdy, *supra* note 2.

207. Part III treats in more detail several proposals for legislative or regulatory changes that might effectively democratize energy.

208. See *supra* note 132.

209. See ANSOLABEHERE & KONISKY, *supra* note 12.

systems.²¹⁰ This framing helps to explain otherwise surprising headlines such as “Solar Energy Advocates Find Unexpected Ally in Tea Party.”²¹¹

Importantly, more participatory energy decisionmaking may also be a stepping stone on the path to more overtly climate-focused policies. Where enhanced citizen control proliferates, the utility will lose some of its economic and political clout.²¹² This, in turn, may open space for legislative or regulatory solutions specifically targeted at promoting decarbonization and clean energy—which the utility might have been able to roundly defeat before, but which may now have the backing of communities that can claim economic leverage within the energy sector.²¹³

III. INSTITUTIONS, POWER, AND INFLUENCE: EFFECTIVE ENGAGEMENT AND EMPOWERMENT IN THE ENERGY SPACE

This Article contends that the democratic challenges plaguing decarbonization still leave room for putting the question of how to decarbonize to citizens and that doing so will improve the state of the climate. But if you take the double democratic deficit seriously, involving people more even in this element of decarbonization policy remains challenging. It will not be enough simply to improve notice-and-comment processes or mandate more hearings. There are reasons to be quite skeptical that energy’s dominant governing institutions can blossom into sites of true deliberation or citizen empowerment. Even in less abstruse agencies, dominated less by repeat, monopoly corporate

210. See MORRIS & JUNGJOHANN, *supra* note 40, at 93 (describing the politics of energy democracy in Germany as “not partisan” and recognizing that “citizens wanted the right to make their own energy so they could decide how it is made”).

211. Kelly McEvers et al., *Solar Energy Advocates Find Unexpected Ally in Tea Party*, NPR (Feb. 24, 2015, 4:16 PM), <https://www.npr.org/2015/02/24/388796105/solar-energy-advocates-find-unexpected-ally-in-tea-party> [<https://perma.cc/M6UU-JSQF>]; see also MORRIS & JUNGJOHANN, *supra* note 40, at 111 (“German conservatives support the Energiewende specifically because it strengthens communities.”); Rossen et al., *supra* note 194.

212. See, e.g., Sammy Roth, *Here’s How Local Governments Are Replacing California’s Biggest Utilities*, L.A. TIMES (Jan. 25, 2019, 3:00 AM) <https://www.latimes.com/business/la-fi-clean-power-alliance-wind-energy-20181225-story.html> [<https://perma.cc/82MW-5R78>] (describing the shift from utility service to community-controlled systems in California, where proliferating programs “shift control from private monopolies to local governments”); see also *infra* Subparts III.B–C.

213. Cf. MORRIS & JUNGJOHANN, *supra* note 40, at 104 (“Citizen participation has been crucial toward raising acceptance levels for the energy transition in Germany.”); Biber et al., *supra* note 35, at 609 (describing how jurisdictions can develop ever-stronger “political will” for emissions reductions policy through gradualism).

players,²¹⁴ scholars have documented how greater notice-and-comment responsiveness, public hearings, and ballot initiatives often benefit the economic elite while failing to induce meaningful citizen participation.²¹⁵

Creating true empowerment around decisions about where our energy should come from, and what requirements should be placed on its use, demands more substantial restructuring of the institutions that shape our energy supply. Citizens must come to feel like they not only have values worthy of expressing with respect to decarbonization, but that it will *matter* if they take the time to express them.²¹⁶

It also will not be enough merely to give every consumer the right to purchase renewable energy, solar panels, or energy efficiency devices in the hope that they choose to do so.²¹⁷ In many places, people have long had the ability to individually opt in to purchasing clean energy at a higher price—with little to show for it.²¹⁸ Staring alone at a box on a utility bill that says “check here to pay \$5 for green electrons,” one can easily feel like only a sucker would pay more to tackle a problem that seven billion people have helped to create and may never solve.²¹⁹ Research confirms that without the

214. See Shelley Welton & Joel Eisen, *Clean Energy Justice: Charting an Emerging Agenda*, 43 HARV. ENVTL. L. REV. 307, 343–48 (2019).

215. See, e.g., Stephen M. Johnson, *Beyond the Usual Suspects: ACUS, Rulemaking 2.0, and a Vision for Broader, More Informed, and More Transparent Rulemaking*, 65 ADMIN. L. REV. 77, 82–83 (2013) (finding that few rules receive comments, and most of these come from regulated entities); Sitaraman, *supra* note 104, at 1453–54 (describing the paradox of process in administrative law, which “holds that as procedural safeguards increase to preserve democratic access or rights, elite economic interests will perversely be better able to navigate those complexities”); Wendy Wagner et al., *Rulemaking in the Shade: An Empirical Study of EPA’s Air Toxic Emission Standards*, 63 ADMIN. L. REV. 99, 103–04 (2011) (finding imbalances in interest group participation “over the entire life cycle” of certain environmental regulations); Jason Webb Yackee & Susan Webb Yackee, *A Bias Towards Business? Assessing Interest Group Influence on the U.S. Bureaucracy*, 68 J. POL. 128, 137 (2006); Welton & Eisen, *supra* note 214 (empirically examining the low participation rate of community groups in energy proceedings). *But see* Cuéllar, *supra* note 19, at 460 (finding that for two of the three regulations he studied, “comments from individual members of the lay public account[ed] for over 70% of comments”).

216. See JAMES S. FISHKIN, *WHEN THE PEOPLE SPEAK: DELIBERATIVE DEMOCRACY AND PUBLIC CONSULTATION* 95–104 (2009).

217. I document the limitations of this strategy at much greater length in Welton, *supra* note 21.

218. See Cass R. Sunstein & Lucia A. Reisch, *Automatically Green: Behavioral Economics and Environmental Protection*, 38 HARV. ENVTL. L. REV. 127, 135 (2014) (“In Germany, many people say that they would use green energy if presented with a choice, but very few consumers actually opt for green . . .” (footnote omitted)).

219. See Ansolabehere & Konisky, *supra* note 191, at 64 (“Public opinion, of course, does not mirror the marketplace. In fact, it may reflect what does not happen in the private sector.” (emphasis omitted)); Sheila Jasanoff, *Technologies of Humility: Citizen*

ability to drive infrastructural decisions writ large, people despair of their ability to affect the changes they want to see in the energy system.²²⁰

Moreover, individualized decisions—while they may put some pressure on utilities by eroding their bottom line²²¹—cannot create change at the scale that will be necessary to construct viable, society-wide alternatives to the fossil fuel–powered energy system. To create change at scale requires legal reforms that shift the balance of political and economic power within the U.S. energy system—a system that has been notoriously resistant to change.²²²

Fortunately, there are several important precedents to draw upon in forging creative legal pathways capable of overcoming the double democratic deficit. In this Part, I illustrate how two complementary strategies—(1) reforming utility planning processes and (2) enhancing community control over energy—could rework citizens’ ability to influence their energy supply in ways that should redound to the benefit of the global climate. I outline these strategies only in broad brushstrokes; other resources go into detail on their mechanics and implementation.²²³ My focus here is on how these reforms

Participation in Governing Science, 41 MINERVA 223, 240 (2003) (arguing for the imperative of developing a “dependable civic epistemology”); see also *supra* notes 67–68 and accompanying text (on why it is difficult to make individual contributions to climate change feel like moral wrongs).

220. See ANSOLABEHRE & KONISKY, *supra* note 12, at 66–67 (finding that although people generally agree on what they want out of the energy system, they are exceedingly pessimistic that it will be achieved); MORRIS & JUNGJOHANN, *supra* note 40, at 116 (emphasizing the importance of community-scale, rather than just individual, efforts in fueling acceptance and growth of the German energy transition); Ackerman & Heinzerling, *supra* note 163, at 1567 (“It is often impossible to arrive at a meaningful social valuation by adding up the willingness to pay expressed by individuals.”).
221. Utilities have complained that rooftop solar creates a death spiral for the industry as customers exit utility service and push system costs onto an ever-smaller remaining group of consumers, creating more pressure to leave. See PETER KIND, EDISON ELEC. INST., DISRUPTIVE CHALLENGES: FINANCIAL IMPLICATIONS AND STRATEGIC RESPONSES TO A CHANGING RETAIL ELECTRIC BUSINESS 6–9 (2013), <https://www.ourenergypolicy.org/wp-content/uploads/2013/09/disruptivechallenges-1.pdf> [<https://perma.cc/3ARR-2SF6>].
222. See RICHARD F. HIRSH, POWER LOSS: THE ORIGINS OF DEREGULATION AND RESTRUCTURING IN THE AMERICAN ELECTRIC UTILITY SYSTEM (1999) (describing the grand compromise between electric utilities and their regulators that dominated the twentieth century); ORESKES & CONWAY, *supra* note 107 (documenting the climate denial movement).
223. For more information on reforming utility planning processes, see RACHEL WILSON & BRUCE BIEWALD, SYNAPSE ENERGY ECON., INC., BEST PRACTICES IN ELECTRIC UTILITY INTEGRATED RESOURCE PLANNING: EXAMPLES OF STATE REGULATIONS AND RECENT UTILITY PLANS 5 fig.2 (2013), <https://www.raponline.org/wp-content/uploads/2016/05/rapsynapse-wilsonbiewald-bestpracticesinirp-2013-jun-21.pdf> [<https://perma.cc/SU8P-JTFF>]. For more on enhancing community control over energy, see CALIFORNIA PUB. UTILS. COMM’N, COMMUNITY CHOICE AGGREGATION EN BANC BACKGROUND PAPER 7 (2017), https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/CABackgroundPaperv2.pdf [<https://perma.cc/26H8-432W>]; J.R. DESHAZO ET AL.,

might help confront the double democratic deficit and ultimately influence the national climate conversation.

A. Give Utilities the Chance to Respond to Consumers' Values

My first proposal works within the existing framework of public utility law. Public utility law is the governing body of law that has shaped the U.S. energy system almost since the advent of electricity.²²⁴ Both the Federal Energy Regulatory Commission and state public utility commissions manage private, investor-owned electricity companies as public utilities.²²⁵ Regulators set the prices that public utilities are allowed to charge to consumers, review and vet their long-term management plans and strategies, and ensure that utilities provide safe and adequate service to all persons within their service territories.²²⁶

In these ways, public utility law remains unusual for the degree of control it exerts over private enterprise—a Progressive-era relic in deregulated times.²²⁷ But it often operates through deeply technical, adjudicative processes, which prove difficult sites for participation.²²⁸ I believe an effort to marry the power of public utility law to shape corporate behavior with fresh attempts to open this space to citizen input holds substantial potential to transform the energy system.

Decarbonizing energy is, at its core, a massive exercise in forward thinking about what long-lived infrastructure investments and contractual arrangements make sense in a rapidly changing geophysical and political landscape.²²⁹ Fortunately, states already control long-term utility planning to a significant

UCLA LUSKIN CTR. FOR INNOVATION, THE PROMISES AND CHALLENGES OF COMMUNITY CHOICE AGGREGATION IN CALIFORNIA 11 (2017), https://innovation.luskin.ucla.edu/wp-content/uploads/2019/03/The_Promises_and_Challenges_of_Community_Choice_Aggregation_in_CA.pdf [<https://perma.cc/X82Q-E85W>]; Uma Outka, *Cities and the Low-Carbon Grid*, 46 ENVTL. L. 105 (2016); Welton, *supra* note 129; *What is CCA?*, LEAN ENERGY, <http://leanenergyus.org/what-is-cca> [<https://perma.cc/56E5-MECV>].

224. See Boyd, *supra* note 22, at 1629.

225. *Id.* at 1629–30.

226. See ALFRED E. KAHN, *THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS* 3 (1988). For more on the complexities of modern public utility law, see Boyd & Carlson, *supra* note 130.

227. See RAHMAN, *supra* note 30, at 131 (celebrating the legal robustness of the public utility concept); Boyd, *supra* note 22, at 1635–43 (tracing the Progressive principles underlying public utility law).

228. See Welton & Eisen, *supra* note 214, at 343.

229. See generally 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. ENVTL. L. 1 (2013).

degree through a legal process called integrated resource planning.²³⁰ As of 2013, thirty-nine states had or were developing some sort of integrated or long-term resource plan filing requirement.²³¹ In these plans, utilities detail anticipated future electricity demand growth and how they intend to meet this growth over a ten- to twenty-year planning horizon, typically with the aims of minimizing cost while ensuring reliability.²³²

Normally, regulators evaluate these plans with a limited understanding of what citizens in the utility's service area want out of their future energy system.²³³ To be sure, regulators often have a sense of what the most interested stakeholders want to see²³⁴—but do not know whether these stakeholders represent outlier or mainstream public sentiment.²³⁵ A relatively simple fix could round out this picture: The legal requirements for these plans could be amended to include reporting on the relative level of public support that various future energy scenarios receive. Thus, when reporting on price and resource characteristic differences between, say, largescale wind and solar investments and a new nuclear plant, the utility might also have to include a description of how citizens to be served by these two options weigh their relative merits. In other words, utilities would have to ask their customers the how question, about what they want the future energy system to look like.

Requiring utilities to report on citizen energy preferences would enhance broad-based citizen input without devolving power or control. It is thus a variety of citizen engagement—rooted in the theory that exposing decisionmakers to either a sample of citizen opinions, or better, live citizen deliberation, will produce better outcomes.²³⁶ Instead of commission-led

230. See generally WILSON & BIEWALD, *supra* note 223; RACHEL WILSON & PAUL PETERSON, SYNAPSE ENERGY ECON., INC., A BRIEF SURVEY OF STATE INTEGRATED RESOURCE PLANNING RULES AND REQUIREMENTS (2011), http://www.cleanskies.org/wp-content/uploads/2011/05/ACSF_IRP-Survey_Final_2011-04-28.pdf [<https://perma.cc/8WL8-2QJA>].

231. See WILSON & BIEWALD, *supra* note 223, at 5 fig.2.

232. See WILSON & PETERSON, *supra* note 230, at 7. In states that have restructured by forcing utilities to sell off their generation assets, utilities no longer control what generation gets built through planning processes. But in many states, utilities still have to plan for the right supply of long-term contracts and wholesale market power to meet future demand and comply with state clean energy laws. These are often called “long-term procurement plans.” See *id.* at 13–15.

233. See ANSOLABEHRE & KONISKY, *supra* note 12.

234. Most, but not all, state-integrated resource planning processes provide mechanisms for stakeholder participation and engagement. See WILSON & BIEWALD, *supra* note 223, at 26–27 (cataloguing some of the best models for stakeholder engagement).

235. See Fiorino, *supra* note 49, at 531 (explaining the differences between citizen participation and interest group participation).

236. See FISHKIN, *supra* note 216, at 140 (extolling the virtues of deliberative polling, where citizens discuss options among themselves after asking questions of experts); see also

adjudicatory proceedings attracting those few outsiders who are motivated to attend—and who lack persuasive authority to claim general “representativeness” of their viewpoints²³⁷—my proposal puts the onus on utilities to seek out a representative sample of the population. In approaching the public, the utility is likely to frame questions in more accessible terms than it typically would in the course of integrated resource planning.²³⁸ And the public, in turn, is likely to take their consultative role seriously because policymakers have expressed interest in their opinions.²³⁹ All of which, hopefully, will make the information gleaned during such engagement persuasive to utility planners and regulators as they make critical decisions about future energy supply.

When I first dreamed up the idea of incorporating citizen preferences into integrated resource planning, I worried it might be dismissed as unlikely to be effective. But it turns out that it has already been tested and validated in a state not well known for its open-armed embrace of large-scale social planning: Texas.

During the 1990s, Texas had an integrated resource planning process that required utilities to begin by surveying and reporting on consumer energy “values and preferences.”²⁴⁰ To meet their obligations under this Act, Texas utilities collaborated with Lawrence Fishkin of the University of Texas, a pioneer in “deliberative polling.”²⁴¹ Each utility convened up to 250 randomly selected customers for a two-day session of expert question-and-answer sessions and small-group participant conversations.²⁴² The outcomes

Arkush, *supra* note 19, at 620 (arguing for enhanced democracy within administrative agencies, in which “public values should be reflected in or, to the extent possible, embodied by agency outcomes”); Cuéllar, *supra* note 19, at 417 (arguing that agencies should create new structures in which “regulators could systematically experiment with, and compare, different methods for blending public input with expert opinions about risk and science”).

237. See sources cited *supra* note 220.

238. Cf. Cynthia R. Farina et al., *Knowledge in the People: Rethinking “Value” in Public Rulemaking Participation*, 47 WAKE FOREST L. REV. 1185, 1187 (2012) (discussing the challenges of integrating citizens’ “situated knowledge” into technocratic agency proceedings).

239. See FISHKIN, *supra* note 216, at 39–40.

240. Public Utility Regulatory Act, TEX. REV. CIV. STAT. ANN. art. 1446c (West 1995) (repealed 1999); 23 Tex. Reg. 6210, 6215 (June 12, 1998).

241. KATE GALBRAITH & ASHER PRICE, *THE GREAT TEXAS WIND RUSH* 124–27 (2013); see also FISHKIN, *supra* note 216, at 99 (describing this effort in deliberative polling). Lawrence Fishkin’s deliberative polling methodology engages a sample of representative citizens in facilitated discussions about a public policy topic. *Id.* at 95.

242. R.L. LEHR ET AL., NAT’L RENEWABLE ENERGY LAB., LISTENING TO CUSTOMERS: HOW DELIBERATIVE POLLING HELPED BUILD 1,000 MW OF NEW RENEWABLE ENERGY PROJECTS IN TEXAS 2 (2003), <https://www.nrel.gov/docs/fy03osti/33177.pdf> [<https://perma.cc/T9MY-5APS>]; PUB. UTIL. COMM’N OF TEXAS, REPORT TO THE 76TH TEXAS LEGISLATURE: THE SCOPE OF COMPETITION IN THE ELECTRIC INDUSTRY IN TEXAS 4 (1999), <http://www.puc.texas.gov/>

of these eight separate polls proved surprising to many in the Texas utility industry. As researchers who helped organize the polls later reported:

The deliberative polling results validated what advocates of renewable energy, energy efficiency, and low-income assistance had argued for some time but could not necessarily prove: that customers support these public benefits expenditures and are willing to pay for them.²⁴³

More specifically, participants in the deliberative polls indicated a strong preference for renewable energy and energy efficiency above all other sources, even if they cost more—and favored these sources more strongly after the deliberative poll than they did before it.²⁴⁴

Perhaps these findings should not have been surprising, given what we now know about Americans' energy preferences.²⁴⁵ But what is surprising to me is the extent to which state lawmakers then acted on them. The polls had an immediate impact on Texas utilities' willingness to pursue renewable energy investments.²⁴⁶ Moreover, many impute to these polls a significant role in Texas's broader renewable energy development, as "the polling results took on an influence of their own in the ongoing legislative debate."²⁴⁷ Buoyed by the knowledge that Texans wanted renewable energy and were willing to pay for it, in 1999 the Texas legislature passed a landmark bill requiring 2000 megawatts of wind to be built in Texas by 2009.²⁴⁸ This legal

industry/electric/reports/scope/1999/1999scope_elec.pdf [https://perma.cc/96ZL-7F6X].

243. LEHR ET AL., *supra* note 242, at 9; *see also* GALBRAITH & PRICE, *supra* note 241.

244. R.L. Lehr, W. Guild, D.L. Thomas, and B.G. Swezey report that energy *preferences* changed over the course of the polling, but energy *values* essentially remained the same—suggesting that education and conversation illuminated for participants how best to transform their values into concrete policy preferences. LEHR ET AL., *supra* note 242, at 3. Kate Galbraith and Asher Price describe "the percentage of participants willing to pay more on monthly utility bills to support renewable energy—from \$2 to \$5 more . . . —jump[ing] from 52 percent to 84 percent, on average." GALBRAITH & PRICE, *supra* note 241, at 125.

245. *See supra* notes 187–194 (on public energy preferences).

246. *See* LEHR ET AL., *supra* note 242, at 9 (reporting that Texas's deliberative polls helped utility representatives understand that people had sophisticated energy preferences).

247. *Id.*

248. *See* S. 7, 76th Leg., Reg. Sess. (Tex. 1999) (mandating 3 percent by 2009, translated by the Public Utility Commission of Texas into an additional 2000 megawatts); *see also* 25 Tex. Reg. 82, 104 (Jan. 7, 2000) (adopting a renewable energy goal for Texas and explaining that "[t]he Legislature's commitment to development of the state's abundant renewable resources is derived from the preferences expressed by Texas consumers in favor of renewable power" during integrated resource planning).

requirement, in turn, fueled the astounding “Texas Wind Rush” that continues today—with over 20,000 megawatts of wind now installed.²⁴⁹

This example from Texas suggests that reforms to state planning laws may be an impactful way to incorporate citizen preferences into energy decisionmaking—without requiring a particularly dramatic shift in underlying roles or power structures. Other states have maintained participation requirements for utility planning that resemble this antiquated Texas example, suggesting their enduring feasibility. Most notably, Hawaii requires utilities to form advisory groups of citizens to help inform utility plans—a model that trades breadth of opinion for depth of engagement.²⁵⁰ Many others at least nominally have a requirement of public participation,²⁵¹ which could be strengthened to deepen the quality of engagement. These types of reforms, which reflect a general commitment to administrative democracy rather than preordaining any particular policy outcome, might prove capable of making inroads in states where climate change policy *as such* has limited chance of succeeding—particularly if distrust of utilities is prevalent in the state.²⁵²

249. Ryan Maye Handy, *Wind Power Blows Past Coal in Texas*, HOUS. CHRON. (Dec. 4, 2017, 10:17 AM), <https://www.chron.com/business/energy/article/Wind-power-blows-past-coal-in-Texas-12386751.php> [<https://perma.cc/494H-T7AC>].

250. See WILSON & BIEWALD, *supra* note 223, at 27; see also *In re Pub. Utils. Comm’n*, No. 2009–0108, 2011 WL 958735 (Haw. P.U.C. Mar. 14, 2011) (updating the rules regarding the role of advisory groups).

251. The federal Public Utility Regulatory Policies Act asked (but did not require) states to consider including public participation within their utility planning rules, but not all states complied. See 16 U.S.C. § 2621(a), (d) (2018); *In re Investments in Conservation & Energy Efficiency by Elec. &/or Gas Utils.*, No. 8630, 1994 WL 810605 (Md. Pub. Serv. Comm’n Dec. 19, 1994) (declining to adopt the federal public participation requirements for Maryland planning efforts); *In re Pub. Util. Regulatory Policies Act of 1978*, No. 5718, 1995 WL 261421, at *7 (Vt. Pub. Serv. Bd. Mar. 27, 1995) (finding that the requirement of a hearing complies with federal participation standard); see also *Utility IRPs*, CLEAN GRID ALLIANCE, <https://cleangridalliance.org/our-work/utility-irps> [<https://perma.cc/B4JD-9L74>] (“Although the specific requirements of resource planning varies state-by-state, most allow the public to submit comments and interested parties to file testimony or comments on the utility’s plan through a docket that is managed by a regulatory agency like a state public utilities commission.”).

252. For example, South Carolina recently achieved significant changes to its integrated resource planning laws after the state’s utilities frustrated regulators, politicians, and consumers alike by sinking \$9 billion into a failed nuclear power project. See S.C. Energy Freedom Act of 2019, § 7, 2019 S.C. Acts 368, 386 (amending the state’s integrated resource planning requirements to mandate consideration of specific resources and to allow for interested intervenors to obtain “reasonable discovery after an integrated resource plan is filed in order to assist parties in obtaining evidence concerning the integrated resource plan, including the reasonableness and prudence of the plan and alternatives to the plan raised by intervening parties”); Herman K.

That said, I would not necessarily expect other states to replicate Texas's responsiveness based on mandated citizen engagement alone.²⁵³ Instead, I contend that the opening of utility planning processes should be paired with reforms that threaten nonresponsive utilities with the loss of real economic and political power, as discussed below in Subpart III.B.

First, though, it is worth probing another aspect of Texas's experience: the particular form of public engagement selected. Although deliberative polling was not required by law, Texas's utilities all chose to use it as a particularly meaningful gauge of customer values and preferences.²⁵⁴ Even Fishkin suggested that telephone polls would have been useless because "the public did not have the information, or even opinions about the issue worth consulting."²⁵⁵ And indeed, consumer preferences did move over the course of the deliberative polls.²⁵⁶ These results suggest that perhaps states adopting similar rules should require utilities to use methods other than measuring static, point-in-time, individualized consumer preferences.²⁵⁷ On the flip side, research conducted since the time of Texas's polling shows that while deliberation may enhance the strength of consumer preferences, even consumers participating in online polls show the same preference for renewable energy over fossil fuel energy.²⁵⁸ Accordingly, it may be worth allowing utilities some experimentation among modes of gauging consumer preferences before adopting a mandate that requires deliberation, which would surely raise the expense of the endeavor.

B. Experiment With Enhanced Community Control of Energy

My second proposal goes further than enhanced participation to suggest that states should at least experiment with reforms that empower

Trabish, *What's Next For South Carolina's Embattled Utilities?*, UTIL. DIVE (Apr. 9, 2018), <https://www.utilitydive.com/news/whats-next-for-south-carolinas-embattled-utilities/520838> [<https://perma.cc/W84Y-6VA9>] (describing the difficult dilemma of the state's "embattled" utilities).

253. See, e.g., *In re Pub. Utils. Comm'n*, 2011 WL 958735 (observing that "advisory group input is not adequately considered").

254. See *supra* notes 240–241.

255. GALBRAITH & PRICE, *supra* note 241, at 124.

256. See *supra* note 244 and accompanying text.

257. See FISHKIN, *supra* note 216, at 121 ("More than two-thirds of all the attitude items in Deliberative Polls result in statistically significant net change."); see also ARCHON FUNG, EMPOWERED PARTICIPATION: REINVENTING URBAN DEMOCRACY 17 (2004) (contrasting deliberative with "single choice" models).

258. See ANSOLABEHRE & KONISKY, *supra* note 12, at 50. Peoples' attitudes on energy efficiency, however, appear to respond particularly strongly to deliberation. See *id.* at 56.

communities to take over energy decisionmaking from their utilities. This proposal stems from a conviction that particularly given the history of entrenched utility control over energy in the United States,²⁵⁹ any successful efforts to transform the sector must deconcentrate power and influence within U.S. energy governance. Thus, even as states work to make the public utility commission model more responsive to citizen values, they should give communities options for dictating the shape of energy supply outside of this century-old framework. In this Subpart, I explore the mechanics of local energy control and the theories that support broadened experimentation with these emerging tools.

1. The Practicalities of Localizing Energy

I first want to give a broad outline of the institutional mechanisms available to various communities for claiming more control over their energy supply. Options vary across the country depending both on the breadth of power granted to local communities by state legislation and on the structure of each state's electricity system. In some states that have restructured their electricity systems, private companies bid into markets to supply energy in the state, creating a competitive environment.²⁶⁰ Other states have retained a traditional, vertically integrated structure in which a single utility is in charge of electricity production (or procurement) and delivery.²⁶¹ Approximately one-third of U.S. residents—predominantly in the Southeast and the West—live in states that have opted out of restructuring and chosen to maintain this traditional model of electricity governance.²⁶² I summarize briefly below the key methods of local energy control in both restructured and traditional states.

In restructured states, the most potent tool that communities have for reclaiming control over their electricity grid is community choice aggregation (CCA). In the nine states in which CCA is legally authorized,²⁶³ a community

259. See HIRSH, *supra* note 222, at 9 (describing the twentieth-century “consensus” between regulated utilities and public utility commissions).

260. See Boyd & Carlson, *supra* note 130, at 837–39.

261. To complicate matters, there is also a third, mixed model. For a thorough explanation, see Boyd & Carlson, *supra* note 130, at 838–39.

262. See *id.* at 836. For a map showing which states have restructured electricity to become a part of regional markets, see ISO/RTO COUNCIL, <https://isorto.org/#about-section> [<https://perma.cc/5ZZY-CQ7J>].

263. Those states are: California, Massachusetts, Illinois, New Jersey, New York, Ohio, Rhode Island, New Hampshire, and Virginia. See ERIC O'SHAUGHNESSY ET AL., NAT'L RENEWABLE ENERGY LAB., TECHNICAL REPORT NO. NREL/TP-6A20-72195, COMMUNITY CHOICE AGGREGATION: CHALLENGES, OPPORTUNITIES, AND IMPACTS ON

can—after either a referendum or city council vote—announce its intention to take over its energy purchasing decisions from the local utility.²⁶⁴ The community then creates an entity (or contracts with an entity) that takes charge of negotiating the sources and prices of the community’s energy supply.²⁶⁵ Billing, transmission, and distribution remain the responsibility of the designated monopoly utility in the area, thus keeping some of the most technical aspects of electricity delivery in the hands of private experts.²⁶⁶

In states that permit CCAs, communities’ purchasing decisions conform to research on the energy preferences of Americans. In California, CCAs have elected to purchase renewable energy at rates far above the state-mandated minimum of 50 percent renewable energy by 2030 (already a relatively ambitious target), and some have pursued additional initiatives aimed at low-income consumers and local energy.²⁶⁷ CCAs in Massachusetts and Ohio have, like in California, focused on improving efforts at green

RENEWABLE ENERGY MARKETS, at v (2019), <https://www.nrel.gov/docs/fy19osti/72195.pdf> [<https://perma.cc/9K4A-PZJR>] (listing all except New Hampshire); S.B. 286, 2019 Leg., Reg. Sess. (N.H. 2019).

264. See LOCAL GOV’T COMM’N, COMMUNITY CHOICE AGGREGATION 1 (2015), <https://www.lgc.org/resources/community-design/lpu/may2015> [<https://perma.cc/TC6P-E2XE>].

265. *Id.* (“[A] CCA is responsible for providing the energy commodity (i.e., the electrons themselves) to its constituents—which may or may not entail ownership of electric generating resources.”). States typically subject CCAs to most—although perhaps not all—clean energy and energy efficiency laws and regulations, which means that CCAs cannot be used to dodge state climate or clean energy requirements. See DESHAZO ET AL., *supra* note 223, at 11.

266. See *Community Choice Aggregation Offers Local Governments Affordable, Locally Controlled Clean Power*, LOCAL GOV’T COMM’N (May 27, 2015), <https://www.lgc.org/newsletter/may2015> [<https://perma.cc/M7FU-GA3G>] (“Under CCA legislation, local governments are allowed to provide electricity to their customers, however existing investor-owned utilities . . . still own and maintain the transmission and delivery systems.”).

267. See Bentham Paulos, *Should Investor-Owned Utilities Be Worried About Community Choice Aggregation?*, POWER (May 1, 2017), <https://www.powermag.com/should-investor-owned-utilities-be-worried-about-community-choice-aggregation> [<https://perma.cc/JCD4-2S7A>] (observing that California CCA communities “want their renewables now, rather than waiting until 2030 for the state to reach its 50% renewables portfolio standard”). California’s first CCA—Marin Clean Energy, serving 255,000 customers—already gets 75 percent of its energy from emission-free sources and plans to go carbon-free by 2025. *Id.* On broader aims, see DESHAZO ET AL., *supra* note 223, at 26–27 (describing how CCAs promote projects that emphasize local energy and job creation); Maximilian Auffhammer, *Rebates for Electric Clunkers?*, ENERGY INST. BLOG (Apr. 30, 2018), <https://energyathaas.wordpress.com/2018/04/30/rebates-for-electric-clunkers> [<https://perma.cc/8S5S-4XPR>] (critiquing a CCA program subsidizing used electric vehicle purchases).

energy and energy efficiency.²⁶⁸ New York, which began its experiment with CCAs in 2015, reports that “nearly all” of the twenty-five participating municipalities in a CCA pilot project have elected a 100 percent renewable energy supply option as their default option for residents and small businesses and are delivering clean energy at rates lower than those charged by the displaced utility.²⁶⁹ As a mechanism for reflecting known citizen preferences regarding clean energy, these are promising early results.

Despite their promise, CCA arrangements face limitations: They are only available to communities in states that have legislatively or regulatorily sanctioned them, and they can only be successful in restructured states—where it is possible to purchase electricity from an entity other than the monopoly utility supplier.²⁷⁰ Nevertheless, there are possibilities for community-driven energy supply arrangements in states that have not yet embraced, or cannot embrace, CCA.²⁷¹ One option is full-scale

268. Ohio’s largest CCA, which serves 200 communities, recently began offering a 50 percent renewable product without raising prices. Paulos, *supra* note 267. Cincinnati’s CCA has opted to purchase 100 percent renewable energy. See Office of Env’t & Sustainability, *Aggregation Program*, CITY CIN., <https://www.cincinnati-oh.gov/oes/residential-programs/aggregation-program> [<https://perma.cc/4TVH-GV7B>] (“Cincinnati is the 1st aggregation program in the nation to offer 100% carbon free energy for both natural gas and electricity.”). Massachusetts also boasts several established and emerging CCAs going beyond state legal requirements: The Cape Light CCA was created largely to pursue energy efficiency goals and has saved the region more than \$485 million in electricity costs, and the Boston suburb of Brookline recently voted to create a CCA that will include 25 percent more renewables than the state as a whole. See GABRIELLE R. LICHTENSTEIN & INDIANA REID-SHAW, UNIV. OF N.H. SUSTAINABILITY INST., *COMMUNITY CHOICE AGGREGATION (CCA) IN MASSACHUSETTS* 20 (2017), https://sustainableunh.unh.edu/sites/sustainableunh.unh.edu/files/media/Fellows/lichtenstein_-_aggregation_in_ma_report.pdf [<https://perma.cc/2MHP-FNJK>] (on Cape Light); *Community Choice Aggregation*, MASS CLIMATE ACTION NETWORK, https://www.massclimateaction.org/community_aggregation [<https://perma.cc/BE3L-MMV7>] (on Brookline).

269. Motion to Enable Community Choice Aggregation Programs, No. 14-M-0224, 2016 WL 1643338, at *2 (N.Y. Pub. Serv. Comm’n Apr. 21, 2016); N.Y. STATE ENERGY RESEARCH & DEV. AUTH., *FACT SHEET - FREQUENTLY ASKED QUESTIONS: COMMUNITY CHOICE AGGREGATION 1* (2019), <https://www.nyserda.ny.gov/-/media/Files/Programs/Clean-Energy-Communities/cca-faq.pdf> [<https://perma.cc/QA7H-URC3>]. Seventy additional New York towns are reportedly considering CCA, following its full authorization by state regulators in 2016. Paulos, *supra* note 267.

270. See Benjamin Mow, *Community Choice Aggregation (CCA) Helping Communities Reach Renewable Energy Goals*, NAT’L RENEWABLE ENERGY LABORATORY (Sept. 19, 2017), <https://www.nrel.gov/state-local-tribal/blog/posts/community-choice-aggregation-cca-helping-communities-reach-renewable-energy-goals.html> [<https://perma.cc/8ZUH-XWKS>].

271. For many people, community solar programs spring to mind as a solution here. These proliferating programs allow residents of a locality to purchase a “share” of a locally sited renewable energy development under favorable price terms. *Community Solar*, SOLAR ENERGY INDUSTRIES ASS’N, <https://www.seia.org/initiatives/community-solar>

municipalization—that is, the forced takeover of a utility by a community.²⁷² Although legally permitted in most states, municipalization is expensive and contentious, usually requiring condemnation proceedings to purchase expensive utility assets.²⁷³ Boulder, Colorado, is the first city to pursue municipalization as an avowed decarbonization strategy—and is in year five of the multimillion-dollar process.²⁷⁴ Few other cities appear to have an appetite for the kind of intense battle with the incumbent utility that municipalization requires.

As a less contentious alternative, cities can draw from the playbook of corporate strategies on clean energy. Mike Vandenberg and Jonathan Gilligan have documented how private companies are succeeding in self-generating and self-determining their energy supply on a notable scale.²⁷⁵ Large corporations—particularly Apple, Microsoft, and Google—have been adept at negotiating special power purchase agreements (PPAs) that let them contract directly for renewable energy in places where the grid is “dirtier” than these companies prefer.²⁷⁶ Even in the notoriously slow-to-change

[<https://perma.cc/T4GW-YXBN>] (cataloguing state community solar programs). Although valuable in expanding the range of people able to invest in solar energy, I do not consider these programs democratic in the same way as collective modes of community-level energy decisionmaking, since they remain services run for the benefit of individual consumers that choose to subscribe. See We+lton, *supra* note 21, at 602–11.

272. See ABBY BRIGGERMAN ET AL., AM. PUB. POWER ASS'N, SURVEY OF STATE MUNICIPALIZATION LAWS (2012), https://www.publicpower.org/system/files/documents/municipalization-survey_of_state_laws.pdf [<https://perma.cc/54MA-7Y24>].

273. See Welton, *supra* note 129, at 305–07.

274. See *id.* (describing Boulder's municipalization efforts); Anthony Hahn, *Boulder Has 'Two Agreements Done' in Process of Muni Negotiations with Xcel, City Attorney Says*, DAILY CAMERA (Feb. 26, 2018, 9:23 PM), http://www.dailycamera.com/news/boulder/ci_31697170/boulder-municipalization-negotiations-xcel [<https://perma.cc/G6DM-2P6V>] (detailing ongoing negotiations).

275. VANDENBERGH & GILLIGAN, *supra* note 35, at 211–12.

276. See BRC Deal Tracker, BUS. RENEWABLES CTR., <http://businessrenewables.org/corporate-transactions> [<https://perma.cc/7YYR-NGC3>] (tracking growth in corporate renewable energy contracts). One trade group reports that “[t]oday, more than 120 global corporations have committed to . . . go 100% renewable.” Roger M. Freeman & James F. Boyle, *Corporate Renewable Energy Breakthrough: VPPA 2.0 Benefits & Risks*, SUSTAINABILITY ROUNDTABLE, INC. (Mar. 19, 2018), <http://www.sustainround.com/2018/03/19/corporate-renewable-energy-breaking-through-considering-the-benefits-risks-of-the-vppa-2-0-executive-summary> [<https://perma.cc/T4SX-YZK4>]; see also VANDENBERGH & GILLIGAN, *supra* note 35, at 211–12 (describing how firms with roots on the U.S. West Coast, including Amazon, Google, and Facebook, are greening their Southeastern data centers); Press Release, Microsoft News Center, Microsoft Announces Largest Wind Energy Purchase to Date (Nov. 14, 2016), <https://news.microsoft.com/2016/11/14/microsoft-announces-largest-wind-energy-purchase-to-date> [<https://perma.cc/7R6N-QW5V>]; Sarah Penndorf, *Renewable Energy Power Purchase Agreements*, 3DEGREES (Feb. 5, 2018), <https://3degreesinc.com/ppas-power-purchase-agreements> [<https://perma.cc/2F2C-ARZK>].

Southeast, these corporations have demanded and received tailored rights to cleaner energy.²⁷⁷ Now, a number of traditionally regulated states have adopted “green tariffs” that explicitly grant large customers the right to enter into special arrangements to purchase renewable energy through the monopoly utility.²⁷⁸

Many of these tariffs limit participation to large commercial and industrial customers.²⁷⁹ But what if cities could leverage the same power as Apple, Google, and Microsoft to force local renewable energy purchases through PPAs? My proposal here rests on a conviction that such opportunities for reclaiming control over energy decisionmaking need not and should not be confined to corporations. States could also extend green tariff rights to cities and towns acting on their citizens’ behalf to make group purchases—perhaps effectuated through a citywide vote to pursue more renewables than the state as a whole.²⁸⁰

If states and utilities refuse to take these steps, cities can at least utilize the corporate strategy of virtual power purchase agreements (VPPAs). VPPAs are agreements between a purchaser and a renewables developer, wherein the purchaser pays the developer for the right to claim credit for the green attributes of renewable power that enters the grid without directly consuming the power itself.²⁸¹ VPPAs have the benefit of not requiring a facility

277. VANDENBERGH & GILLIGAN, *supra* note 35, at 3–5.

278. See PRIYA BARUA & CELINA BONUGLI, WORLD RES. INST., EMERGING GREEN TARIFFS IN U.S. REGULATED ELECTRICITY MARKETS 4 (2018), <https://buyersprinciples.org/wp-content/uploads/Green-Tariffs-Oct-2018-1.pdf> [<https://perma.cc/WTJ2-A2PW>] (providing a map of green tariff states and states where corporations have obtained special renewables deals in the absence of a green tariff).

279. To date, several utilities’ green tariff programs allow for city governments to participate as large customers so as to supply government-owned buildings with renewable energy—but these programs do not let a city aggregate demand on behalf of its residents. See, e.g., Press Release, Ameren Missouri, Ameren Missouri Offers Innovative New Program for Cities and Businesses to Achieve Renewable Energy Goals (June 27, 2018), <https://www.prnewswire.com/news-releases/ameren-missouri-offers-innovative-new-program-for-cities-and-businesses-to-achieve-renewable-energy-goals-300673539.html> [<https://perma.cc/X7PQ-C872>] [hereinafter Ameren Missouri Press Release]; Press Release, Puget Sound Energy, PSE’s Green Direct Program is Fully Subscribed (Oct. 16, 2018), <https://www.pse.com/press-release/details/green-direct-announcement> [<https://perma.cc/D2HR-U4XZ>].

280. Virginia has proposed legislation to this effect. See H.D. 1590, 2018 Gen. Assemb., Reg. Sess. (Va. 2018) (proposing to amend the state’s aggregation rules to allow municipalities to demand particular types of energy from their utilities). A bill that passed the Utah legislature in 2019 requires the incumbent utility to work with any communities that adopt a 100% clean energy commitment to help them meet their target. See Community Renewable Energy Act, H.B. 411, 2019 Gen. Sess. (Utah 2019).

281. Typically, virtual power purchase agreements (VPPAs) take the form of a contract for differences, under which the seller is guaranteed a certain price for renewable energy, with the buyer paying the seller if the market price falls short, and the seller paying

to be sited close enough for actual energy consumption, since the purchaser is simply paying for the guarantee of having renewable energy delivered onto the U.S. grid, rather than purchasing the green electrons themselves.²⁸² And because VPPAs implicate financial transactions rather than actual physical energy transfers, purchasers can use them across states with all types of electricity market designs.²⁸³

Led by the mayor of Boston, many cities across the country—including several in red states—have announced their intention to partner in adopting this VPPA model for a largescale joint renewable energy purchase.²⁸⁴ Through programs like these, cities can gain the right to satisfy their residents' goals by *collectively* obtaining clean energy, rather than relying on interested individual subscribers. Such efforts might provide an outlet, even in traditionally regulated states, for communities to gain enhanced control over the source of their energy.

2. The Virtues of Local Energy Control

At first blush, these city- and town-led efforts may sound like just another downscaling workaround. But I see these efforts as distinct from other city-driven actions on climate change for two reasons. First, seizing control over energy supply at the local level represents an aggrandizement of the city sphere of control, since energy supply decisions are traditionally made at the state level by public utility commissions and regulated utilities.²⁸⁵ Community control of energy thus represents more than just downscaling to

the buyer if the market price exceeds the contractual price. See Freeman & Boyle, *supra* note 276; FRED LOWTHER & JOAN BONDAREFF, BLANK ROME LLP, *USE OF A VIRTUAL POWER PURCHASE AGREEMENT (VPPA): THE NEW WAY TO ACQUIRE GREEN CREDITS* (2018), https://www.blankrome.com/sites/default/files/2018-05/financing_projects_with_virtual_power_purchase_agreements_vppa.pdf [https://perma.cc/C88A-S5QT].

282. Their related downside, however, is that VPPAs fail to guarantee local air quality and economic gains. See Benjamin Storrow, *Cities Look to "Virtual Power" to Reach Climate Goals*, SCI. AM. (June 15, 2018), <https://www.scientificamerican.com/article/cities-look-to-virtual-power-to-reach-climate-goals> [https://perma.cc/NG4T-7BV3].

283. The Sustainability Roundtable reports that "[o]ver the past six years, more than 45 leading global corporations have purchased more than 10 gigawatts of renewable energy from new, large scale, renewable energy projects," mostly from VPPAs. Freeman & Boyle, *supra* note 276.

284. See Storrow, *supra* note 282; see also CITY OF BOSTON, *MULTI-CITY RENEWABLE ENERGY REQUEST FOR INFORMATION 1* (2018), https://www.boston.gov/sites/default/files/document-file-07-2018/multi_city_renewable_energy_rfi.pdf [https://perma.cc/RLK2-FNKJ] (listing partners including Atlanta, Georgia; Gary, Indiana; and Orlando, Florida).

285. See Welton, *supra* note 129, at 291–94.

local levels of action—it is an enhancement of the potency of local action itself. Second, city control over energy supply can be promoted and accomplished for reasons having nothing to do with climate change and decarbonization—and thus may prove an appealing energy management strategy even in locales not willing to adopt climate change policies as such.²⁸⁶

City-led efforts offer dual modes of citizen empowerment. First, they may serve to enhance the quantity and quality of citizen participation in energy decisionmaking. By creating new, local outlets for conversations about energy supply, cities may encourage people to feel that participation can actually make a difference—a feeling that most people distinctly do not possess with respect to communications with their investor-owned utility.²⁸⁷ Notably, New York’s energy regulators sanctioned CCA largely on this participation-inducing logic.²⁸⁸

Of course, many remain skeptical that localization of decisionmaking necessarily creates more broad-based, representative participation.²⁸⁹ When it comes to CCAs, there is no fieldwork available to confirm or refute regulators’ and advocates’ hunches about participation levels or character. I thus do not rest my argument on an assertion that CCA or other forms of local control *necessarily* induce greater and better participation—although I believe there are reasons to predict they might.

I see these city-led efforts as providing a second and different benefit to energy governance that extends beyond city limits. What CCAs and PPAs give to a community is the economic power to structure their own energy supply. In this way, CCAs and similar arrangements serve what K. Sabeel Rahman has suggested is one of the primary purposes of “democratic institutional design”: “to *rebalance political power*.”²⁹⁰ By exercising their purchasing power to favor certain

286. See *supra* Subpart II.C (on the political economy of “energy democracy”).

287. See BARBER, *supra* note 44, at 8; Dahl, *supra* note 46, at 954; Frug, *supra* note 46, at 1076; Fung, *supra* note 44, at 531.

288. See Motion to Enable Community Choice Aggregation Programs, *supra* note 269, at *1 (“[T]he CCA construct provides substantial positive opportunity for meaningful and effective local and community engagement CCA programs can educate, encourage, and empower communities and individuals to take control of their energy future”); see also Weinrub, *supra* note 129, at 146, 148 (emphasizing that one of the benefits of CCA is that it is at least “more open to community participation in the control of its energy resources,” although noting that community engagement varies among CCAs).

289. See, e.g., Morris P. Fiorina, *Extreme Voices: A Dark Side of Civic Engagement*, in CIVIC ENGAGEMENT IN AMERICAN DEMOCRACY 395, 397–403 (Theda Skocpol & Morris P. Fiorina eds., 1999) (observing how those with the most extreme views are the most likely participants).

290. RAHMAN, *supra* note 30, at 98.

resources over others, communities gain economic leverage over the types of energy resources being developed in their state or region. They can also insist on integrating a broader set of goals into energy policy—as many communities have done through their focus on local job creation or equitable access to clean energy as components of their purchasing strategies.²⁹¹

In this way, cities serve as proving grounds for different visions of a decarbonized energy system. But they are doing more than just “dissenting by deciding,” in the words of Heather Gerken.²⁹² Gerken has theorized that allowing local control over decisions can be important in creating space for outcomes different from those reached on the state or national level²⁹³—a theory that holds true here. But more is at work than mere dissent: Cities that take control of their energy supply necessarily do so at the diminishment of some investor-owned utility’s service territory and revenue stream. By cutting into the economic power of monopoly utilities, these cities—particularly as they accrue in number—gain real political power at the state level, while diminishing the power of the monopoly utility lobby.²⁹⁴ This rebalanced power dynamic might work to correct the double democratic deficit facing decarbonization policy by shifting the responsiveness of state government—and perhaps ultimately, the federal government—toward city-expressed preferences, away from utility preferences.

An example may help to concretize this point. Since 2010, California has witnessed a profusion of communities, large and small, electing to take control over their energy supply.²⁹⁵ California regulators now project that by the mid-2020s, an astounding 85 percent of retail load will no longer be supplied by investor-owned utilities.²⁹⁶ Not only are these communities

291. See DESHAZO ET AL., *supra* note 223, at 26–27.

292. Heather K. Gerken, *Dissenting by Deciding*, 57 STAN. L. REV. 1745, 1748 (2005) (“*Dissenting by deciding* occurs when would-be dissenters—individuals who hold a minority view within the polity as a whole—enjoy a local majority on a decisionmaking body and can thus dictate the outcome.”).

293. *Id.*

294. Cf. RAHMAN, *supra* note 30, at 3–4 (arguing that democratic governance should be designed to “curtail . . . economic power,” *id.* at 3, and to “multiply the ways in which regular people, social movements, and civil society groups can share in the actual challenge of policymaking,” *id.* at 4).

295. Jeff St. John, *As California Mulls Retail Electricity Choice, Utilities Are Losing Customers in Droves*, GREEN TECH MEDIA (May 17, 2017), <https://www.greentechmedia.com/articles/read/california-utilities-are-losing-customers-in-droves#gs.2Fw9Umk> [<https://perma.cc/87LE-MBW5>].

296. CALIFORNIA PUB. UTILS. COMM’N, CONSUMER AND RETAIL CHOICE, THE ROLE OF THE UTILITY, AND AN EVOLVING REGULATORY FRAMEWORK 3 (2017), https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/News_Room/News_and_Updates/Retail

going above and beyond state mandates in their own renewable purchases,²⁹⁷ but the shifting power dynamics they create in the energy sector also influence statewide energy debates. In fall 2018, California adopted landmark legislation to move to 100 percent clean energy by 2045—an effort that was reportedly aided by the “ambitious renewable goals of CCAs.”²⁹⁸ In this way, it appears that greater citizen control over energy supply (in my parlance, the “how” of decarbonization) helped propel statewide acceptance of a more stringent mandatory decarbonization target.

C. Complementary Modes of Reform

The two strategies I have outlined in this Part—enhancing citizen participation in utility planning and empowering community control of energy decisionmaking—work through different theories of the role of the citizen in energy governance. The first rests upon a model of enhanced citizen engagement; the second upon a model of citizen empowerment that shifts decisionmaking control from public utilities and their state oversight bodies to local communities. I see this dual-pronged approach to reforming energy governance as a particular strength of these proposals.

These two reforms, pursued in concert, could help overcome the weaknesses that each faces on its own. Above, I extolled the virtues of community control over energy supply, but there are three downsides to overemphasizing this strategy alone.

First, community-focused schemes often drive investment in small-scale technologies or shares of proven larger-scale technologies. They do not focus on promising but still-emerging largescale decarbonization strategies such as next-generation nuclear power and offshore wind corridors.²⁹⁹ Although small-scale strategies like rooftop solar and robust energy efficiency programs can play a critical role in decarbonization, investment in the next generation of larger-scale technologies will be necessary to achieve the deeply decarbonized future that many CCA communities desire.³⁰⁰ A piecemeal

%20Choice%20White%20Paper%205%208%2017.pdf [https://perma.cc/ASX7-E6QL]; St. John, *supra* note 295. This figure includes CCAs and large companies choosing to self-supply. *Id.*

297. See *supra* notes 273–277 and accompanying text.

298. See S. 100, 2017–2018 Leg., Reg. Sess. (Cal. 2018); Paulos, *supra* note 267 (crediting CCAs with a role in this bill’s passage).

299. See DESHAZO ET AL., *supra* note 223, at 19 (describing CCAs’ tendency to enter into shorter-term contracts).

300. See Boyd & Carlson, *supra* note 130, at 850–54; Boyd, *supra* note 22, at 1634.

pursuit of local energy initiatives might end up neglecting these important investments.³⁰¹ Indeed, California has recently become concerned that its proliferation of CCAs will cause the state to fall short on the investment in new renewable energy technologies that the state needs to reach its 100 percent clean energy goals.³⁰² For this reason, it is considering legislation to establish a backstop state procurement system that would make investments in clean energy sources it deemed necessary for achieving state goals, but which CCAs and other retail providers were not supporting.³⁰³ This remedial legislation hints at the possibility that a state can go too far in dispersing its energy decisionmaking authority in the service of clean energy goals—although California is the only state currently near this precipice.

Second, local strategies can give residents a false sense of confidence that they have done their bit to clean up the energy supply. In point of fact, local initiatives often displace dirty energy to other locales, rather than replace it completely.³⁰⁴ If engagement existed only on the community scale—and not every community chose to assert control—the grid could patchwork into 100 percent fossil fuel and 100 percent renewable areas, without changing overall emissions.

Finally, largescale defection from utility-driven energy purchasing creates a set of fairness challenges. When entities assert control over their own energy supply and thereby leave their utility, it leaves the remaining costs of utility service to be spread over a smaller population of remaining consumers, whose bills might rise as a result.³⁰⁵ Often, these costs include some unavoidable expenses that were incurred on behalf of a community exiting utility service.³⁰⁶ In particular, if a utility entered long-term contracts under the assumption it would serve a much larger load, there are important questions regarding whether communities or corporations exiting utility service should bear some portion of the costs of these contracts.³⁰⁷ Moreover,

301. That said, the possibility does exist for cities and counties to band together to form larger purchasing consortiums—another possible solution to these scale challenges. See LOCAL GOV'T COMM'N, *supra* note 264, at 6.

302. See Herman K. Trabish, Renewable Procurement Gaps Pose Risk for California's Climate Goals, But What Solution Is Best?, *Util. Dive* (Apr. 15, 2019), <https://www.utilitydive.com/news/renewable-procurement-gaps-pose-risk-for-californias-climate-goals-but-wh/552184> [<https://perma.cc/X222-DUV3>].

303. Assemb. 56, 2019–2020 Leg., Reg. Sess. (Cal. 2018).

304. Welton, *supra* note 21, at 641.

305. For more on these challenges, see DESHAZO ET AL., *supra* note 223, at 29–35.

306. *Id.* at 30–32 (discussing the challenge of defining “unavoidable and attributable” costs that a utility incurred on behalf of departing CCA customers).

307. The California Public Utilities Commission recently concluded a contentious set of proceedings on this topic, in which its administrative law judges endorsed a revised “Power Charge Indifference Adjustment” to appropriately distribute utility costs to

exiting corporations and communities may be wealthier than those remaining with their utility—such that their exit may leave a less affluent group of customers to finance socially beneficial utility programs such as low-income affordability programs and energy efficiency improvements.³⁰⁸

For these reasons, I believe it ill-advised to move entirely to a decentralized model for control of energy supply. City-led purchasing efforts are worthy experiments to help push the grid away from the sclerotic, central-utility model that has dominated for too long. But the ideal future probably does not entail complete localization of energy decisionmaking; instead, I see an enduring role for publicly managed, privately operated utilities in the decarbonized grid, especially if they can be made more internally responsive to citizen preferences.³⁰⁹ These utilities, which often span multiple states, offer the scale of energy demand and financial resources necessary to pursue largescale decarbonization efforts.

That said, overreliance on utilities alone as the drivers of this transition carries its own risks. The “natural monopoly” status of many of these corporations—whereby we assume that it is logically best to have only one utility serve each area³¹⁰—gives them tremendous political power. To date, many utilities have used this power to thoroughly and successfully resist change in the energy sector.³¹¹ Given this history, there is limited reason to believe that utilities would suddenly display widespread willingness to accept citizen demands for cleaner electricity, even if required to gauge this demand during utility planning.

exiting communities. See Decision Modifying the Power Charge Indifference Adjustment Methodology at 2–3, No. 18-10-019 (Cal. P.U.C. Oct. 11, 2018).

308. The extent of these challenges depends on the specifics of a state’s exit arrangements—a topic beyond the purview of this discussion.

309. See Boyd & Carlson, *supra* note 226; Boyd, *supra* note 22.

310. See Paul L. Joskow, *Lessons Learned From Electricity Market Liberalization*, 29 ENERGY J. (SPECIAL ISSUE No. 2) 9 (2008).

311. See, e.g., VIVIAN E. THOMSON, CLIMATE OF CAPITULATION: AN INSIDER’S ACCOUNT OF STATE POWER IN A COAL NATION 16 (2017) (documenting how “[t]he coal industry and electric utilities wield widespread influence across the United States at the state and national levels,” with a focus on the South); Lizza, *supra* note 111 (describing the substantial weakening of cap-and-trade legislation demanded by the utility industry’s trade group in order to garner its support); see also Hiroko Tabuchi, *Rooftop Solar Dims Under Pressure From Utility Lobbyists*, N.Y. TIMES (July 8, 2017), <https://www.nytimes.com/2017/07/08/climate/rooftop-solar-panels-tax-credits-utility-companies-lobbying.html> [<https://perma.cc/2WUF-UVHT>] (tracing “a concerted and well-funded lobbying campaign by traditional utilities, which have been working in state capitals across the country to reverse incentives for homeowners to install solar panels”).

Here is where citizen empowerment through community control serves as a critical complement: The specter of widespread community defection forces utilities to pay more attention to citizen demands. As a case in point, California utilities now view CCAs as an existential threat to their business models.³¹² But one of the best ways to keep a community from defecting is to give the people what they want. Accordingly, community procurement strategies put pressure on utilities to accept increased renewable energy targets, energy efficiency programming, or rooftop solar to appease communities that otherwise might choose to exit utility service.³¹³ This pressure dynamic is playing out across the country: For example, in Utah, Missouri, Kansas, and Nevada, utilities have agreed to increase statewide renewables goals or are negotiating special clean energy arrangements for cities in order to avoid laws that would catalyze more community control over energy.³¹⁴ In this way, strategies of community control offer a structural intervention in the world of energy economics and energy politics, by providing a threatening counterweight to utility power that may be capable of forcing broader systemic changes.³¹⁵

CONCLUSION

This Article has argued that there are underappreciated ways in which better involvement of citizens in the project of U.S. energy governance could

312. See St. John, *supra* note 295.

313. DESHAZO ET AL., *supra* note 223, at 20 (observing that “[t]he expansion of CCAs has put pressure on [investor-owned utilities] to remain competitive in terms of rates and products offered”).

314. See Paulos, *supra* note 267 (“A push for CCA legislation in Utah encountered strong opposition from Rocky Mountain Power, but now three cities, including Salt Lake City, are working with the utility to pursue 100% renewable energy goals.”); see also Ameren Missouri Press Release, *supra* note 279 (explaining that investor-owned utility adopted a green tariff program that applied to Missouri municipalities as a “commitment to our customers” that “have established renewable energy goals”); Benjamin Storrow, *2 Ballot Initiatives Focus on Solar, Splitting Supporters*, CLIMATEWIRE (Aug. 8, 2018), <https://www.eenews.net/climatewire/2018/08/08/stories/1060093001> [<https://perma.cc/J58P-XM3C>] (describing how a Nevada utility proposed an integrated resource plan focused on solar in response to a constitutional amendment that would give customers the right to exit their service); Karen Uhlenhuth, *Kansas City Clean Energy Goals Could Get a Boost From Utility Partnership*, ENERGY NEWS NETWORK (May 3, 2018), <https://energynews.us/2018/05/03/midwest/kansas-city-clean-energy-goals-could-get-a-boost-from-utility-partnership> [<https://perma.cc/LT5W-CPA3>] (reporting on another potential partnership between Kansas City and its utility).

315. See Welton, *supra* note 129 (making this argument about the “checking” function of public energy, which draws from longstanding theories of public power’s promise that date back to the Progressive Era and the New Deal).

help address the climate change crisis. It is high time we try trusting that giving people, instead of corporations, control over the shape of decarbonization may yield better results. Tools that build citizen engagement with, and control over, decarbonization may be slow, and they may be piecemeal. However, given the dearth of response at the federal level right now,³¹⁶ it is worth adding these citizen-centered strategies to the grab bag of climate workarounds currently being deployed—in the hope that they may become the driver of more enduring, profound changes.

Even if a more participatory turn in energy governance does not produce the results I have predicted in terms of decarbonization, something might be gained. Community-centered energy policy may help to forge new political arrangements among neighbors and call upon citizens to discuss their community values together.³¹⁷ This enhanced community cohesion may become all the more critical if decarbonization efforts fail and we are left with a “Hothouse Earth,” in which runaway geophysical processes threaten “health, economies, political stability . . . and ultimately, the habitability of the planet for humans.”³¹⁸ In that case, the task will be to figure out how to cope, as individuals or communities, with the havoc of storms, drought, famine, flooding, and massive human displacement that is predicted to attend this warmer world.³¹⁹ A community that has practiced more democratic engagement might, at the least, give itself more coping tools for this warming world.³²⁰

But efforts to involve citizens in energy decisionmaking should be understood as more than good preparation for doomsday. We do not know the runaway tipping point at which climate change becomes rapid and irreversible.³²¹

316. See *supra* Subpart I.A.

317. See Alister Forman, *Energy Justice at the End of the Wire: Enacting Community Energy and Equity in Wales*, 107 ENERGY POL’Y 649, 655 (2017).

318. Steffen et al., *supra* note 33, at 8256.

319. See *id.*; see also David Wallace-Wells, *The Uninhabitable Earth*, N.Y. MAG. (July 9, 2017), <https://nymag.com/intelligencer/2017/07/climate-change-earth-too-hot-for-humans.html> [<https://perma.cc/YM5R-JMAJ>] (tracing potential worst-case scenarios absent substantial mitigation of greenhouse gas emissions).

320. As Sarah Krakoff posits in her celebration of local climate action, “[I]f we fail to rein in carbon emissions as a global matter, at least some communities will have nurtured the attitudes, behaviors, and patterns of living that might be most adaptive to the resource challenges and scarcities of a climate-changed world.” Sarah Krakoff, *Planetary Identity Formation and the Relocalization of Environmental Law*, 64 FLA. L. REV. 87, 87 (2012); see also PURDY, *supra* note 26, at 249 (“We should ask, of efforts to address climate change, not just whether they are likely to ‘succeed’ at solving the problem, but whether they are promising experiments—workable approaches to valuing a world that we have everywhere changed, and to thinking about how we will change it next.”).

321. See Steffen et al., *supra* note 33, at 8254 (“Precisely where a potential planetary threshold might be is uncertain.”).

What we do know is that every ton of emissions reductions that helps us stay below that tipping point is some incremental bit of suffering averted.³²² For this reason, it is worth celebrating any climate progress that more citizen involvement could bring to the project of decarbonization.

322. Climate change is a stock/flow problem—meaning that the impacts of increasing greenhouse gas concentrations depend upon the absolute quantity of such gases in the atmosphere, as determined by the relative flows of such gases to and from the atmosphere. Thus, any actions that reduce flows of gases to the atmosphere are useful in keeping levels below the point at which the effects become catastrophic or irreversible. See Lazarus, *supra* note 3, at 1164–68.