

PLANETARIAN IDENTITY FORMATION AND THE RELOCALIZATION OF ENVIRONMENTAL LAW

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Abstract

Local food, local work, local energy production—all are hallmarks of a resurgence of localism throughout contemporary environmental thought and action. The renaissance of localism might be seen as a retreat from the world’s global environmental problems. This Article maintains, however, that some forms of localism are actually expressions, appropriate ones, of a planetary environmental consciousness. This Article’s centerpiece is an in-depth evaluation of local climate action initiatives, including interviews with participants, as well as other data and observations about their ethics, attitudes, behaviors, and motivations. The values and identities being forged in these initiatives form the basis for timely conceptions of the human relationship with the planet, which in turn provide grist for environmental law and policy design. One overarching conclusion is that environmental laws, even those aimed at solving problems of planetary scale, should include elements that foster localism. The reasons to do so are twofold and strangely complementary. First, in an instrumentalist vein, sustained attitude and behavior changes are most likely to be accomplished through the positive feedbacks between personal and community norms. Second, if 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. By fostering the planetarian identity, localism therefore has the potential to redeem environmental law, even in the face of its potential failure.

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INTRODUCTION

Local food, local work, local energy production—all are hallmarks of a resurgence of localism throughout contemporary environmental thought and action.¹ The renaissance of localism might be seen as a retreat from the world’s big, scary, and intractable problems. This Article argues, however, that some forms of localism are actually expressions, appropriate ones, of a planetary environmental consciousness. These forms of localism are not withdrawals from the world but are instead self-conscious attempts to link ethics and behaviors with environmental problems of planetary scale. This Article’s centerpiece is a qualitative evaluation of local climate action initiatives, including interviews with participants, as well as other data and observations about their ethics, attitudes, behaviors, and motivations. The values and identities being forged in these initiatives form the basis for timely conceptions of the human relationship with the planet, which in turn provide grist for environmental law and policy design. The upshot is this: environmental laws, even those aimed at solving problems of planetary scale, should include elements that foster localism. The reasons why are twofold, and strangely complementary. First, in an instrumentalist vein, sustained attitude and behavior changes are most likely to be accomplished through the positive feedbacks

1. Documenting this trend, many popular books support a return to localism. *See, e.g.*, BARBARA KINGSOLVER, *ANIMAL, VEGETABLE, MIRACLE: A YEAR OF FOOD LIFE* (2007) (documenting a family’s effort to live for one year only on food that they produced or could barter for locally); BILL MCKIBBEN, *EAARTH: MAKING A LIFE ON A TOUGH NEW PLANET* (2010) (supporting localism in response to climate change); MICHAEL POLLAN, *IN DEFENSE OF FOOD: AN EATER’S MANIFESTO* (2008) (supporting local and sustainable food production and farming practices); MICHAEL POLLAN, *THE OMNIVORE’S DILEMMA: A NATURAL HISTORY OF FOUR MEALS* (2006) (examining the origins of a typical meal, and arguing in support of local food production).

between personal and community norms.² Climate action groups, for these and other reasons, hold promise to be important parts of what Professor Elinor Ostrom has described as the necessary “polycentric” approach to addressing climate change.³ Second, if we fail to rein in carbon emissions as a global matter (a more-than-likely scenario), 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.

Part I situates local climate action initiatives in the larger trend toward relocalization. Part I also explores the potential paradox that these local climate action groups are tackling a collective action problem of global and intergenerational scale. Localism, in this context more than others, warrants study to illuminate how and why norms and behaviors of planetary concern emerge despite their apparently long odds of success.

Part II investigates neighborhood climate action groups—informal, community-based efforts to reduce greenhouse gas emissions—up close. Participants in such groups were surveyed and interviewed concerning their motivations to join and participate, their changes in behavior, their success at reducing emissions, their assessment of the group’s role in encouraging those reductions, and their optimism about the future with respect to stabilizing global climate change. The responses indicate, first, that many participants have engaged in a wide range of behavior changes to reduce their carbon footprints. Second, the responses reveal that participants in these movements have, in general, a very nuanced and complicated view of their own motivations. They want to contribute to a global solution that will stabilize greenhouse gas concentrations and preserve the Earth as they know it. At the same time, some respondents express skepticism that such a result will be forthcoming, and therefore also articulate a mix of reasons why they are still taking action. These reasons include: the importance of building community; doing the “right thing” irrespective of outcomes; leaving a legacy of trying to avert tragedy for future generations, even if tragedy ensues; and establishing habits and patterns that will equip present and future generations to live in a very different world. As one participant stated: “Even if our civilization fails, at least we’ve tried to create a blueprint for future cultures. We owe this to the generations that follow us and all the human beings that have sacrificed to give us what we have today.”⁴

2. See *infra* notes 7–8, 241.

3. See Elinor Ostrom, *A Polycentric Approach for Coping with Climate Change* (The World Bank, Policy Research Working Paper No. 5095, 2009), available at <http://go.worldbank.org/09BW8HU3A0>.

4. Response of Henry Mueller, Neighborhood Climate Action Group Questionnaire

Professor Robert Socolow, coauthor of the widely cited “wedges” approach to stabilizing climate change,⁵ has mused that we might need the emergence of a “planetary identity” as much as, or more than, we need regulatory and technological solutions to address climate change.⁶ Local climate action participants might be characterized as the leaders in planetarian identity formation, in that they perceive their moral obligations to extend to far-flung communities (both human and biotic) across space and time. In addition, their actions yield information about steps that individuals, albeit the most committed and engaged ones, will take to reduce their carbon footprint, and how those steps have affected their lives. This information, coupled with respondents’ articulation of their motivations, helps fill in our understanding of the efficacy of top-down, state-led efforts to encourage similar behavior changes.⁷

Part III considers the role of the state in light of what has been learned about local climate action initiatives. To date, the literature on individual behavior and climate change has largely addressed how the state can prod us to reduce our greenhouse gas emissions.⁸ Relying on insights from behavioral economics, cognitive psychology, and the literature on institutional design, commentators have proposed various mechanisms for regulating, incentivizing, and otherwise nudging people to be more carbon-neutral.⁹ This Article approaches the issue from the bottom up, asking not what the state can do to prod people, but rather what people are already doing to live a life that might be meaningful and even fun, while at the same time creating habits and paths for subsequent generations to follow. In other words, rather than formulate

(June 15, 2009) (on file with author).

5. See S. Pacala & R. Socolow, *Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies*, 305 SCIENCE 968 *passim* (2004).

6. See Robert H. Socolow & Mary R. English, *Living Ethically in a Greenhouse*, in ENERGY AND ETHICS 170, 170–71 (Denis Arnold ed., 2011).

7. Several scholars have examined how the government might influence individual behavior changes and their contributions to climate change. See John C. Dernbach, *Harnessing Individual Behavior to Address Climate Change: Options for Congress*, 26 VA. ENVTL. L.J. 107 (2008); Andrew Green, *You Can’t Pay Them Enough: Subsidies, Environmental Law, and Social Norms*, 30 HARV. ENVTL. L. REV. 407 (2006); Albert C. Lin, *Evangelizing Climate Change*, 17 N.Y.U. ENVTL. L.J. 1135 (2009); Michael P. Vandenbergh & Anne C. Steinemann, *The Carbon-Neutral Individual*, 82 N.Y.U. L. REV. 1673 (2007); Michael P. Vandenbergh et al., *Individual Carbon Emissions: The Low-Hanging Fruit*, 55 UCLA L. REV. 1701 (2008).

8. See, e.g., Jed S. Ela, *Law and Norms in Collective Action: Maximizing Social Influence to Minimize Carbon Emissions*, 27 UCLA J. ENVTL. L. & POL’Y 93, 117–24 (2009) (arguing that the state should target high visibility behaviors based on insights from social norms literature); Vandenbergh & Steinemann, *supra* note 7. Similarly, commentators have focused on legal and institutional designs that could counterbalance our tendencies to discount the value of future benefits and minimize the risks of future harms. See, e.g., Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153, 1157 (2009).

9. See, e.g., Dernbach, *supra* note 7; Vandenbergh & Steineman, *supra* note 7.

proposals to get the state to act on us, this Article addresses how, and why, we choose to act to address vexing environmental problems, even without state action. However, focusing on communities and individuals does not let the state off the hook.¹⁰ Rather, the idea is to rethink the state role; government efforts to mitigate and adapt to climate change should be organized to support, rather than stifle, local practices that foster the planetarian identity.¹¹ That way, even if state efforts fail to stabilize greenhouse gas emissions (the chances of which, as discussed in Part I, are sadly undeniable), we will have the opportunity to fashion societies capable of weathering the changed climate. Part III therefore concludes by considering, in preliminary fashion, how a federal climate regime might embrace local climate action initiatives. By engaging with communities rather than acting on individuals, the state might generate new possibilities for governance in a world increasingly bereft of examples of relevant and successful state action.¹² Furthermore, given the failure to pass any comprehensive climate legislation to date, and the unlikely prospects for doing so in the near future, encouraging and cultivating local action may be all the state can manage to do.

The Article concludes, despite some of its optimism, with realism about what local climate action might ultimately yield. If we assume that the local initiatives never translate up into higher-scale solutions, and that the state fails to be part of a polycentric solution (or any kind of solution), then local climate action groups may be important solely because of the habits of living they cultivate. Norms and behaviors reflecting less dependence on energy; more local knowledge about food, landscape, and weather; and greater reliance on friends and neighbors may be beneficial ends in themselves. In this scenario, the efforts of local climate action groups will not be enough to save the planet, or at least a planet with ecologies, cultures, and species that have evolved for the climate as we know it. But they might be enough to sow the seeds

10. Indeed, as Professor Katherine Trisolini writes, “To achieve critical climate change goals, we will likely need *all* levels of government acting in concert” Katherine A. Trisolini, *All Hands on Deck: Local Governments and the Potential for Bidirectional Climate Change Regulation*, 62 STAN. L. REV. 669, 677 (2010) (emphasis added); see also Garrick B. Pursley & Hannah J. Wiseman, *Local Energy*, 60 EMORY L.J. 877 (2011) (analyzing the relative institutional capacities of different levels of government for combating climate change).

11. Trisolini, *supra* note 10, at 677.

12. See TONY JUDT, *ILL FARES THE LAND* 134–35, 163–66 (2010) (describing failure of politics to address climate change and other urgent global problems, and consequent loss of faith in political institutions). The “New Governance” movement in legal scholarship also aspires to describe relevant models for successful state action in a post-statist world. See Daniel J. Fiorino, *Rethinking Environmental Regulation: Perspectives on Law and Governance*, 23 HARV. ENVTL. L. REV. 441 (1999); Orly Lobel, *The Renew Deal: The Fall of Regulation and the Rise of Governance in Contemporary Legal Thought*, 89 MINN. L. REV. 342, 423–32 (2004) (describing new governance approaches to environmental law).

for life on a different planet that would nonetheless be worth living on.

I. THE RESURGENCE OF LOCALISM IN A GLOBALIZED WORLD

Localism—placing value on working and buying locally—has been touted as among the top twenty trends that will shape the next decade.¹³ Whether that prediction proves true or not, the resurgence of interest in creating vital, self-sustaining communities is undeniable. To provide some context for the local climate action groups examined in Part III, this Part describes localization trends generally and briefly traces localism’s roots in environmental thought. Despite localism’s appeal, there are reasons to be skeptical that local communities, acting on their own, can do anything about environmental problems of planetary scale. To give this skepticism its due, this Part also describes the daunting collective action problem that climate change presents.

A. *Manifestations and Roots of Localism*

It might at first seem curious that localism would be a response to environmental challenges that are increasingly global in cause and effect. Yet the impulse, put in bumper-sticker terms, to “think globally, act locally,” is widespread. The “Transition” movement is perhaps the most all-encompassing version of localism.¹⁴ The Transition movement supports efforts to create small community groups with the dual purpose of encouraging low-carbon lifestyles and preparing for a post-carbon world by “rebuilding a community’s capacities to meet its own essential needs in food, energy and economy.”¹⁵ As one scholar described, these groups work “at [the] grassroots level, to develop local solutions to peak oil and climate change based on developing much more resource-poor[,] yet enjoyable and fulfilling[,] livelihoods based in more localised economies.”¹⁶ The Transition movement has taken hold in 103

13. See, e.g., INTUIT, INTUIT 2020 REPORT 14 (Oct. 2010), http://http-download.intuit.com/http.intuit/CMO/intuit/futureofsmallbusiness/intuit_2020_report.pdf (placing localism among the top twenty trends that will change the next decade).

14. See generally TRANSITION U.S., <http://www.transitionus.org/initiatives/cheerful-disclaimer> (last visited Nov. 14, 2011).

15. TRANSITION COLORADO, <http://www.transitioncolorado.us/transitioncolorado.php> (last visited Nov. 14, 2011). Transition U.S.’s “cheerful disclaimer” reads as follows:

We truly don’t know if this will work. Transition is a social experiment on a massive scale. What we are convinced of is this: If we wait for the governments, it’ll be too little, too late. If we act as individuals, it’ll be too little. But if we act as communities, it might just be enough, just in time.

TRANSITION U.S., <http://www.transitionus.org/initiatives/cheerful-disclaimer> (last visited Nov. 14, 2011).

16. Peter North, *Eco-Localisation as a Progressive Response to Peak Oil and Climate Change—A Sympathetic Critique*, 41 GEOFORUM 585, 586 (2010).

communities in the United States.¹⁷

The local food movement, which embraces a return to local food production and consumption, is a related manifestation of the localization trend.¹⁸ One of the local food movement's initial goals was to reduce the number of miles that food traveled before people ate it.¹⁹ Reducing "food miles" would, according to proponents, improve the quality of food consumed and reduce its carbon footprint.²⁰ In 2010, the USDA Farmers Market Directory listed 6,132 operational farmers markets in the United States, representing a 16% growth from 2009.²¹ The local food movement spawned a term, "localvore" (or "locavore"), for one who eats only food sourced within a 100-mile radius of one's home.²² The most visible locavore lives in the White House. First Lady Michelle Obama made headlines for planting, and then expanding, the first White House vegetable garden since Eleanor Roosevelt's.²³

The economic theory of ecolocalism posits that environmental sustainability requires the creation of "local currency systems, food coops, micro-enterprise, farmers' markets, permaculture, community supported agriculture (CSA) farms, car sharing schemes, barter systems, cohousing and eco-villages, mutual aid, home-based production, community corporations and banks, and localist business alliances."²⁴ The overarching idea is that local economies can simultaneously reduce overall consumption and create the proper norms and incentive structures to perpetuate meaningful, yet environmentally sustainable,

17. See TRANSITION U.S., <http://www.transitionus.org/initiatives-map> (last visited Nov. 14, 2011).

18. Amory Starr, *Local Food: A Social Movement?*, 10 CULTURAL STUD. <=> CRITICAL METHODOLOGIES 479 (2010).

19. Derrick Braaten & Marne Coit, *Legal Issues in Local Food Systems*, 15 DRAKE J. AGRIC. L. 9, 11 (2010).

20. *Id.*

21. Press Release, U.S. Dep't of Agric., USDA Announces that National Farmers Market Directory Totals 6,132 Farmers Markets (Aug. 4, 2010), <http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateU&navID=&page=Newsroom&resultType=Details&dDocName=STELPRDC5085966&dID=136226&wf=false&description=USDA+Announce+s+that+National+Farmers+Market+Directory+Totals+6%2C132++Farmers+Markets&topNav=Newsroom&leftNav=&rightNav1=&rightNav2=>.

22. Katy McLaughlin, *The Rise of the Lazy Locavore*, WALL ST. J., Nov. 13, 2010, at D4.

23. See Marian Burros, *Obamas to Plant Vegetable Garden at White House*, N.Y. TIMES, Mar. 19, 2009, at A1; Natasha Metzler, *Michelle Obama Expands the White House Garden*, CHRISTIAN SCI. MONITOR, Apr. 1, 2010, available at <http://www.csmonitor.com/The-Culture/Gardening/2010/0401/Michelle-Obama-expands-the-White-House-garden>. Some have criticized the Obamas for failing to take local food values much beyond the publicity phase, however. See Wenonah Hauter, *Dear Obamas: Let's Move . . . on Food Policy Reform*, GRIST (Feb. 11, 2011), <http://www.grist.org/article/2011-02-11-dear-obamas-lets-move-on-food-policy-reform>.

24. Fred Curtis, *Eco-Localism and Sustainability*, 46 ECOLOGICAL ECON. 83, 83 (2003).

ways of life.²⁵ However, economists and environmentalists alike recognize that “[r]educing material per capita consumption may be the most difficult aspect of eco-localism for many to accept as it contravenes the culture of consumerism, the more-is-better assumptions of conventional economic theory, existing settlement patterns (cities), and the goals of globalization.”²⁶

The return to localism implicates a number of concepts with deep roots in environmental thought.²⁷ The aesthetic justification for environmental ethics, for example, can be traced to the intimate experiences with nature that writers like George Perkins Marsh, Henry David Thoreau, and Aldo Leopold chronicled for the public.²⁸ While aesthetic appreciation can also extend to faraway, grand, and exotic places, these writers, and many of their latter-day followers, wrote about places that (at least to them) were close to home.²⁹ Leopold’s *Sand County Almanac*, though better known for the chapter “The Land Ethic,”³⁰ is largely composed of essays describing, in intimate naturalistic detail, the seasons on his family’s “sand farm in Wisconsin.”³¹

Moving beyond aesthetics, communitarian versions of an environmental ethic quite naturally rely on the local connection to nature. Wendell Berry is perhaps the most well-known popularizer of this vein of ecological thought.³² For Berry, work in small agrarian communities was both an end in itself and a pathway to an ecologically healthier planet.³³ In an early critique of industrial agriculture, Berry argued that large-scale factory farming would ultimately harm nature and humanity; soils and ecosystems would become depleted, and people would lose the knowledge of how to cultivate and produce food, resulting in dependence on a systems-approach to agriculture that would

25. *Id.*

26. *Id.* at 92.

27. See Ursula K. Heise, *Ecocriticism and the Transnational Turn in American Studies*, 20 AM. LITERARY HIST. 381, 384 (2008) (describing localism as “a foundation of environmental thought and ethics”).

28. See GEORGE PERKINS MARSH, *MAN AND NATURE* (David Lowenthal ed., Harvard Univ. Press 1965) (1864); HENRY DAVID THOREAU, *The Ponds, in WALDEN* 164 (Beacon Press 2004) (1854) (making minute observations of local ecology around Walden Pond); see also ALDO LEOPOLD, *A SAND COUNTY ALMANAC* (Oxford Univ. Press 1966) (1949).

29. Examples of contemporary environmental writers in this aesthetic vein include Terry Tempest Williams, who writes about places close to her home in Utah, Bill McKibben, and Barbara Kingsolver. See KINGSOLVER, *supra* note 1; MCKIBBEN, *supra* note 1; TERRY TEMPEST WILLIAMS, *REFUGE* (1991).

30. LEOPOLD, *supra* note 28, at 237.

31. *Id.* at xviii.

32. See generally WENDELL BERRY, *BRINGING IT TO THE TABLE: ON FARMING AND FOOD passim* (2009).

33. See *id.*

therefore leave them vulnerable to systemwide failure.³⁴ Berry's antidote was a return to small-scale farming, which he argued would address not only problems of food quality and environmental health, but also human integrity and dignity:

Industrial agriculture has tended to look on the farmer as a "worker"—a sort of obsolete but not yet dispensable machine—acting on the advice of scientists and economists. We have neglected the truth that a *good* farmer is a craftsman of the highest order, a kind of artist. It is the good work of good farmers—nothing else—that ensures a sufficiency of food over the long term.³⁵

Good farmers, according to Berry, do their work on small, local farms, in communities that are at least relatively self-sustaining, where subsistence is a guiding principle.³⁶

Environmental justice (EJ) also implicates localism. The EJ movement of the 1980s and '90s brought attention to the fact that toxic and other waste facilities were disproportionately sited in poor and minority communities.³⁷ Mainstream environmentalism, despite its many successes, had failed to deliver cleaner and healthier environments to all communities equally.³⁸ While the EJ movement was (and is) diverse and complex, one of its core tenets remains that environmentalism means little for disempowered communities if it does not touch them locally.³⁹

34. *See id.* at 23–24 (describing several weaknesses of industrial agriculture).

35. *See id.* at 29.

36. *See id.*

37. *See, e.g.,* Bunyan Bryant, *History and Issues of the Environmental Justice Movement*, in OUR BACKYARD: A QUEST FOR ENVIRONMENTAL JUSTICE 3 (Gerald R. Visgilio & Diane M. Whitelaw eds., 2003); David H. Getches & David N. Pellow, *Beyond "Traditional" Environmental Justice*, in JUSTICE AND NATURAL RESOURCES: CONCEPTS, STRATEGIES, AND APPLICATIONS 3 (Kathryn M. Mutz et al. eds., 2002); Tom Stephens, *An Overview of Environmental Justice*, 20 T.M. COOLEY L. REV. 229 (2003).

38. *See* LUKE W. COLE & SHEILA R. FOSTER, FROM THE GROUND UP: ENVIRONMENTAL RACISM AND THE RISE OF THE ENVIRONMENTAL JUSTICE MOVEMENT 10 (2001); David Monsma, *Equal Rights, Governance, and the Environment: Integrating Environmental Justice Principles in Corporate Social Responsibility*, 33 ECOLOGY L.Q. 443, 454 (2006) (outlining the environmental justice critique).

39. *See* Luke W. Cole, *Foreword: A Jeremiad on Environmental Justice and the Law*, 14 STAN. ENVTL. L.J. ix, xiii (1995) ("[N]ational [environmental] legal groups have, by history and design, a *national* focus and a *legal* orientation. This stands in direct contrast to the environmental justice movement, which has historically had a *local* focus and a *community* orientation."); Carita Shanklin, Comment, *Pathfinder: Environmental Justice*, 24 ECOLOGY L.Q. 333, 349 (1997) ("[Grassroots environmental justice groups] have broadened the definition of environmentalism to include the quality of life in people's homes, schools, neighborhoods, work, and playgrounds."). Majora Carter, an environmental justice activist from the South

Finally, though not exhaustively, the international environmental community adopted localism after it began to examine the root causes of global environmental challenges. The United Nations Commission on the Environment's report on sustainable development, known as the Brundtland Report, made the connection between local development for poor communities and global consumption and pollution.⁴⁰ The "sustainable development" concept has since become tarnished from both overuse and underachievement.⁴¹ The Brundtland Report nonetheless articulated an enduring global justification for localism, which is that there will be no solution to the world's environmental problems if we fail to focus on the livelihood and well-being of local communities throughout the world.

B. *The Tragedy of the Atmospheric Commons*

Localism's roots are deep, and its current revival is broad. Yet there remain reasons to be surprised about, and skeptical of, localism's potential to address climate change. The skepticism derives from the daunting temporal and spatial barriers to collective action presented by climate change. This Section will sketch the features that make climate change the mother of all collective action problems.

Bronx neighborhood of New York City who fought to transform an illegal garbage dump into a public park, sums up her view of the EJ movement:

The environmental groups have little to no presence here. . . . We have to reclaim our right to the environmental issue, we have to understand that it's more than just really wealthy white people driving Priuses because they can. . . . Why aren't we at the table helping shape big-picture strategy? . . . The debate has to examine how environmental improvements to low-income communities lift up the economy, the safety, and the morale—not just locally, but regionally and nationally. . . . Things like parks and green roofs and decent zoning policies and green-collar jobs and public transportation don't cost a huge amount, but can make a tremendous difference that has long-term economic advantages both locally and nationally.

Amanda Little, *Majora League: An Interview with Majora Carter, Founder of Sustainable South Bronx*, GRIST (Sept. 28, 2006, 5:30 PM), http://www.grist.org/article/m_carter/.

40. See Chairman of World Comm'n on Env't and Dev., *Report of the World Commission on Environment and Development: Our Common Future*, transmitted to the General Assembly, U.N. Doc. A/42/427 (Aug. 4, 1987), available at <http://www.un-documents.net/wced-ocf.htm>.

41. See James C. Kraska, *Global and Going Nowhere: Sustainable Development, Global Governance & Liberal Democracy*, 34 DENV. J. INT'L L. & POL'Y 247 (2006); Chris Sneddona et al., *Sustainable Development in a Post-Brundtland World*, 57 ECOLOGICAL ECON. 253, 260 (2006) ("We can agree . . . that the Brundtland Report, and much of the sustainable development discourse, is a tale that a disenchanted (modern) world tells itself about its sad condition." (citation and internal quotation marks omitted)).

The story of global warming as a particularly intractable commons problem is by now well known. In summary, it goes as follows. The global atmosphere is a common-pool resource,⁴² and since industrialization, agents have acted in their rational self-interest by emitting greenhouse gases in order to benefit from inexpensive energy. Even now that we know about the market's failure to internalize the cost of greenhouse gas emissions, rational actors will still opt for cheap energy over reductions in greenhouse gas emissions because of the possibility that a defector could undermine the regime of curbing emissions. Professor Stephen Gardiner argues that global warming is a true prisoner's dilemma, as opposed to any other kind of collective action challenge, because it is possible for noncooperators to undermine the good produced by a subgroup of cooperators, and it is likely, working from the assumption of rational self-interest, that noncooperators will have the incentive to do so.⁴³ This is so, according to Gardiner, because any one defector from a global regime to reduce greenhouse gas emissions has the potential to push total global emissions above the agreed-upon cap.⁴⁴ In other words, the problem is worse than one in which noncooperators can "free ride" off of others' cooperation. In the global warming context, noncooperators can potentially render meaningless (within a rational choice framework) the cooperation of others.⁴⁵ This was the Bush Administration's rationale for backing out of the Kyoto Accords: without China and India committing to limitations on emissions, the United States may be tightening its carbon belt for nothing.⁴⁶ This position receives support

42. In her important body of work on natural resource commons problems, Professor Elinor Ostrom makes several definitional distinctions. She defines "[c]ommons" as "systems, such as knowledge and the digital world, in which it is difficult to limit access, but one person's use does not subtract a finite quantity from another's use." See Elinor Ostrom, *The Challenge of Common-Pool Resources*, 50 ENV'T 10, 11 (2008). Professor Ostrom defines "common-pool resources" as resources that are "sufficiently large that it is difficult, but not impossible, to define recognized users and exclude other users altogether. Further, each person's use of such resources subtracts benefits that others might enjoy." *Id.* The atmosphere is a common-pool resource, as are fisheries and forests. A third category is a joint property commons, like Garrett Hardin's classic sheep pasture. See *id.*; see also ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 2–3 (1990).

43. See Stephen M. Gardiner, *The Real Tragedy of the Commons*, 30 PHIL. & PUB. AFF. 387, 413 (2002) [hereinafter Gardiner, *Real Tragedy*]; Stephen M. Gardiner, *A Perfect Moral Storm: Climate Change, Intergenerational Ethics and the Problem of Moral Corruption*, 15 ENVTL. VALUES 397, 400 (2006) [hereinafter Gardiner, *Perfect Moral Storm*]. But see Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 ECOLOGY L.Q. 183 (2005) (arguing that recent collective action literature and economic modeling indicate that it is not irrational for large greenhouse gas emitters to act unilaterally to reduce their greenhouse gas emissions).

44. See Gardiner, *Real Tragedy*, *supra* note 43, at 412–13.

45. See *id.*

46. Letter from President George W. Bush to Senators Hagel, Helms, Craig, and Roberts

from game theory's account of limiting emissions.

The temporally dispersed nature of global warming adds yet another barrier to a collective solution. As Gardiner puts it, “[h]uman-induced climate change is a severely lagged phenomenon.”⁴⁷ Carbon dioxide remains in the atmosphere for centuries, if not longer.⁴⁸ Compounding this, global warming's effects on natural systems create their own feedbacks, resulting in changes occurring long after greenhouse gases enter the atmosphere. A study by chemist Susan Solomon and others found that changes in surface temperature, rainfall, and sea level are largely irreversible for more than a thousand years after emissions completely stop entering the atmosphere.⁴⁹ The deferral of many serious climate change effects means that we are faced not merely with a present-time (or spatial) collective action problem, but also with a very daunting temporal one. The first challenge presented by this lag is one of perception. It is understandable that we have a hard time experiencing today's daily activities as contributing to an increasingly intractable global problem when the effects of these normal, culturally reinforced activities will be felt only decades from now. To put this in concrete terms, every time we drive, turn on the lights, use the computer, push the button on the clothes dryer, or use any of the other myriad carbon-based, fuel-dependent appliances, we are adding to the total parts per million of CO₂ in the atmosphere. However, we cannot see, smell, or feel our emissions. They are not like the particulate matter to which everyone can point on a low air-quality day. They do not wash up on the shores of our beaches like clots of oil, plastic bags, and Styrofoam packing peanuts. Thus we do not perceive the effects of our actions, yet they are more enduring than any of these more obvious phenomena.⁵⁰

(Mar. 13, 2001), available at http://www.gcrio.org/OnLnDoc/pdf/bush_letter010313.pdf.

47. Gardiner, *Perfect Moral Storm*, *supra* note 43, at 402.

48. See IPCC, *2007: Summary for Policymakers*, in CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS 11, 16 (S. Solomon et al. eds., 2007) (“Anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks, even if greenhouse gas concentrations were to be stabilised.”); see also James Hansen et al., *Target Atmospheric CO₂: Where Should Humanity Aim?*, 2 OPEN ATMOSPHERIC SCI. J. 217, 226 (2008) (“A large fraction of fossil fuel CO₂ emissions stays in the air a long time, one-quarter remaining airborne for several centuries.”).

49. See Susan Solomon et al., *Irreversible Climate Change Due to Carbon Dioxide Emissions*, 106 PROC. NAT'L ACAD. SCI. 1704, 1704 (2009), available at <http://www.pnas.org/content/early/2009/01/28/0812721106.full.pdf+html>.

50. See GERALD T. GARDNER & PAUL C. STERN, ENVIRONMENTAL PROBLEMS & HUMAN BEHAVIOR 228–29 (2d ed. 2002) (describing the availability heuristic); Elke U. Weber, *Experience-Based and Description-Based Perceptions of Long-Term Risk: Why Global Warming Does Not Scare Us (Yet)*, 77 CLIMATIC CHANGE 103, 108–09 (2006) (describing hyperbolic discounting).

A related challenge is that the temporal lags put us in the position of setting targets for emissions based on predictions about the future, rather than certainties about the here and now.⁵¹ For a time, one such prediction was that to avoid reaching average temperature increases resulting in potentially catastrophic and irreversible trends, we had to stabilize the concentration of CO₂ in the atmosphere at somewhere between 400 and 450 parts per million.⁵² This presented a sufficiently daunting challenge, given that global emissions of CO₂ have continued to increase since 2000, to 385 ppm.⁵³ More recently, a paper authored by climatologist James Hansen and others set the target for avoiding catastrophic effects even lower, at only 350 ppm.⁵⁴ Hansen's paper is equally urgent about the relevant time frame, suggesting that if emissions are not brought under control within the next decade, "prospects for avoiding a dangerously large, extended overshoot of the 350 ppm will be dim."⁵⁵

Gardiner terms the temporal aspects of global warming a "pure intergenerational problem," and concludes that "the intergenerational analysis will be less optimistic about solutions than the tragedy of the commons analysis. For it implies that current populations may not be motivated to establish a fully adequate global regime, since, given the temporal dispersion of effects . . . such a regime is probably not in *their* interests."⁵⁶ To make matters even grimmer, the problem repeats itself with each generation, and also worsens for each subsequent generation, as the effects multiply over time and the costs of mitigating emissions and adapting to climate change increase.⁵⁷

In describing the world's (and particularly the United States') response to global climate change over the last three decades, the concept of a tragedy of the atmospheric commons seems apt.⁵⁸ We do

51. For a useful assessment and critique of framing climate policy goals in terms of greenhouse gas stabilization, see Maxwell T. Boykoff et al., *Discursive Stability Meets Climate Instability: A Critical Exploration of the Concept of 'Climate Stabilization' in Contemporary Climate Policy*, 20 GLOBAL ENVTL. CHANGE 53 (2010).

52. See Hansen et al., *supra* note 48, at 226; Martin I. Hoffert et al., *Advanced Technology Paths to Global Climate Stability: Energy for a Greenhouse Planet*, 298 SCIENCE 981, 981 (2002).

53. Hansen et al., *supra* note 48, at 218.

54. See *id.* at 226.

55. *Id.* at 227.

56. Gardiner, *Perfect Moral Storm*, *supra* note 43, at 404–05.

57. See *id.* at 405.

58. Although I find Gardiner's account compelling, it is not all that important whether Gardiner is correct to label this a true prisoner's dilemma, or whether the collective action problem is better described in some other way. See, e.g., Engel & Saleska, *supra* note 43, at 199–202 (describing the problem as "glass half full," rather than as a true prisoner's dilemma). Whatever the label, it remains the case that the world's largest emitters (now the United States and China) have yet to reduce their emissions as part of any global regime.

not have to accept the assumptions about human nature at the core of the rational choice view of collective action problems (and there is an important literature that rejects these assumptions⁵⁹) to recognize that despite knowing with increasing certainty that we should curb emissions, there currently is no global agreement or enforcement regime, and greenhouse gas emissions continue, in general, to rise.⁶⁰

C. *Political and Psychological Tragedy*

Complementing (or supplanting, depending on one's view) the rational choice theory for why the world has failed to stabilize greenhouse gas emissions, there are compelling explanations rooted in power and psychology. Murmurs about "global warming" began to seep out to the general public sometime in the 1980s,⁶¹ and the problem was known to high-level government officials even before that time.⁶² Scientific opinion was just beginning to gel during that period, yet early media coverage of the issue was confounded by the gap between how scientists talked about certainty and the way the public and politicians heard and translated scientific terms.⁶³ Complicating public perception further, the petroleum industry funded research by several climate skeptics, and despite constituting a small minority among scientists, the skeptics commanded equal time in the press.⁶⁴ Thus, rather than present a story about steady progress toward scientific certainty, much of the media coverage of climate change presented a misleading balance of views.⁶⁵ As a result, public attention wavered, and public confusion about global warming persisted even as the science became increasingly clear:

59. See OSTROM, *supra* note 42, at 191; see also MICHAEL TAYLOR, RATIONALITY AND THE IDEOLOGY OF DISCONNECTION, at xii (2006).

60. See James H. Butler, *The NOAA Annual Greenhouse Gas Index*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Sept. 10, 2010), <http://www.esrl.noaa.gov/gmd/aggi/>.

61. See Spencer Weart, *The Public and Climate 27* (July 2009) (unpublished manuscript), available at <http://www.aip.org/history/climate/pdf/Public.pdf>.

62. See Memorandum from Daniel P. Moynihan to John D. Ehrlichman (Sept. 17, 1969), available at <http://nixonlibrary.gov/virtuallibrary/documents/jul10/56.pdf> (discussing risk of global warming); Memorandum from Hubert Hefner to Daniel P. Moynihan (Jan. 26, 1970), available at <http://nixonlibrary.gov/virtuallibrary/documents/jul10/55.pdf> (same); Memorandum from Daniel P. Moynihan to John D. Ehrlichman (Aug. 13, 1970), available at <http://nixonlibrary.gov/virtuallibrary/documents/jul10/57.pdf> (same); *Moynihan, as Nixon Aide, Warned of Global Warming*, SEATTLE TIMES (July 10, 2010), http://seattletimes.nwsourc.com/html/nationworld/2012268564_apusnixonlibrarydocuments.html (describing papers recently released from the Nixon library indicating that Daniel P. Moynihan urged President Richard M. Nixon to begin a program to monitor global carbon dioxide emissions due to the potential threat to climate and risks of sea level rise).

63. See Weart, *supra* note 61, at 47–48.

64. See *id.* at 47.

65. See *id.* at 47–48.

In the early years of the new century, polls in the United States showed an outright decline in concern for global warming. Since the late 1980s, a large majority of Americans had told poll-takers that they personally worried about global warming, but the fraction who claimed they worried about it “a great deal”—roughly a third—declined in the early 2000s, and by 2004 a bare majority in the United State [sic] expressed any worry at all about global warming.⁶⁶

For a brief period between 2005 and 2008, several factors seemed to heighten both awareness and concern about climate change. The fourth report from the Intergovernmental Panel on Climate Change (IPCC),⁶⁷ and increased media discussion of climate change in the wake of Hurricane Katrina, among other causes, seemed to increase public knowledge and concern.⁶⁸ Yet awareness and concern have failed to translate into a widespread sense of urgency. Even more troubling, public acceptance that climate change is occurring and is caused by human activity has again declined. A study by the Pew Research Center for the People and the Press found that public acceptance that climate change was occurring dropped from 71% in April 2008 to 57% in October 2009.⁶⁹ During the same period, public acceptance that any warming was caused by human activity dropped from 47% to 36%.⁷⁰

There are several plausible explanations for this decline. The 2008–2009 economic meltdown displaced all other issues on the public’s priority list, and it likely knocked climate change down a notch or two.⁷¹ In addition, the psychology of climate change is complex. First, cognitive dissonance theory posits that we tend to minimize or discount facts or behaviors that are inconsistent with primary beliefs about ourselves.⁷² Cognitive dissonance helps explain why most people tend to disregard messages indicating that their normal behaviors, bound up

66. *Id.* at 59.

67. IPCC, IPCC FOURTH ASSESSMENT REPORT: CLIMATE CHANGE 2007 (AR4) (R.K. Pachauri & A. Reisinger eds., 2007), available at http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html.

68. See John M. Broder, *Climate-Change Debate Is Heating Up in Deep Freeze*, N.Y. TIMES, Feb. 11, 2010, at A1; *Katrina and Global Warming*, PEW CENTER ON GLOBAL CLIMATE CHANGE, <http://www.pewclimate.org/specialreports/katrina.cfm> (last visited Nov. 14, 2011).

69. See *Fewer Americans See Solid Evidence of Global Warming*, PEW RES. CENTER FOR THE PEOPLE & THE PRESS (Oct. 22, 2009), <http://people-press.org/report/556/global-warming>.

70. *Id.*

71. See Frank Newport, *Americans: Economy Takes Precedence over Environment*, GALLUP (Mar. 19, 2009), <http://www.gallup.com/poll/116962/Americans-Economy-Takes-Precedence-Environment.aspx>.

72. See Elliot Aronson, *The Theory of Cognitive Dissonance: A Current Perspective*, in 4 ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY 1, 2–3 (1969).

as they are with dependence on carbon emitting activities, contribute to a threat to the world as we know it.⁷³ Second, that very framing—a *threat to the world as we know it*—while accurate in many senses, is itself part of the problem. Polling data and marketing studies have indicated that threatening messages, even if (and perhaps especially if) they are accurate, tend to have a deflating effect on most of the public. Messages of alarm or emergency, particularly in the context of a problem that seems beyond individual redress, tend to result in a sense of helplessness or apathy.⁷⁴ In addition, there are problems associated with perception and cognition. According to cognitive psychologists, human beings tend to have difficulty valuing the future more than the present. Consequently, people have difficulty taking actions today for payoffs in their own future lives, let alone the lives of future generations.⁷⁵ Further, we tend to filter information about disputed public policy issues through predispositions toward certain core values.⁷⁶ This means that even as the dust settles about key aspects of climate change, some people will remain skeptical unless the message is delivered by either a trusted messenger or by one who validates core aspects of an individual's values or identity.⁷⁷

Finally, it is difficult, psychologically speaking, to keep an issue on the front burner that is knowable only through abstractions. Nobody experiences climate change directly. What we experience is weather, and weather has not yet changed in a steady, observable way that tracks (according to our sense impressions) with global warming. We tend to overvalue our own perceptions, particularly when so much is at stake in terms of setting them aside.⁷⁸ As writer Spencer Weart observed, “If you did accept climate change as something that could affect your own

73. See *id.*; Andrew J. Elliot & Patricia G. Devine, *On the Motivational Nature of Cognitive Dissonance: Dissonance as Psychological Discomfort*, 67 J. PERSONALITY & SOC. PSYCHOL. 382, 392 (1994).

74. See Anthony Leiserowitz, *Communicating the Risks of Global Warming: American Risk Perceptions, Affective Images, and Interpretive Communities*, in *CREATING A CLIMATE FOR CHANGE: COMMUNICATING CLIMATE CHANGE & FACILITATING SOCIAL CHANGE* 44 (Susanne C. Moser & Lisa Dilling eds., 2007).

75. See Chrisoula Andreou, *Environmental Preservation and Second-Order Procrastination*, 35 PHIL. & PUB. AFF. 233, 236 (2007); Dustin J. Penn, *The Evolutionary Roots of Our Environmental Problems: Toward a Darwinian Ecology*, 78 Q. REV. BIOLOGY 275, 284–85 (2003).

76. See Dan Kahan et al., *Cultural Cognition of Scientific Consensus*, 14 J. RISK RES. 147, 169 (2011).

77. See *id.*; DAN KAHAN ET AL., *THE SECOND NATIONAL RISK AND CULTURE STUDY: MAKING SENSE OF—AND MAKING PROGRESS IN—THE AMERICAN CULTURE WAR OF FACT 3–6* (2007), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1017189&.

78. See Lazarus, *supra* note 8, at 1176 (describing the cognitive psychological barrier to understanding climate change as an “unavailability heuristic” resulting in underregulation); Jeffrey Rachlinski, *The Psychology of Global Climate Change*, 2000 U. ILL. L. REV. 299, 303.

community in your own lifetime, you might feel obliged to change your pattern of consumption, and perhaps some political opinions. For many people, this was enough to raise mental barriers to further consideration.”⁷⁹

D. *Tragedy at the Highest Scales of Governance (The Role of the State, Part One)*

These intractable features of global warming point to a potentially heroic role for the state. Indeed, the need to solve collective action problems, and commons problems in particular, provided the grist for ecologist Garrett Hardin’s classic account justifying regulation (or some alternative version of governmentally imposed coordination) in the environmental context.⁸⁰ The options for the state are more plentiful, more consistent with individual liberty, and more attuned to psychological barriers than Hardin envisioned;⁸¹ nonetheless, his central insight regarding the challenges represented by common-pool resources remains apt. To save us from ourselves, or more generously, to help us collectively realize our common interests, the state must step in and inform, coordinate, coerce, nag, incentivize, or penalize us to help us do the right things for the long term.⁸² The persistent calls for federal regulation of greenhouse gas emissions recognize the irreplaceable state role in this regard.⁸³ It is therefore unsurprising that a great deal of political, scholarly, and activist effort has focused on national, and international, regimes for coordination and enforcement.⁸⁴

79. Weart, *supra* note 61, at 54–55 (discussing observations by journalists Bill McKibben and Andrew Revkin).

80. See Garrett Hardin, *The Tragedy of the Commons*, 162 *SCIENCE* 1243, 1245–46 (1968).

81. See generally RICHARD THALER & CASS SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008) (making the case for government interventions that shape individual choices to maximize welfare without intruding on liberty).

82. For a helpful catalogue of the various collective action dilemmas that call for federal government control and coordination in the environmental context, see Robert L. Glicksman & Richard E. Levy, *A Collective Action Perspective on Ceiling Preemption by Federal Environmental Regulation: The Case of Global Climate Change*, 102 *NW. U.L. REV.* 579, 616–37 (2008) (analyzing different collective action problems in the context of whether they justify federal ceiling preemption of state efforts to regulate greenhouse gases); see also THALER & SUNSTEIN, *supra* note 81, at 14.

83. See Lazarus, *supra* note 8, at 1205–31 (discussing design strategies for federal law to overcome various and severe temporal and spatial challenges of climate change).

84. See FARHANA YAMIN & JOANNA DEPLEDGE, *THE INTERNATIONAL CLIMATE CHANGE REGIME: A GUIDE TO RULES, INSTITUTIONS AND PROCEDURES* 1 (2004); Yasuko Kameyama, *The Future Climate Regime: A Regional Comparison of Proposals*, 4 *INT’L ENV’T AGREEMENTS: POL., LAW & ECON.* 307, 310–12 (2004); Jonathan B. Wiener, *Think Globally, Act Globally: The Limits of Local Climate Policies*, 155 *U. PA. L. REV.* 1961, 1962 (2007); see also William Pizer, *RESOURCES FOR THE FUTURE: A U.S. PERSPECTIVE ON FUTURE CLIMATE REGIMES* 1 (2007), available at <http://rff.org/Documents/RFF-DP-07-04.pdf>.

Thus, there are very few commentators (aside from climate skeptics) who do not advocate for some kind of national, and ultimately international, emissions control regime.⁸⁵ Yet such a regime has not materialized. To date, there is no federal legislation controlling greenhouse gas emissions,⁸⁶ and none appears to be on the horizon.⁸⁷ At the international level, events in Copenhagen in December 2009 failed to produce a binding multilateral treaty,⁸⁸ and the idea of achieving one is on life support, at best. The news is not all bad on these fronts, though. Absent mandatory federal emissions limitations, the federal government has taken other steps to put a climate change mitigation regime in place. Federal legislation has funded climate science and clean energy development, and has encouraged technology transfer.⁸⁹ Recently, federal agencies have begun to take climate change seriously, issuing endangerment findings for greenhouse gases, and taking a range of actions to coordinate climate planning and adaptation efforts.⁹⁰ In the

85. Even scholars highlighting the unique contributions that local and state governments can make recognize the need for national regulations. See Trisolini, *supra* note 10, at 745–46; Engel & Saleska, *supra* note 43, at 233 (concluding that unilateral action by subnational governments can make meaningful contributions to climate change, but acknowledging that “cooperative international standards . . . remain the optimal framework for addressing global commons problems”).

86. Federal legislation has addressed some aspects of clean energy development and technology transfer, and Congress has funded climate change research. See *Climate Change Statutory Citations*, NAT’L AGRIC. LAW CTR., www.nationalaglawcenter.org/assets/climate_change/federal.pdf (last visited Nov. 14, 2011). Despite episodic momentum for a federal law that would put a price on carbon, no such statute has emerged from Congress for presidential signature. See American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009); Carl Hulse & David M. Herszenhorn, *Democrats Call Off Effort for Climate Bill in Senate*, N.Y. TIMES, July 23, 2010, at A15; see also RACHEL GOLD ET AL., ENERGY EFFICIENCY IN THE AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009: IMPACTS OF CURRENT PROVISIONS AND OPPORTUNITIES TO ENHANCE THE LEGISLATION 1 (2009), available at <http://cdn.publicinterestnetwork.org/assets/A1T3ezw8Sq4kOKenw2HQqg/E096.pdf>; JOHN LARSEN, WORLD RES. INST., EMISSIONS REDUCTIONS UNDER POLLUTION REDUCTION PROPOSALS IN THE 111TH CONGRESS (2010), available at http://pdf.wri.org/usclimatetargets_2010-06-08.pdf.

87. DEAN SCOTT, WITH NO FEDERAL LEGISLATION ON HORIZON, OFFICIAL SAYS LOCAL CLIMATE EFFORTS CONTINUE (2010), available at <http://www.naem.org/resource/resmgr/docs/inthenews-localclimate.pdf>.

88. See JANE LEGGETT, CONG. RESEARCH SERV., R40001, A U.S.-CENTRIC CHRONOLOGY OF THE INTERNATIONAL CLIMATE CHANGE NEGOTIATIONS 4–5 (2011), available at <http://www.nationalaglawcenter.org/assets/crs/R40001.pdf>.

89. See NAT’L AGRIC. LAW CTR., *supra* note 86.

90. See Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496 (Dec. 15, 2009) (to be codified at 40 C.F.R. ch. 1); Sec. of the Int., Order No. 3289 (Sept. 14, 2009), available at <http://www.doi.gov/archive/climatechange/SecOrder3289.pdf>; COUNCIL ON ENVTL. QUALITY, DRAFT NEPA GUIDANCE ON CONSIDERATION OF EFFECTS OF CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS 1 (2010), available at http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FINAL_02182010.pdf.

international arena, the Kyoto accords stimulated Europe's carbon trading and regulation system, and spawned a host of other transregional efforts, either directly or indirectly.⁹¹ Something has been done at the higher levels of coordination—but it is much less than what has been repeatedly called for, and it is far less than what is required to stabilize the climate.

E. *The Localization of Climate Law*

Despite (or perhaps due to) relative inaction at the federal level, efforts have sprung up at the subnational level.⁹² Regions, states, and cities have undertaken programs to address greenhouse gas emissions and to develop renewable energy alternatives.⁹³ State-level activities range from maintaining greenhouse gas inventories to implementing greenhouse gas emissions limitations.⁹⁴ California has led these efforts by imposing emissions limitations on motor vehicles⁹⁵ and by establishing firm goals for reducing the state's greenhouse gas emissions to 1990 levels by 2020.⁹⁶ California's climate regime now consists of caps on emissions by certain industries, a nascent trading and offset program, and a timeline for further reducing emissions in order to meet emissions reductions goals.⁹⁷ Cities have also become engaged.⁹⁸ As Professor Katherine Trisolini has documented, cities have

91. See PEW CTR. ON GLOBAL CLIMATE CHANGE, CLIMATE CHANGE MITIGATION MEASURES IN THE EUROPEAN UNION 2–5 (2009), available at <http://www.pewclimate.org/docUploads/eu-fact-sheet-12-05-09.pdf> (describing measures taken to reduce greenhouse gas emissions throughout Europe).

92. Engel & Saleska, *supra* note 43, at 215, 217, 219–23 (describing categories of state climate action and theorizing that subnational activities are rationally motivated at least in part by desire to undertake symbolic action on a serious problem); see also J.R. DeShazo & Jody Freeman, *Timing and Form of Federal Regulation: The Case of Climate Change*, 155 U. PA. L. REV. 1499, 1521–26, 1528–30 (2007) (analyzing state plans).

93. For an overview of state and regional initiatives, see *U.S. States and Regions*, PEW CTR. ON GLOBAL CLIMATE CHANGE, <http://www.pewclimate.org/states-regions> (last visited Nov. 14, 2011).

94. See *id.*; see also Kevin L. Doran, *U.S. Sub-Federal Climate Change Initiatives: An Irrational Means to a Rational End?*, 26 VA. ENVTL. L.J. 189, 208–10 (2008).

95. See *Climate Change Emission Control Regulations*, CAL. ENVTL. PROT. AGENCY, AIR RES. BD., http://arb.ca.gov/cc/factsheets/cc_newfs.pdf (Dec. 10, 2004); *California Vehicle Standards*, PEW CTR. ON GLOBAL CLIMATE CHANGE, http://www.pewclimate.org/what_s_being_done/in_the_states/vehicle_ghg_standard-moreinfo.cfm (last visited Nov. 14, 2011); see also Kevin M. Davis, *The Road to Clean Air Is Paved with Many Obstacles: The U.S. Environmental Protection Agency Should Grant a Waiver for California to Regulate Automobile Greenhouse Gas Emissions Via Assembly Bill 1493*, 19 FORDHAM ENVTL. L. REV. 39, 40 (2009) (“California has taken a leadership role in reducing greenhouse gas emissions.”).

96. See CAL. HEALTH & SAFETY CODE §§ 38550, 38561(a)–(c) (West Supp. 2011).

97. See *Assembly Bill 32: Global Warming Solutions Act*, CAL. ENVTL. PROT. AGENCY, AIR RES. BD., <http://www.arb.ca.gov/cc/ab32/ab32.htm> (last visited Nov. 14, 2011).

98. See Maïke Sippel & Till Jenssen, *What About Local Climate Governance? A Review*

harnessed their core regulatory powers over matters such as zoning, transportation planning, construction, and waste disposal to play what may be a crucial role in larger climate mitigation policy.⁹⁹

Most intriguingly, in light of the pure intergenerational collective action features of climate change and the psychological barriers to perceiving and acting on climate change discussed above,¹⁰⁰ individuals and communities have formed relatively informal local initiatives to address climate change.¹⁰¹ Attending to these local efforts makes sense for two reasons; one is instrumental, the other is not. First, as Professor Michael Vandenbergh and others have discussed, individual attitude and behavior change will be an important part of any successful effort to reduce greenhouse gas emissions.¹⁰² Local climate action groups are composed of “early adopters” of these types of changes, and thus provide role models, as well as insight into strategies that might be successful for the broader public. Second, the motivations, practices, and ethical worldviews articulated by participants in these groups may provide a blueprint for individual and community action, even in a world where state coordination and enforcement either never fully materialize, or do and nonetheless fail to achieve their stated goals.¹⁰³

II. LOCAL CLIMATE ACTION GROUPS: WHAT, HOW, AND WHY

The political and psychological barriers to widespread public concern about global warming may actually help to explain why smaller communities started taking action to reduce greenhouse gas emissions well before climate change made its way onto the national agenda. In smaller communities, affinities of value, politics, and culture can

of Promise and Problems 1, 33 (Inst. of Energy Econ. & Rational Energy Use, 2009), available at <http://ssrn.com/abstract=1514334> (noting the “substantial potential” of local governments to implement climate protection measures); *U.S. Mayors Climate Protection Agreement*, CITY OF SEATTLE 1, <http://usmayors.org/climateprotection/documents/mcpAgreement.pdf> (last visited Nov. 14, 2011) (stating that cities throughout the country are working on climate action measures).

99. See Trisolini, *supra* note 10, at 694–734.

100. See Kahan et al., *supra* note 76, at 147–48, 152.

101. See discussion *infra* Part II.

102. See Gert Cornelissen et al., *Cueing Common Ecological Behaviors to Increase Environmental Attitudes*, in *PERSUASIVE TECHNOLOGY* 39, 42 (Wijnand IJsselsteijn et al. eds., 2006); Pam Scholder Ellen et al., *The Role of Perceived Consumer Effectiveness in Motivating Environmentally Conscious Behaviors*, 10 *J. PUB. POL’Y & MKTG.* 102, 102, 105 (1991); Richard D. Katzev & Theodore R. Johnson, *A Social-Psychological Analysis of Residential Electricity Consumption: The Impact of Minimal Justification Techniques*, 3 *J. ECON. PSYCHOL.* 267, 268–69, 271, 283 (1983); Vandenbergh & Steinemann, *supra* note 7, at 1673, 1675–77, 1689.

103. Ostrom’s advocacy of the polycentric approach stems from the difficulties presented by formulating a top-down global solution, as well as the benefits of local engagement. See Ostrom, *supra* note 3, at 23 n.9, 32–33.

overcome the epistemological and psychological barriers that inhibit the public at large.¹⁰⁴ Indeed, the cities that have taken the lead in formulating and implementing climate action plans tend to be ones with populations whose demographic profiles are the most likely to believe that climate change is happening, and rate it as an urgent problem. In 1993, Portland, Oregon, became the first city to adopt a strategy for reducing carbon dioxide emissions. In June 2005, Portland issued a “Progress Report” which concluded that the city and surrounding county had reduced per capita emissions by 12.5% since 1993.¹⁰⁵ Other cities joined Portland in establishing emissions reduction targets. To unite and further catalyze these efforts, Mayor Greg Nickels of Seattle created the U.S. Mayors Climate Protection Agreement (MCPA), to which there were nine original signatories (all of which might be, with the possible exception of Salt Lake City, on Rush Limbaugh’s Most Dangerous Places in America list): Boulder, Colorado; Burlington, Vermont; Minneapolis, Minnesota; Portland, Oregon; Redmond, Washington; Salt Lake City, Utah; Santa Monica, California; San Francisco, California; and Seattle, Washington.¹⁰⁶ The MCPA urges action at the federal and state levels and advocates policies that meet, or surpass, the Kyoto target of reducing global warming pollution to 7% below 1990-levels by 2012. The Agreement also states that signatory mayors will strive to meet or exceed the Kyoto targets within their own communities by creating an inventory of emissions in their cities, setting reduction targets, and increasing use of alternative energy sources.¹⁰⁷ More than 1,000 mayors have now signed the agreement.¹⁰⁸ Similarly, more than 500 cities have joined the Cities for Climate Protection Campaign (CCP), which is under the auspices of the International Council for Local Environmental Initiatives. CCP cities pledge to reduce emissions using agreed-upon criteria and

104. See Robert B. Cialdini, *Crafting Normative Messages to Protect the Environment*, 12 CURRENT DIRECTIONS IN PSYCHOL. SCI. 105, 109 (2003); P. Wesley Schultz, *Changing Behavior with Normative Feedback Interventions: A Field Experiment on Curbside Recycling*, 21 BASIC & APPLIED SOC. PSYCHOL. 25, 31–33 (1998).

105. See PORTLAND ONLINE, A PROGRESS REPORT ON THE CITY OF PORTLAND AND MULTNOMAH COUNTY LOCAL ACTION PLAN ON GLOBAL WARMING 1 (June 2005), <http://www.portlandonline.com/shared/cfm/image.cfm?id=112118>.

106. See Andre Robert De Fontaine, *Taking the Temperature: Investigating the Factors that Drive Cities to Join the Mayors Climate Protection Agreement* 49–50 (Apr. 16, 2007) (unpublished MPP thesis, Georgetown University Graduate School of Arts & Sciences), available at http://aladinrc.wrlc.org/bitstream/1961/4157/1/etd_822542235.pdf.

107. *U.S. Mayors Climate Protection Agreement*, *supra* note 98.

108. See *Map of Participating Mayors*, MAYORS CLIMATE PROT. CTR., <http://www.usmayors.org/climateprotection/map.asp> (last visited Nov. 14, 2011) (reporting 1,054 participants as of Nov. 14, 2011); see also *List of Participating Mayors*, MAYORS CLIMATE PROT. CTR., <http://www.usmayors.org/climateprotection/list.asp> (last visited Nov. 14, 2011) (listing names of 1,054 participants).

measurements.¹⁰⁹

The initiatives discussed and explored below are even further down the scale. In the United States, England, Canada, and elsewhere, groups of individuals have come together to create communities centered on reducing individual greenhouse gas emissions, increasing public awareness, and promoting activism regarding climate change. Rather than continuing to theorize about how, and why, such groups form, the Sections below discuss the responses of participants in these groups and draw on other sources of information that the groups themselves make available.

A. *Local Climate Action Initiatives Up Close*¹¹⁰

1. A Sunday Afternoon in Boulder, Colorado

On Sunday, June 14, 2009, at 2:00 p.m., a group of roughly thirty people arrived at the home of Dan Friedlander in the Shanahan Ridge neighborhood of Boulder, Colorado.¹¹¹ Shanahan Ridge is on the south side of town, perched just below the “Blue Line” that Boulder established in the 1950s to ensure that development would creep no further into the mountains. The people ranged in age from early twenties through sixties, with a few apparently over sixty-five. Most were over forty, with just a few twenty- and thirty-somethings. Dress was casual; people were not wearing fancy clothes, jewelry, or much makeup. They also were not, as one version of a Boulder stereotype might have it, tricked out in expensive workout gear with muscles bulging through their quick-dry shirts. It was an ordinary-looking group—nice, unassuming. They had gathered for the Shanahan Ridge Neighbors for Climate Action Tour of Energy Efficient Homes.

109. See Trisolini, *supra* note 10, at 676. While several cities have taken serious steps toward achieving the MCPA and CCP goals, for most, the efforts remain fairly symbolic. However, the nine original cities that were signatories to the MCPA have each taken measures that move *beyond* the symbolic, as have Berkeley and San Francisco. See De Fontaine, *supra* note 106, at 49. The general lack of practical efforts is understandable, though, in that city governments are limited in their ability to address some core aspects of energy, transmission, and pollution control policy. See Engel & Saleska, *supra* note 43, at 200–01, 215; Hari M. Osofsky, *Climate Change Legislation in Context*, 102 NW. L. REV. COLLOQUY 245, 247–48 (2008); Hari M. Osofsky & Janet Coven Levit, *The Scale of Networks?: Local Climate Change Coalitions*, 8 CHI. J. INT’L L. 409, 413 (2008). Cities can, however, affect patterns of energy consumption, promote energy efficiency, and create programs designed to encourage alternative transportation. Cf. Alice Kaswan, *Climate Change, Consumption, and Cities*, 36 FORDHAM URB. L.J. 253, 280 (2009) (arguing that cities can play significant roles in reducing greenhouse gas emissions through land use planning, transportation infrastructure, and green building requirements); Trisolini, *supra* note 10, at 695.

110. The dialogue featured in this Section was paraphrased from the author’s notes.

111. Notes from Tour of Energy Efficient Homes (June 14, 2009) (on file with author). The descriptions and quotations in this Subsection are all from this source.

Don Allen's house, just a few doors down the street, was the first stop on the tour. The featured item was blown-in insulation. As he described the process of injecting foam insulation into the space between the exterior and interior walls of his home, Don, who appeared to be in his seventies, was dressed in crisp khaki shorts and a navy polo shirt. He pointed out the small holes that had been cut out of the exterior walls, and then plastered and painted over. Questions from the crowd ensued, and Don did his best to answer them all: "What happened to the previous insulation?" "It gets pushed aside by the cellulose that is blown in."; "Does it feel warmer?" "It does not feel warmer, but the furnace does not have to stay on as much to keep it just as warm."; "What is the R-factor of the insulation?" Don did not know the answer to that one; and finally, "How much did it cost?" "Roughly \$1,200." Don also had solar photovoltaic (PV) panels on his roof; however, these were not the focus of this stop on the tour. Don described the process he undertook to decide which energy saving and power generating changes to make to his home. He first got an energy audit and then decided what steps to take from there.

The second stop on the tour was around the corner, at Henry Mueller's house. Henry's home featured solar panels which laid flat to the roof and faced east. "I chose to have them face east, and lie flush to the roof, rather than raise them for the southern exposure. This was solely an aesthetic choice. I'm an architect, and I do not like the look of the raised panels. They make the house seem like an engineering feat rather than a home." Unlike Don Allen, Henry installed his solar panels before getting a home energy audit, but realized that he should have done things in reverse order. "The home is a 1970s McStain home," Henry told the group, "and has common McStain problems, such as two-by-four construction, which allows only R-11 to R-13 insulation in the walls. Crawl spaces are not insulated; the house has an inefficient joint structure, with lots of angles, which makes for lots of leakage." For the solar panels, Henry received a 3.98 per watt rebate from Excel (Boulder's electric utility company), a rebate which might have been higher but for his choice to have the panels face east rather than south. Still, he now generates more energy than he uses with his 4.92 kilowatt system. One advantage of the east-facing panels is that they have a chance to cool off, making them operate more efficiently. Henry described the other changes he made to increase the energy efficiency of his home: window quilts on the interior of the windows, which retain heat during cold weather and insulate against it in the summer ("You can order them or get kits at Joanne's Fabrics," one of the tour leaders volunteered.); exterior shutters, which reflect the heat during the day ("My green building guru swears by them," Henry added.); and an evaporative cooler mounted on the exterior of the house, which uses

one-third of the energy a traditional air conditioner uses (“Excel has rebates on evaporative coolers.”). Henry continued:

Regarding windows, you get the most R-value for medium-insulating windows plus window quilts or other interior or exterior insulation, as opposed to the highest insulating, most expensive windows, which cost more but do not do a better job of reflecting heat in summer or retaining it in winter as my combination approach.

The group shuffled off, and some members quickly jotted down notes of the many tips Henry had shared.

The third stop, Judy Beler’s home, demonstrated an energy audit in action. Eric, the energy auditor, explained that when he does an energy audit, he first looks at everything in the structure of the home (such as insulation and sealing), then he assesses the appliances, and finally, he examines energy sources. Eric led the tour group to Judy’s basement to check out her water heater. Several members of the tour crammed into the closet-sized space, while the rest peered in from the stairway. The water heater’s copper pipes had been wrapped with insulation. “Builders need to learn to do this,” commented Eric. Next, he described the inefficiencies of the heater itself. “Old water heaters waste lots of energy because they heat the huge tank first. You can lower energy use first by lowering the temperature on your water heater.” Eric cut through the crowd and led the tour group back upstairs. “In terms of insulation, the Department of Energy suggests R-18 for walls and R-38 for cathedral ceilings,” Eric said, while pointing at Judy’s walls and high living room ceiling. Eric then demonstrated an audit test that sucked the air out of the house to see where the leaks were located. A large reverse fan was mounted in a living room window, and Eric held an infrared camera to locate the leaky spots. Members of the tour moved around Judy’s living room and dining room, putting their hands in front of electric sockets, wall joints, and fireplaces. “You can feel the air coming in here,” commented one member of the group, hand poised near a socket. Judy and Eric also pointed out Judy’s Home Energy Monitor (also known as a Power Cost Monitor), which shows how much energy you are using at any given moment and from what sources. “These are available at McGuckin’s for \$180. Just seeing how much energy you use, and seeing how it can go down with little things, helps save energy,” commented Eric. “Identifying how much you use helps a lot—I reduced my energy consumption by 8% just with this monitor,” added Judy.

After Judy’s, the official three-home tour was over, and the group headed back to Dan Friedlander’s house for a reception. Dan’s living room has floor-to-ceiling windows on the east side, providing a

panoramic, almost vertigo-inducing view of Boulder as the city tumbles downhill and then fades into the plains. Asphalt ribbons line the way toward Denver. “What kind of windows do you have?” inquired one of the visitors. “The highest insulating ones. We wanted the view, and the window provides passive solar light and heat, so for us it was a good balance.” The guests milled about, snacking on fruit, cheese, and crackers and asking follow-up questions of the people whose homes had been on the tour. After a few minutes, Dan hushed the crowd to make some remarks:

We want to change the world . . . [, but] it is not easy to change the world. We can do it by first changing our relationships with each other. We live in a suburb, let’s be honest about that, and suburbs can be very, very depersonalizing, bad for our moral sense and bad for our ability to relate to one another. . . . We have been through a process led by Larry to focus on balancing between the community and global warming. When Judy asks you to volunteer for a few hours, we want to build a stronger community . . . we don’t want it to feel like something else you have to do, we want it to be valuable for you too . . . we want it be morally and personally valuable. . . . You change the world by changing your construction of the world around you . . . which is your own community.

When Dan was finished, Henry Mueller took the floor. “We, the Shanahan Neighborhood for Climate Action, are examples for the other groups forming throughout the city of Boulder. Boulder is an example for the whole country. So what we are doing here really is making a difference.” Dan then followed up again: “How do you form community? It is an uphill battle, so give a big hand to the folks who volunteered their homes today. Then raise your hand to be the next to help out.” Dan then paired those who had raised their hands with an active member of the group to provide them with a contact and support to reinforce their impulse to get involved. A third person, a cohost of the event who had been minding the drink table, then spoke: “I am Larry Bangs, and I want to add that it is not just about volunteering. We also want to get to know each other. We want to have fun! We want to reinvigorate a sense of neighborliness and community. You don’t *have* to work; we just want to get to know you.” Beth Powell, a Boulder employee implementing the city’s ClimateSmart program, whose mandate includes supporting neighborhood efforts, added a few words: “People from twenty-eight neighborhoods have contacted me to start their own groups. Shanahan has led the way.”

The event came to a conclusion, and visitors took cards, bought “Shanahan Neighbors for Climate Action” organic cotton T-shirts, and asked some final questions. One guest asked Dan, one of the founders of the Shanahan Ridge group and a clear leader on these issues, about his motivations. He replied:

Carbon is a poison. Efficiency is one way to address it. Also, conservation and creating new sources of energy, through renewable sources, have to happen. Efficiency is not going to solve the problem alone. We can't think that or we will become disillusioned, but it is a major part, and we can control it and lead by example. That's why we are starting here. We can do something, and at the same time we can build an engaged community.

2. Building Community: Tearing Down the Old Energy Economy?

The Shanahan Ridge Neighbors for Climate Action is one of several types of local groups that have organized around the goal of doing something about climate change. The Tour of Energy Efficient Homes is one of the events that the Shanahan Ridge group produced in the last few years, and other neighborhood groups in Boulder are beginning to follow suit. In other cities that are also members of the Mayors Climate Action Plan, similar groups have formed, or are now forming.¹¹² Even in some places where the surrounding community is less involved, climate action groups of varying degrees of formality have coalesced. In addition, a movement known as Carbon Rationing Action Groups (CRAGs) has taken hold in England. CRAGs are the most intense versions of neighborhood groups, organized around providing accountability for individual emissions reductions.¹¹³ The CRAG scheme, described in detail below, is a small-scale version of a per capita emissions regime.¹¹⁴

These groups can be viewed through a variety of different lenses, all of them relevant to the quandary of addressing climate change. First, under any scenario for stabilizing atmospheric greenhouse gases within the range of acceptable concentration levels, reductions in individual and household energy use are part of the solution.¹¹⁵ This is particularly

112. See Carolyn Jones, *Berkeley Nudging Residents to Cut the Carbon*, S.F. CHRON., Jan. 20, 2009, at B1, available at <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2009/01/20/BA3J15C3EC.DTL>.

113. See Andy Ross, *CRAGs: A Short Guide*, CARBON RATIONING ACTION GROUPS (July 24, 2006), <http://www.carbonrationing.org.uk/wiki/crags-a-short-guide?>.

114. *Id.*

115. See Pacala & Socolow, *supra* note 5, at 971; Vandenbergh & Steinemann, *supra* note 7, at 1695 (recommending reduced energy consumption, whether through efficiency gains or behavior changes, as part of the solution); see also MIDDLE CLASS TASK FORCE, COUNCIL ON

true in the United States, which in 2009 had the second highest per capita rate of emissions of all the countries studied by the Netherlands Environmental Assessment Agency.¹¹⁶ Social psychology literature supports the general notion that neighborhood groups can play an important role in fostering attitude and behavior change,¹¹⁷ and whether consciously or not, many of the strategies found to be successful in psychological studies have been internalized (in varying degrees) by these groups.¹¹⁸ Local climate action groups are therefore a living experiment in strategies for reducing individual energy consumption. Second, and less directly instrumental, the highly motivated individuals who are involved in these groups can shed light on the values, norms, and identities that support taking action against the mother of all collective action problems. Third, as Part III discusses, these groups may be cultivating the values and norms necessary to live in a world that has failed to rein in climate change.

3. A Brief Word on Methodology

My assessment of local climate action groups was qualitative, attempting to reveal what participants had to say about what they were doing and why they were doing it, rather than to unearth hard data about emissions reductions. (While that would be interesting information, it would be a different study and result in a different paper.) To assess the what, how, and why of local climate action, I conducted interviews by e-mail, in person, or over the telephone. In addition, I collected similar information from individuals' self-reporting on Web sites and in discussion groups. I asked participants about their background; their history of other environmental or political activism; their motivations

ENVTL. QUALITY, RECOVERY THROUGH RETROFIT 1, 3–4 (2009), available at http://www.whitehouse.gov/assets/documents/Recovery_Through_Retrofit_Final_Report.pdf (recommending use and coordination of stimulus funds to create jobs and spur investment in increasing home energy efficiency).

116. See J.G.J. OLIVIER & J.A.H.W. PETERS, NETHERLANDS ENVTL. ASSESSMENT AGENCY, NO GROWTH IN TOTAL GLOBAL CO₂ EMISSIONS IN 2009, at 6, tbl.3.1 (2010), available at <http://www.rivm.nl/bibliotheek/rapporten/500212001.pdf> (stating the United States per capita emissions in 2009 were 17.2 metric tons, with only Australia having a higher rate, of 18.8 metric tons per capita).

117. See STEWART BARR, ENVIRONMENT AND SOCIETY: SUSTAINABILITY, POLICY AND THE CITIZEN 247 (2008) (noting the importance of community support for environmental behavior); Schultz, *supra* note 104, at 25–26.

118. The groups' structures and activities include a variety of strategies and techniques that have been found to encourage attitude and behavior change, including affirmation, attribution, cueing, and pledges. See Cornelissen et al., *supra* note 102, at 39–43 (describing effectiveness of cueing strategies); Katzev & Johnson, *supra* note 102, at 283 (describing effectiveness of pledges); Richard Miller et al., *Attribution Versus Persuasion as a Means for Modifying Behavior*, 31 J. PERSONALITY & SOC. PSYCHOL. 430, 433 (1975) (describing effectiveness of attribution versus persuasion in encouraging environmental behavior change).

for reducing their carbon footprint; any particular catalysts that pushed them to take action; the actions they had taken to reduce their individual emissions; their perception of the role that the neighborhood group or CRAG played in their individual actions; their knowledge about geoengineering solutions¹¹⁹ and their opinions about these solutions; their sense of optimism about the future; and their explanation of their actions if they were not optimistic about the future.¹²⁰ The rationale for the first questions—background, history of other activism, motivations, actions, and effects of group participation—is obvious. These questions relate directly or indirectly to the object of study—what people are willing to do on their own or in small groups to reduce their greenhouse gas emissions, and why they are willing to do it. The surveys included the geoengineering question for two reasons: First, it sheds light on the depth of knowledge that participants have about the issues surrounding climate change. (It is a proxy, in some sense, for levels of engagement about the issue.) Second, it might also deepen our understanding of the participants' motivations and outlook in a way that they might not express directly. Similar to reactions to nuclear power as a low-carbon alternative (about which the survey did not ask), I hypothesized that reactions to geoengineering might correlate with background values of anti-growth (if anti-geoengineering) versus technological optimism and pro-growth (albeit sustainable growth) if in favor. The extent to which this appeared to be the case is discussed below. Finally, the questions about optimism were seeking to deepen the explanation of motivations. These questions probed whether participants had thought about the potential futility of their actions, and if so, how they explained to themselves why they were taking these actions anyway. The hope in asking these questions was that this would lead to more philosophical answers than merely asking about motivations alone, and also that the responses might shed some light on debates about altruism, happiness, and related meaning-of-life topics.

4. Carbon Rationing Action Groups

a. Background

Carbon Rationing Action Groups (CRAGs), which began in England, are composed of groups of people who have committed

119. Geoengineering is “the deliberate large-scale intervention in the Earth’s climate system, in order to moderate global warming.” ROYAL SOCIETY, GEOENGINEERING THE CLIMATE: SCIENCE, GOVERNANCE AND UNCERTAINTY ix (Sept. 2009). Methods include carbon dioxide removal (such as ocean seeding and carbon storage) and solar radiation management (such as aerosol spraying and reflective apparati). *Id.* at 47.

120. See NCAG and CRAG Questionnaires (on file with author).

themselves to reducing their individual carbon footprints.¹²¹ The main aims of the CRAG scheme are:

- To make us all aware of our personal CO₂ footprint;
- To find out if [the CRAG scheme] can help us make radical cuts in our personal CO₂ emissions[;]
- To help us argue for (or against!) the adoption of similar schemes at a national . . . and/or international (C&C) level[;]
- To build up solidarity between a growing community of carbon conscious people[; and]
- To share practical lower-carbon-living knowledge and experience.¹²²

In England, the average citizen contributed 5.4 metric tons of CO₂ emissions to the atmosphere in 2003.¹²³ The CRAG assumption is that “a sustainable level of personal CO₂ emissions may be as low as about 0.6 [metric tons] . . . a 90% reduction from [2003.]”¹²⁴ To reach this level by 2030, which might be necessary to “avoid dangerous and potentially runaway climate change,” requires a rate of emissions reductions of 10% per year.¹²⁵ There are five categories that make up individual CO₂ emissions: air travel, household heating, car use, household electricity consumption, and public transportation.¹²⁶ With this as the background, the CRAG method is to have individual CRAG members set annual emissions targets based on four of the five categories, excluding public transportation for simplicity. The personal carbon ration for each group member is set by consensus at the beginning of each “carbon year.”¹²⁷ Members report to the group’s “carbon accountant” the basics of their living circumstances—whether they live alone or with others; how their home is heated; whether electricity comes from any renewable resources; whether other household members are CRAG members; whether they own a car—so that their CO₂ is accurately counted. The carbon accountant then establishes a “carbon account” for the CRAG member, who reports her carbon-emitting activities (energy bills, plane travel, etc.) to the accountant throughout the year so that her account can be properly

121. See Andy Ross, *CRAGs a Short Guide*, CARBON RATIONING ACTION GROUPS (July 24, 2006), <http://www.carbonrationing.org.uk/wiki/crag-a-short-guide>.

122. *Id.*

123. *Id.*

124. *Id.*

125. *Id.*

126. *Id.*

127. *Id.*

debited.¹²⁸ Sometime during the first quarter of the carbon year, the CRAG decides on a rate per kilogram of CO₂. If at the end of the carbon year, a member has exceeded her ration, she has to pay a “carbon debt” to the group, based on the agreed-upon rate.¹²⁹ The funds may be used to reward those who have met or exceeded their goal, invested in causes chosen by the group, or used by the group to buy offsets in the European market.¹³⁰

There are currently twenty-six active CRAGs that have set their rules and started at least one carbon year—twenty in the United Kingdom, four in the United States, and one each in Canada and China; additionally, there are thirteen startup CRAGs which are still recruiting, or have not set their rules or started their carbon year—eleven in the United Kingdom, two in the United States, and one in Canada.¹³¹ Perhaps because their goals are so lofty and their scheme of individual carbon quotas seems extreme, CRAGs have received a fair amount of media coverage. NPR, BBC, CBS News, and other media outlets have reported on CRAGs. Their members have been quoted about their carbon savings, the group dynamic, and their personal motivations.¹³² In addition, some CRAG members, when contacted, indicated that other researchers had also contacted them and asked them for various kinds of information. Despite this, no other publication has addressed the motivational, affective, and behavioral questions discussed below.

128. *Id.*

129. *Id.*

130. *See Some (More?) Thoughts on Using the EU Emissions Trading Scheme*, CARBON RATIONING ACTION GROUPS (Dec. 8, 2006), <http://www.carbonrationing.org.uk/fora/threads/so-me-more-thoughts-on-using-the-eu-emissions-trading-scheme> (discussing idea of purchasing offsets outside of the CRAG group instead of trading carbon within it to maximize total emissions reductions).

131. *See CRAG Groups*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/groups?country=global> (showing CRAGs on a global scale) (last visited Nov. 14, 2011); *CRAG Groups*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/groups?country=uk> (showing the number of active CRAGs in the United Kingdom) (last visited Nov. 14, 2011); *CRAG Groups*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/groups?country=us> (showing the number of active CRAGs in the United States) (last visited Nov. 14, 2011); *CRAG Groups*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/groups?country=ca> (showing the number of active CRAGs in Canada) (last visited Nov. 14, 2011); *CRAG Groups*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/groups?country=cn> (showing the number of active CRAGs in China) (last visited Nov. 14, 2011).

132. *See CRAGs in the Media*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/wiki/crags-in-the-media?> (last visited Nov. 14, 2011).

b. Responses

i. Motivations and Catalysts

CRAG members identified a range of motivations for limiting their own carbon emissions. One respondent reported being motivated by a general concern about global warming and a desire to “do something about [it] and help other people to act in a way that would generate consciousness for a larger movement.”¹³³ Another stated that, although he has been “a green” for twenty years, “carbon emissions and climate change is [sic] the biggest challenge we face.”¹³⁴ Another reported that “two books and a march” motivated him to found UK CRAGs.¹³⁵ One of the books, *High Tide*, “brings disturbing news from a warming world,” and the other, *How We Can Save the Planet*, “explains the idea of carbon rationing.” Another CRAG member described her motivations as twofold: First, “it’s hypocritical to argue for global and national reductions unless I make personal reductions too.”¹³⁶ Second, “managing my own footprint is the best way of learning more about the challenges and solutions.”¹³⁷ For another, the predominant motivator was the appeal of the CRAG method: “We obviously need effective carbon policies, and rationing was looking disturbingly like the only feasible and somewhat equitable option.”¹³⁸

In summary, the motivations reflect a desire to make headway on what participants see as an urgent problem, to lead others by example and inspiration, to live consistently with environmental and other moral values, and to participate in a process that seems fair and right. Some respondents also referred to books or other sources of factual information as catalysts.

ii. Individual Behavior Changes and Their Efficacy

The individual actions taken by CRAG members to reduce their carbon footprints are often quite dramatic. One respondent heats his home with two smoke-free woodstoves, which he fuels with found waste wood; does not own a car; uses a bicycle, walks, or uses public transportation to travel; does not fly (and has not flown since 1997);

133. Interview with Shannon Moore, Maryland CRAG Founder (Feb. 18, 2009) (on file with author).

134. Interview with John Cossham, UK CRAG Member (Feb. 18, 2009) (on file with author).

135. E-mail from Andrew Ross, Founder of UK CRAGs, to Sarah Krakoff (Aug. 28, 2008, 11:49 AM) (on file with author).

136. See Interview with Angela Raffle, Member of Redland-Bristol CRAG (Oct. 19, 2009) (on file with author).

137. *Id.*

138. See Despina, *CRAG User Profiles*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/user/despina> (last visited Nov. 14, 2011).

uses little electricity and gas due to A-rated appliances and use of a woodstove to heat hot water for baths and cooking; and engages in a range of other low-impact behaviors that do not register in his CRAG accounting, but contribute nonetheless to overall emissions reductions.¹³⁹ This respondent reported that his emissions, for the most recent year for which his CRAG had accounted, were 0.45 metric tons (less than one-tenth of the U.K. average).¹⁴⁰

Another respondent sold his car, gave up flying, moved closer to family, changed his job to work on projects that required less travel, and moved from his own home into a shared flat. His annual emissions have gone down 80% since 2006 (from 7.3 metric tons in 2006–2007 to 1.3 metric tons the following carbon year).¹⁴¹

Similarly, someone who described herself as a “professional woman with [a] busy job” as a medical practitioner had gone “car-free” and stopped flying in 2005. She also put solar water heating panels on her roof and stopped heating the whole house, instead keeping “one or two rooms” cozy. She and her family also “totally changed” their shopping habits by growing more fruits and vegetables and joining a community orchard.¹⁴²

Another respondent’s adjustments were less extreme. She drives less, turns off lights when she is not in the room, turns off her heating and cooling during the day, and lives close to her job. Still, she reports that she uses 50% less electricity per year than most people and also uses far less fuel for heat: “For that, I get to cut my carbon emissions by about a third.”¹⁴³ She did not yet have the estimate from her CRAG’s first full year, however.¹⁴⁴

The behavior changes described above reflect the range of actions taken by CRAG members generally. These actions include giving up airline travel; giving up or greatly reducing automobile travel; making a range of efficiency improvements to one’s home; choosing to live with others rather than alone; growing some or a great deal of one’s own food; changing one’s source of electricity and heat to solar or other less

139. See Interview with John Cossham, *supra* note 134. The CRAG only registers the categories of personal emissions. Mr. Cossham also grows most of his own food; hardly ever eats out or gets take-out food; collects what food he does not grow from food that would otherwise be thrown away; has a compost toilet that uses sawdust; and “campaigns tirelessly for people to make changes in their lifestyle.” *Id.*

140. See *id.*

141. See E-mail from Andrew Ross, *supra* note 135. Like John Cossham, Mr. Ross also reported behavior changes that are not directly related to his personal carbon emissions, but that likely reduce overall emissions, including eating local and discarded foods and buying “less new stuff.” *Id.*

142. See Interview with Angela Raffle, *supra* note 136.

143. See Interview with Shannon Moore, *supra* note 133.

144. *Id.*

carbon-intensive sources; and changing one's eating habits to consume less carbon-intensive foods.¹⁴⁵

iii. Importance of the Group in Spurring Personal Reductions

CRAG members answered questions about the role the CRAG played in spurring them on toward personal emissions reductions, and also what else, if anything, the group dynamic adds. Some respondents indicated that they thought they would take many of the actions they took regardless but indicated that the CRAG helped to provide accountability and morale. Some also took satisfaction in the example that they could set for the group, and that the group, in turn, could set for others. As one respondent put it, “[W]e are creating an example.”¹⁴⁶ Another cited the benefits of the group dynamic itself, saying that one of his aims was to “build up solidarity between a growing community of carbon conscious people.”¹⁴⁷

Others saw the CRAG as crucial to their personal actions. The group is “[v]ery effective, wouldn't have made these changes without it, makes it fun and [creates] solidarity.”¹⁴⁸ Another commented similarly that the CRAG motivated her household to make “fairly cheap, easy, and efficient home insulation measures” and also to seek out a grant for further work in their house. “[Thank you] CRAG, and shame on the 6 of us for not being quicker off the mark.”¹⁴⁹ This CRAG member also editorialized that “[e]xchanging tips with other people who were also striving to cut on their carbon . . . seemed like a good idea, but I hadn't appreciated at the time just how valuable a resource my fellow CRAGgers would turn out to be! And nice too.”¹⁵⁰

iv. Assessment of Emissions Reductions: Quantity and Quality

Unsurprisingly, CRAG participants rated themselves as very successful at reducing their personal carbon footprint. As noted above, several participants calculate their emissions at well below their country's average, sometimes by as much as one-seventh of average annual individual emissions. In terms of reducing their individual emissions, CRAG members report reductions ranging from 30% to 80% of previous emissions levels.¹⁵¹

145. See Responses from CRAG Members (on file with author); *People*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/people> (last visited Nov. 14, 2011).

146. Interview with Shannon Moore, *supra* note 133.

147. E-mail from Andrew Ross, *supra* note 135.

148. Interview with Angela Raffle, *supra* note 136.

149. Despina, *supra* note 138.

150. *Id.*

151. See Interview with Shannon Moore, *supra* note 133 (reporting reductions of one-

Several CRAG members touted the individual ration method in particular. As one described it:

My carbon allowance is becoming a secondary currency that informs all sorts of day-to-day decisions. It shows you the limits of sustainability, but leaves you free to decide how to spend your allowance—libertarian carbon reduction! It also highlights the most productive areas of your footprint to tackle, and the effectiveness of different actions or technologies.¹⁵²

Another member put it this way: “The sooner carbon becomes just like money the better. All the arguing about flying and 4x4’s will stop and people can choose how they spend their carbon, just as they currently do with money.”¹⁵³

On the other hand, Andrew Ross, the founder of the UK CRAGs movement, now believes that individual carbon rationing is too bureaucratic to implement at anything other than a local level: “I think ‘downstream’ carbon accounting systems at either the national or international level are unnecessarily bureaucratic. Upstream proposals seem much more workable (e.g. ‘cap and share’ or ‘cap and dividend’). They retain the incentives towards lower carbon consumption but do not require the setting up of a parallel currency.”¹⁵⁴ While the mutual support and accountability of CRAGs contribute to their success as neighborhood groups, Ross is dubious that the accounting mechanisms necessary to make individual carbon rationing work would translate well on a broad scale.¹⁵⁵ In addition, Ross believes that a national or international cap-and-share approach would more quickly converge “to equal per capita shares rather than a convergence over some negotiated period.”¹⁵⁶ (A cap-and-share or cap-and-dividend approach would set a

third); E-mail from Andrew Ross, *supra* note 135 (reporting reductions of approximately 80%).

152. David Bassendine, *CRAG User Profiles*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/user/david> (last visited Nov. 14, 2011).

153. Bruce, *CRAG User Profiles*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/user/bruce> (last visited Nov. 14, 2009); hard copy on file with author.

154. See E-mail from Andrew Ross, *supra* note 135. *But see* Amy Sinden, *Revenue-Neutral Cap and Trade*, 39 ENVTL. L. REP. 10,944 (2009) (advocating a “fair-share cap and trade” approach to national carbon regulation, under which tradable emissions allowances would be issued to individual consumers, as opposed to industry, who could sell them to fossil fuel producers and importers). While not the same as a national individual carbon ration program, Professor Sinden’s proposal might replicate some of the excessive bureaucracy problems that Ross identifies. Professor Sinden acknowledges this concern, and as an alternative also advocates the simpler “cap-and-dividend” approach embraced by Ross. *See id.*

155. See E-mail from Andrew Ross, *supra* note 135; *see also* Response of Andrew Ross (Oct. 26, 2009) (on file with author).

156. E-mail from Andrew Ross, *supra* note 135.

national or international cap on greenhouse gas emissions, auction off the allowances to emitters, and then distribute the dividends to individuals on an equal per capita basis.)

In addition to the quantitative assessments of their efforts, CRAG members commented on how the changes affected their quality of life. The reports were uniformly positive. One CRAG member (the busy professional woman quoted above) reported that she had “[l]earned a lot, [and] life is much better for it.”¹⁵⁷ Her positive reactions to the changes she and her family made appeared to be bound up in her sense of living consistently with her values: “[It has] helped my ability to lead on this stuff in [the] workplace too, and if I get interviewed on [the] telly then they can’t attack me for being a hypocrite”¹⁵⁸ Similarly, another CRAG member, responding to the question about the effectiveness of his individual actions, wrote: “I know from within that I have a highly ethical, albeit slightly unusual, lifestyle.”¹⁵⁹ Another cheerily reported that his personal emissions reduction from 6.14 to 3.4 metric tons from one year to another was achieved “with no wearing of hair shirts!”¹⁶⁰ And another stated that “[i]n general, happiness seems inversely-related to size of your income (and carbon footprint!).”¹⁶¹

v. Views About Geoengineering Solutions

The CRAG respondents were skeptical about geoengineering options, yet open to the possibility that they might be a necessary part of the suite of solutions. One CRAG member was concerned about “negative secondary consequences,” but thought that, given the decay curve of CO₂, “it’s in our best interest to investigate options.”¹⁶² Another rated ocean-seeding very low on the list of acceptable options but was open-minded about certain forms of carbon sequestration. However, he ultimately much preferred “investment in renewable energy generation and reducing demand. If there is a finite pot of money to deal with the problem, it should be spent on those things rather than hair-brained ideas[,] . . . although some research should still be directed at these in case they might be part of the solution.”¹⁶³ Yet another said that he suspects “we will need all the help we can get,” but is also aware that “many so-called ‘solutions’ have resulted in more problems in need of more solutions.”¹⁶⁴ Another said, “I think it’s a mistake to wait for [a]

157. Interview with Angela Raffle, *supra* note 136.

158. *Id.*

159. Interview with John Cossham, *supra* note 134.

160. Bruce, *supra* note 153.

161. Bassendine, *supra* note 152.

162. Interview with Shannon Moore, *supra* note 133.

163. Interview with John Cossham, *supra* note 134.

164. E-mail from Andrew Ross, *supra* note 135.

magic bullet[;] we need to reduce[.]”¹⁶⁵ One CRAG member held a completely negative view, saying he was “against geo-engineering,” though even he described such ideas as “well meaning in intent but not getting at the heart of the problem, which is excess consumption.”¹⁶⁶ Thus, to the extent that CRAG members expressed views about geoengineering, they ranged from open-minded yet cautious, to wholly negative.

vi. Degree of Optimism: How Optimism or Pessimism Informs Assessment of the Worth of Individual and Small Group Action

Not all CRAG respondents answered this question, in part due to the fact that it was added to the questionnaire after some CRAG members had already been interviewed. One who did include a response wrote:

I am neither optimistic nor pessimistic although I am sure we need to take a precautionary approach. We know that as a species we are currently having a massive negative impact on our environment and life on earth in general but there is so much more we do not know. It is my guess . . . that it is the unknown unknowns that will probably [be] more important in the end!¹⁶⁷

Another said that she thought that “peak oil and economic collapse will have an impact on the pattern that global human behavior takes, what will happen to climate is hard[er] to predict[.]”¹⁶⁸ One person described himself as wavering “between righteous anger and great hope for humanity and the world.”¹⁶⁹ Another one said more definitively that he was not optimistic: “Problems have solutions. This is a predicament; predicaments only have coping strategies.” He described his community’s coping strategies as engaging in “[p]ermaculture,” “voluntary simplicity,” and also planting trees that are “more comfortable hundreds of miles . . . south.”¹⁷⁰ This person also thinks that “we will learn to live without affluence. Most people are in denial and think they can buy their way out of the problem . . .” He thinks that he “is paving the way towards a new way of living sufficiently in the future, when it will be necessary to do so.”¹⁷¹

165. Interview with Angela Raffle, *supra* note 136.

166. Response of Jan Steinman (Oct. 21, 2009) (on file with author).

167. E-mail from Andrew Ross, *supra* note 135.

168. Interview with Angela Raffle, *supra* note 136.

169. Blane Friest, *CRAG User Profile*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/user/ddmemissions> (last visited Nov. 14, 2011).

170. Response of Jan Steinman, *supra* note 166.

171. *Id.*

5. Neighborhood Climate Action and Sustainability Groups

a. Background

There are many groups that could arguably fit into the more nebulous category of a Neighborhood Climate Action Group (NCAG). The formality of the CRAGs and their commitment to group and individual reductions, complete with accounting systems and a day of reckoning, render them easy to categorize as local carbon-mitigation groups. When these formal hallmarks are lacking, however, it becomes difficult to distinguish between local groups committed to green living in general and those committed to action on climate change. My admittedly arbitrary line, then, was whether the group self-identified, either at its origin or today, as primarily committed to affecting climate change.

b. Responses

i. Motivations and Catalysts

Participants in NCAGs expressed a range of motivations and catalysts. Unsurprisingly, the most commonly expressed motivation was a generalized concern about the environment or the health of the planet.¹⁷² These ranged from expressions of wanting to “preserve the environment”¹⁷³ to more urgent statements, such as “I believe that we are killing the/our planet!”¹⁷⁴ Some indicated that they were motivated by a sense of obligation to the future, whether to future generations specifically, or to the future of the planet in general.¹⁷⁵ A smaller number stated that they were motivated by a concern that we might run out of resources.¹⁷⁶

Another motivation, similar to one expressed by some of the CRAG members who had taken individual action before joining or starting a CRAG, was to assist others and set an example.¹⁷⁷ Related to this, some were motivated by a desire for community and fellowship, both to learn from others, and to make the efforts more fun and meaningful.¹⁷⁸ In a

172. See Summary of NCAG Respondents (on file with author).

173. Response of Digger Braymiller (Aug. 8, 2009) (on file with author).

174. Response of Cynthia Frigard (July 12, 2009) (on file with author).

175. See Response of Digger Braymiller, *supra* note 173; Response of Sue Cable (Aug. 8, 2009) (on file with author); Response of Henry Mueller, *supra* note 4; Response of Scott Ruprecht (Aug. 8, 2009) (on file with author).

176. *E.g.*, Response of Sue Cable, *supra* note 175; Response of Donald Price (Aug. 8, 2009) (on file with author).

177. See Response of Dan Friedlander (June 15, 2009) (on file with author); Response of Tom Mckinnon (June 11, 2009) (on file with author).

178. See Response of Linda Cornett (July 4, 2009) (on file with author); Response of John Hatch (July 23, 2009) (on file with author); Response of Tom Mckinnon, *supra* note 177.

similar vein, some acknowledged that a healthy sense of peer pressure and evolving community norms had motivated them.¹⁷⁹ Also similar to the CRAG responses, NCAG members articulated personal ethical motivations, including avoiding hypocrisy (feeling as though one cannot lobby neighbors to do something without doing it oneself),¹⁸⁰ and more general expressions of moral obligation to take care of things. As one respondent put it, he evolved from seeing the issue in the abstract to seeing it as personal. Change was happening much more quickly, and he was starting to feel personally responsible.¹⁸¹ Finally, and also similar to some CRAG members, some NCAG participants indicated that specific factual information about the severity of the consequences of failing to act, and the small window of time in which to act to avoid those consequences, had made a difference to them.¹⁸² As one participant described, “I first became aware of the climate problem in 1981 or 1982 . . . but it became front-burner for the last four or five years due to increasing knowledge of certainty and urgency of the problem.”¹⁸³

ii. Individual Behavior Changes and Their Efficacy

The range of behavior changes that NCAG participants made was somewhat narrower than the CRAG members. For example, no NCAG participant reported living with other people solely to reduce a carbon footprint, and only one NCAG participant indicated giving up air travel entirely. The CRAG structure, consisting of a carbon rationing scheme and accounting program, reflects and reinforces a more intense orientation toward personal emissions reductions. The NCAG structures, on the other hand, are less formal and more focused on social and educational methods for encouraging carbon-neutral behavior than on setting personal or group emissions reductions goals and monitoring schemes. Nonetheless, the range of actions taken to reduce greenhouse gas emissions (and to live with less environmental impact generally) was impressively broad.

With respect to transportation, many NCAG members reported that they had reduced their driving by walking or cycling as often as they could.¹⁸⁴ Several also reduced their driving by moving closer to their

179. See Response of Digger Braymiller, *supra* note 173; Response of John Hatch, *supra* note 178; Response of Tom Mckinnon, *supra* note 177.

180. See Response of Doug Parker (July 20, 2009) (on file with author).

181. *Id.*

182. See Response of Tom Mckinnon, *supra* note 177; Response of Henry Mueller, *supra* note 4; Response of Zev Paiss (July 20, 2009) (on file with author); Response of Jeffrey Yin (Aug. 8, 2009) (on file with author).

183. Response of Tom Mckinnon, *supra* note 177.

184. See Response of Digger Braymiller, *supra* note 173; Response of Sue Cable, *supra* note 176; Response of John Hatch, *supra* note 178; Response of Tom Mckinnon, *supra* note 177; Response of Zev Paiss, *supra* note 182; Response of Doug Parker, *supra* note 180;

workplace or commuting to work on public transportation.¹⁸⁵ One respondent had reduced his annual vehicle mileage to less than 2,000 miles per year.¹⁸⁶ Several commented that their families relied on only one car, while others commented that they had purchased high-mileage or more efficient vehicles.¹⁸⁷ Only one person reported that she had given up flying.¹⁸⁸ Another reported that he had cut his air travel by 50%, though he did not indicate his previous baseline.¹⁸⁹ For another, however, reducing air travel had proven very difficult; he described it as the “Achilles heel” of his carbon footprint.¹⁹⁰

In the category of home-efficiency improvements, almost everyone reported that they had switched from incandescent to compact fluorescent lightbulbs. People also reported a range of changes to their appliances, including using a manual as opposed to gasoline-powered lawn mower; purchasing new hot water heaters or furnaces; installing ceiling fans for both cooling and heating; adding programmable thermostats; installing evaporative cooling systems instead of air conditioners; and installing dual-flush and low-flow toilets.¹⁹¹ In addition, like Don Allen, who participated in the Shanahan Neighbors Home Energy Efficiency Tour, many NCAG members reported improving their home insulation, or otherwise making construction improvements to increase the natural heating and cooling properties of their homes.¹⁹²

Many also reported that they reduced their energy consumption by hanging laundry to dry,¹⁹³ and some expressed particular satisfaction about this behavior. “It just feels real good,” one person commented after describing her year-round system for outdoor clothes drying on her sunny Colorado deck.¹⁹⁴ Another, who had made extensive changes to reduce his carbon footprint, including building a house that “is an

Response of Doug Smith (Aug. 3, 2009) (on file with author); Response of Sarah Van Pelt (Aug. 8, 2009) (on file with author); Response of Jeffrey Yin, *supra* note 182.

185. See Response of Cynthia Frigard, *supra* note 174; Response of Graham Hill (Oct. 20, 2009) (on file with author); Response of Doug Parker, *supra* note 180.

186. Response of Dan Friedlander, *supra* note 177.

187. See Response of Cynthia Frigard, *supra* note 174; Response of Doug Smith, *supra* note 184; Response of Graham Hill, *supra* note 185; Response of Linda Cornett, *supra* note 178; Response of Scott Ruprecht, *supra* note 175, at 25; Response of Tom Mckinnon, *supra* note 177.

188. See Response of Linda Cornett, *supra* note 178.

189. See Response of Dan Friedlander, *supra* note 177.

190. See Response of Tom Mckinnon, *supra* note 177.

191. See Summary of NCAG Respondents, *supra* note 172.

192. See *id.*

193. See Response of Linda Cornett, *supra* note 178; Response of Doug Parker, *supra* note 180; Response of Tom Mckinnon, *supra* note 177; Response of Sarah Van Pelt, *supra* note 184.

194. Comments of Bev Bien, CLIMATESMART, <http://www.beclimatesmart.com/whatAreYouDoing/videos.php> (last visited Oct. 10, 2009); hard copy on file with author.

attempt at zero energy,” equipped with solar PV and hot water panels, added, “I like and enjoy the simple things more, like the laundry line. I actually really enjoy hanging out my laundry because I know I am using less electricity”¹⁹⁵

Another category of action was changing the source of home energy use. Many NCAG respondents had mounted either solar PV panels or solar hot water heaters on their homes.¹⁹⁶ Others had built or modified their homes to maximize passive solar energy, and some had purchased wind energy credits from their utility providers.¹⁹⁷ Finally, NCAG participants reported a variety of activities that contribute more indirectly to emissions reductions and that also fit generally with environmental sustainability. These included growing more of their own food in backyard or community gardens; generally buying food from local producers; eating low on the food chain; using reused and recycled consumer products whenever possible; composting; avoiding excessive packaging; bringing their own bags for grocery and other shopping; and exercising similar no-waste behavior.¹⁹⁸

iii. Importance of the Group in Spurring Personal Reductions

NCAG members had a variety of views about the role and importance of the neighborhood group. Some indicated that the group played an important role in motivating or encouraging their own personal behavior changes.¹⁹⁹ Others, similar to some of the CRAG members, said that they would have made the individual changes anyway, but either initiated or joined a group to educate and encourage others.²⁰⁰ Some indicated that their groups had not proven to be as active as they had hoped.²⁰¹ Many respondents said that the social and community-building aspects of the group were important to them.²⁰² As one put it, she joined her neighborhood group to “do a good deed” and to “get to know neighbors.”²⁰³ Another said that she wanted to be more connected to her community and that there was “strength in

195. Comments of Josh Weinstein, CLIMATESMART, <http://www.beclimatesmart.com/whatAreYouDoing/videos.php> (last visited Oct. 10, 2009); hard copy on file with author.

196. See Summary of NCAG Respondents, *supra* note 172.

197. See *id.*

198. See *id.*

199. See Response of Henry Mueller, *supra* note 4; Response of Sarah Van Pelt, *supra* note 184.

200. See Response of Dan Friedlander, *supra* note 177; Response of Graham Hill, *supra* note 185; Response of Doug Parker, *supra* note 180.

201. See Response of Linda Cornett, *supra* note 178; Response of Doug Parker, *supra* note 180; Response of Doug Smith, *supra* note 184.

202. See Summary of NCAG Respondents, *supra* note 172.

203. Response of Sue Cable, *supra* note 175, at 37.

numbers.”²⁰⁴ One person described his group as a “mellow” one that served social and communication purposes (such as sharing information about wildlife sightings in the neighborhood²⁰⁵), in addition to encouraging emissions reductions.

For some, their group’s establishment of connections, mutual support, and habits of sustainability were more important than any quantitative effects on emissions reduction. One neighborhood leader said that in the grand scheme of things, his group (which was one of the most active surveyed), has only

a miniscule effect on carbon emissions. Overall GHG emissions [are] a population/economic/technology/social/cultural and political issue. Our main accomplishment is to give people hope, unite them as neighbors and prepare them to play a positive role in the future as the global warming crisis moves south from the arctic to envelop our reality.²⁰⁶

iv. Assessment of Emissions Reductions: Quantity and Quality

The informal nature of NCAGs, as compared to CRAGs, makes it more difficult to assess the quantitative efficacy of these individual efforts. Very few respondents reported that they had kept records of how their efforts had reduced their carbon footprint. The reports of the changes themselves, however, indicate that participants have adopted many of the transportation, efficiency, and energy source behaviors that experts tout as key to part of a larger shift to a carbon-free economy.²⁰⁷

v. Views About Geoengineering Solutions

Many NCAG participants had no views about geoengineering solutions because they did not know enough about them to comment.²⁰⁸ Several, however, were quite knowledgeable and tended to express concern or skepticism. One strand of concern was that the costs would be difficult to assess due to the unknown, and perhaps unknowable, effects of several geoengineering strategies.²⁰⁹ Another strand was the moral hazard concern, which states that we tend to favor technological alternatives that appear easy and costless (to our way of life), rather than

204. Response of Cynthia Frigard, *supra* note 174, at 19.

205. Response of John Hatch, *supra* note 178.

206. Response of Dan Friedlander, *supra* note 177.

207. See Pacala & Socolow, *supra* note 5, at 968–70; Vandenberg & Steinemann, *supra* note 7, at 1700.

208. See Summary of NCAG Respondents, *supra* note 172.

209. See Response of Linda Cornett, *supra* note 178; Response of Tom Mckinnon, *supra* note 177; Response of Zev Paiss, *supra* note 182.

taking actions that we know will work today, such as decarbonizing our energy supplies and decreasing energy demand through behavior change and efficiency.²¹⁰ Despite these strongly articulated worries, some of the same respondents acknowledged that research into some geoengineering solutions was warranted.²¹¹

vi. Degree of Optimism: How Optimism or Pessimism Informs Assessment of the Worth of Individual and Small Group Action

Like the CRAG respondents, NCAG members were thoughtful in their articulations of optimism or pessimism. Overall, they were split in their outlook. Equal numbers reported clear optimism and pessimism, but several reported mixed expressions about their views.²¹² Those who expressed pessimism, or a mixed outlook, had poignant explanations for why they nonetheless are taking action. One said that she was not optimistic that

we will be able to maintain the world as it exists now. However, I hope we will give ourselves wholly to the effort to do so, so we will be better prepared to deal with the world that will come to be. I'm doing what I can because doing nothing is unthinkable. If I was shipwrecked alone in the middle of the ocean, I wouldn't lie back and wait to sink. I'd swim toward an unseen shore because it's all I could do.²¹³

Another said that he is not always optimistic, but he still thinks that we have to take action and attempt to find solutions because “[e]ven if our civilization fails, at least we’ve tried to create a blueprint for future cultures. We owe this to the generations that follow us and all the human beings that have sacrificed to give us what we have today.”²¹⁴ Another said that while he was generally an optimist, he worried that we “[h]aven’t started early enough to make a smooth transition. Some will continue to suffer (like the poor will be hit particularly hard over this). Things on the other side will look very different. Could be much better, but will be more local and less consumptive”²¹⁵ One said that he is not optimistic in general, but that he “has an optimistic side” because if he didn’t, he “would be suicidal.” He “[l]oves the outdoors” so feels he

210. See Response of Linda Cornett, *supra* note 178; Response of Tom Mckinnon, *supra* note 177; Response of Henry Mueller, *supra* note 4.

211. See Response of Linda Cornett, *supra* note 178; Response of Tom Mckinnon, *supra* note 177.

212. See Summary of NCAG Respondents, *supra* note 172.

213. Response of Linda Cornett, *supra* note 178.

214. Response of Henry Mueller, *supra* note 4.

215. Response of Zev Paiss, *supra* note 182.

has to act, and he does so for “hope,” even though when he started out, he thought he *was* going to be able to solve the problem.²¹⁶

B. Insights from Local Climate Action: Behavior, Happiness, Ethics, and Values

This in-depth, qualitative look at local climate initiatives yields several conclusions. First, on a quantitative level, CRAG and NCAG members are doing much to reduce their greenhouse gas emissions. Vandenberg and his colleagues have described certain behavioral changes as “low-hanging fruit” because they can be achieved at a low cost, yet they have a relatively high impact on emissions reduction.²¹⁷ These behaviors include reducing motor vehicle idling, accelerating compact fluorescent lightbulb adoption, adjusting thermostats by two degrees, and other minor efficiency adjustments.²¹⁸

Many CRAG and NCAG participants have reached much higher up the tree. To reduce their carbon emissions, some have given up driving or stopped flying.²¹⁹ Others have abandoned electric appliances, which have been touted as the birthright of successful Americans for decades. Some have done all of these things, taking every conceivable measure to reduce their energy consumption, even including altering their living circumstances.²²⁰ Vandenberg calculated that household emissions account for as much as 31% of total U.S. emissions, and therefore advocates for policies and programs that influence behaviors in cost-effective ways.²²¹ Policymakers targeting household emissions can point to the CRAG and NCAG participants as early adopters of behaviors that, through incentives, decision influence, and like measures, the state can assist others in embracing.²²² To be sure, CRAG and NCAG members represent a highly motivated leading edge, rather than the average citizen. But their actions and attitudes can be highlighted as exemplary, both to inspire others and to encourage practices that might form the first step toward other, more significant

216. Response of Doug Smith, *supra* note 184.

217. See Vandenberg et al., *supra* note 7, at 1706.

218. See *id.* at 1718–19 (stating that in addition to the actions listed, the “low-hanging fruit” changes include decreasing hot water heater temperature, maintaining recommended tire pressure, and changing air filters in cars on the recommended schedule).

219. See *supra* Subsections II.A.4–5.

220. See *supra* Subsection II.A.5 (stating that several participants gave up use of their clothes dryer, while others stopped using gas-powered mowers and other appliances).

221. See Vandenberg et al., *supra* note 7, at 1704–05; see also Michael P. Vandenberg et al., *Implementing the Behavioral Wedge: Designing and Adopting Effective Carbon Emissions Reduction Programs*, 40 ENVTL. L. REP. 10,547, 10,549 (2010).

222. See Vandenberg et al., *supra* note 221, at 10,551–52 (describing principles for achieving widespread behavioral changes).

attitude and behavior changes.²²³

Beyond the quantitative effects, many CRAG and NCAG participants express a sense of joy and satisfaction with their actions. They claim that “no hair shirts” have been donned,²²⁴ that hanging their laundry makes them happy; that they enjoy walking and biking everywhere; that their actions “just feel good”²²⁵ More importantly, they feel these things despite the fact that many of them harbor no illusions that their actions alone can or will be enough. They know that their individual efforts must, some day very soon, be complemented by state led initiatives to corral the rest of the world to decarbonize. As Andy Ross, founder of the UK CRAGs, mused:

Maybe it goes like this. At first, people are attracted to the CRAGgy idea that Climate Justice should begin at home through a careful look at their personal contribution to the ecological crisis and through taking responsibility for it through involvement in a CRAG. Later, they begin to feel that for their efforts to make sense, this notion of Climate Justice has to migrate to the corridors of Westminster and Washington in order to be made into law.²²⁶

According to Ross, local climate action participants are motivated by a sense of personal and group obligation, but they hope that their efforts inspire the government to act.²²⁷ They understand that they need the state to transform their efforts into policies that stand a chance of reducing emissions globally.²²⁸ This complicated picture of satisfaction, inspiration, and political engagement fills in what has been missing from discussions of the role that “happiness” assessments might play in formulating environmental policy.²²⁹ For the most part, happiness (or satisfaction) has been proposed as an alternative measure to assess well-being.²³⁰ Subjective happiness evaluations, the argument proceeds, are

223. See ROBERT B. CIALDINI, *INFLUENCE: SCIENCE AND PRACTICE* 64–65 (2009) (describing “foot-in-the-door” studies in the context of environmental behavior change); Jonathan L. Freedman & Scott C. Fraser, *Compliance Without Pressure: The Foot-in-the-Door Technique*, 4 J. PERSONALITY & SOCIAL PSYCHOL. 195 (1966) (concluding that small initial behavior changes can lead to openness to more significant changes); see also Ela, *supra* note 8, at 143 (describing importance of visibility to influence of social norms on behavior change).

224. See Bruce, *supra* note 153.

225. See Comments of Josh Weinstein, *supra* note 195.

226. Electronic Communication from Andrew Ross (Oct. 30, 2009) (on file with author).

227. See *id.*

228. See *id.*

229. See Mark A. Cohen & Michael P. Vandenbergh, *Consumption, Happiness, and Climate Change*, 38 ENVTL. L. REP. 10,834, 10,834 (2008).

230. See *id.* at 10,834–35 (summarizing happiness literature); see also WELLBEING: THE FOUNDATIONS OF HEDONIC PSYCHOLOGY (Daniel Kahneman et al. eds., 1999) (describing

an improvement over quantified measures such as income because they allow for a more realistic assessment of the difference that material wealth makes to well-being, relative to other factors.²³¹ CRAG and NCAG participants seem, on one hand, to fit into some of the literature's conclusions regarding the diminishing happiness effects of extra consumption beyond certain levels of wealth.²³² They are creating a new social norm of responsible low-carbon living, and generating happiness from their association with that status.²³³ Yet it seems unlikely, for many of them, that they will remain satisfied with their personal actions if they are not also contributing to an effective global solution. Perhaps more accurately, many will vacillate, as humans do, between satisfied, wistful, frustrated, joyous, depressed, and outraged.

This is where ethics come into play. NCAG and CRAG participants are doing more than what feels good—they are trying to do what seems *right*.²³⁴ This is a complicated formula for well-being, one that does not translate easily into empirical data, let alone policy prescriptions formulated from such data.²³⁵ Participants in local climate action groups are attempting to forge an ethic and identity that includes obligations to the planet, to other species, and to future generations.²³⁶ While philosophers and legal academics theorize about such obligations, these people are actually doing it.²³⁷ As one CRAG member said, “Ask not

psychological basis for including happiness assessments in economic theory); RICHARD LAYARD, *HAPPINESS: LESSONS FROM A NEW SCIENCE* (2005) (summarizing and assessing happiness studies).

231. See Cohen & Vandenberg, *supra* note 229, at 10,834–35.

232. See *id.* at 10,835 (describing studies that indicate that “the marginal utility of extra consumption approaches zero as countries become richer, while the marginal utility of status never approaches zero”).

233. Cf. Richard A. Easterlin, *Does Money Buy Happiness?*, 30 PUB. INT. 3, 3–4 (1973) (concluding that raising the income of all members of a society does not increase happiness for all).

234. See discussion *supra* Subsections II.A.4.b, II.A.5.b (discussing CRAG and NCAG participants' motivations and assessments of their actions).

235. There has been some limited empirical research concerning the link between virtue and happiness, where virtue is defined as expressing belief in a core of unwavering ethical obligations. See Harvey S. James, Jr., *Is the Just Man a Happy Man? An Empirical Study of the Relationship Between Ethics and Subjective Well-Being* 1, 13–15 (U. of Mo. Dep't of Agric. Econ. Working Paper No. AEW 2009-07, 2009). The study was unable, however, to assess the extent to which the subjects actually adhered to their professed values. See *id.* at 9.

236. See Socolow & English, *supra* note 6, at 170.

237. See, e.g., LAURA WESTRA, *ENVIRONMENTAL JUSTICE AND THE RIGHTS OF UNBORN AND FUTURE GENERATIONS: LAW, ENVIRONMENTAL HARM AND THE RIGHT TO HEALTH* *passim* (2008); Jamison E. Colburn, *Splitting the Atom of Property: Rights Experimentalism as Obligation to Future Generations*, 77 GEO. WASH. L. REV. 1411, 1413–14 (2009); Mary Christina Wood, *Advancing the Sovereign Trust of Government to Safeguard the Environment for Present and Future Generations (Part I): Ecological Realism and the Need for a Paradigm Shift*, 39 ENVTL. L. 43, 45 (2009). The foregoing is a small sample of many recent books and articles on the topic.

what the planet may do for you . . . ask rather what you can do to save the planet . . . *and do it.*²³⁸ Aldo Leopold, proponent of the “land ethic,” would be proud, particularly given that he turned to ethics because, like our planetarians, he did not think government alone would or could do the job.²³⁹ Yet, to circle back to the state’s role, part of the CRAG/NCAG aspiration is to influence government to do its part, as well.²⁴⁰ CRAG and NCAG participants are forging the planetarian identity, in part, because they want it to spread. They recognize that it will take government regulation for that to happen. The next Part therefore explores the possibility for a state role in that regard.

III. TENDING THE PLANETARIAN IDENTITY

A. *The Role of the State, Part Two*

Two strands of insight emerge from the narratives of local climate action. First, although the literature about how to get the state to “activate norms,” “harness behavior,” and otherwise prod, nudge, and incentivize us is important, it is missing something.²⁴¹ Despite the efforts of these commentators to bring ethics, norms, and individual actions to bear on environmental law, there remains something familiarly and numbingly bureaucratic about the framework and the vocabulary. People remain the object of state action, the passive subjects of state behavior modification. The stories about local climate action groups remind us that, in the beginning, these efforts are about people trying to live meaningful lives by working out their ideas and ideals in communities.²⁴² That set of ideals and goals is at the heart of

238. John Banks, *CRAG User Profile*, CARBON RATIONING ACTION GROUPS, <http://www.carbonrationing.org.uk/user/john-banks> (last visited Nov. 14, 2011) (emphasis added).

239. See LEOPOLD, *supra* note 28, at 250 (“Government ownership, operation, subsidy, or regulation is now widely prevalent in forestry, range management, . . . and migratory bird management, with more to come. Most of this growth in governmental conservation is proper and logical, some of it is inevitable. . . . Nevertheless, the question arises: What is the ultimate magnitude of the enterprise? . . . At what point will governmental conservation, like the mastodon, become handicapped by its own dimensions? The answer, if there is any, seems to be in a land ethic . . .”).

240. See E-mail from Andrew Ross, *supra* note 135.

241. See Hope M. Babcock, *Assuming Personal Responsibility for Improving the Environment: Moving Toward a New Environmental Norm*, 33 HARV. ENVTL. L. REV. 117 (2009) (arguing that individual behavior can be changed by a combination of activating norms, engaging in public education campaigns, and adopting sanctions and incentives); Dernbach, *supra* note 7 (suggesting legislative provisions and strategies for addressing consumer behavior and encouraging individual enforcement of carbon reduction); Ela, *supra* note 8 (proposing policies that foster and recruit social norms to target high visibility carbon emitting behaviors); Sinden, *supra* note 154 (arguing that a fair-share cap-and-trade reinforces social norms of carbon footprint minimization); Vandenbergh & Steinemann, *supra* note 7, at 1706–09.

242. These are the “lifeworlds” of communities, people engaging their faculties of reason

localism, even localism that has the global and highly abstract goal of stopping climate change at its core.

Second, as the pessimists in local climate action groups know, there truly is a tragic structure to their situation. They are taking action because they feel moral and social responsibility to do so.²⁴³ Yet as Andrew Ross' comments above indicate,²⁴⁴ they want the world to follow suit, which will require top-down coordination, legislation, regulation, incentivization, and so forth, dragging these and other local efforts back into bureaucratic systems, with an uncertain chance of success. The dual tragedy that haunts these efforts is that, on the one hand, success may mean that bureaucratic systems, and not the vibrant lifeworlds of local communities, will take over; and, on the other, even when bureaucratic systems assume their place, they might not stave off many of the effects of climate change. What if, despite designing the optimal climate regime (which, to date, we have failed to do), we nonetheless cannot keep our emissions in check?²⁴⁵ Then, if we have relinquished to the state the job of adjusting our behavior for us, we will be in even greater difficulty because we will lack the skills, norms, and communities to chart a path through a protean and unknowable world.

This particular risk for the state has never been fully considered in the context of environmental law, perhaps because the debate has been framed largely as a contest between the pro-regulatory crowd and the pro-market crowd.²⁴⁶ On the pro-regulatory side, the emphasis is on solving the particular environmental problem. On the pro-market side,

and their values to create identities and meaning. See 2 JÜRGEN HABERMAS, *THE THEORY OF COMMUNICATIVE ACTION: LIFEWORLD AND SYSTEM: A CRITIQUE OF FUNCTIONALIST REASON* 113–52 (Thomas McCarthy, trans., Polity Press, 1987) (1981).

243. See *supra* Subsections II.A.4.b, II.A.5.b (discussing motivations of CRAG and NCAG participants).

244. See E-mail from Andrew Ross, *supra* note 135.

245. Scholars have documented the various ways in which the state might backtrack even if legislation is passed. See Eric Biber, *Climate Change and Backlash*, 17 N.Y.U. ENVTL. L.J. 1295, 1338 (2009) (describing features of climate change that make legislation targeting emissions, even if passed, susceptible to underenforcement and backlash); Lazarus, *supra* note 8, at 1153 (arguing that climate change legislation is easily susceptible to being “unraveled over time for a variety of reasons”). These articles address this country's challenges; the entire world's commitment to sticking with any emissions limitations regime would face similar problems.

246. See RICHARD J. LAZARUS, *THE MAKING OF ENVIRONMENTAL LAW* 167 (2004) (describing the recurring themes in environmental law as including the anti-regulation versus pro-protection debate). Note that I don't mean to oversimplify this. Positions about how to address environmental issues fall along a spectrum and often depend on the initial value placed on protection of the environment versus protection of other values. See Douglas A. Kysar, *Law, Environment, and Vision*, 97 NW. U. L. REV. 675 (2003) (analyzing ecological economic theory and the possible public policy implications of its approach). However, it is fair to say that in terms of how the positions are framed (in other words, described and understood by the public), pro-regulatory versus pro-market is the dichotomy.

the emphasis is on maximizing welfare as defined by reference to human preference, which is reducible to monetary value. The question is therefore posed, often both in the policy context and the academic literature, in the following way: Should our laws aim to achieve a certain environmental goal at the expense of economic and other considerations, or should our laws take account of the total cost–benefit picture when implementing environmentally protective policies? Underlying both questions is the assumption that humans will inevitably make progress toward either goal, and that the losses are only those accounted for when selecting the particular goal. Yet what if the progress assumption is wrong? Then, in both accounts, we are misdescribing the appropriate roles and risks for the state. Understanding this may help to illuminate a recurring love-hate, or hope-cynicism, cycle that recurs with respect to public attitudes toward government in the realm of natural resources and the environment.²⁴⁷ That cycle is, in part, a product of the inevitable alienation from local community concerns that results from enlisting the state to address environmental problems. The vibrancy of the local gets sacrificed to the bureaucrats’ (or the market’s) expertise, a sacrifice perhaps worth enduring if the air and water get cleaner (or, pursuant to the market-based alternative, everyone gets wealthier and we achieve an efficient amount of environmental health). What if neither goal is attainable? Perhaps, then, the local environmental instinct, which at its core is to take care of where we live, will have been snubbed for nothing.

B. *A Blueprint for a Climate-Changed Democracy*²⁴⁸

To construct solutions that link global scale regulation with local actions, and to recruit the best science and technology without obliterating the communities whom those technologies purport to serve, it helps to look backward, as well as ahead. In 1878, John Wesley Powell proposed to stop westward expansion long enough to allow for a detailed survey of the lands in what he called the Arid Region.²⁴⁹ After

247. See ECOAMERICA & SRI CONSULTING, *THE AMERICAN ENVIRONMENTAL VALUES SURVEY: AMERICAN VIEWS ON THE ENVIRONMENT IN AN ERA OF POLARIZATION AND CONFLICTING PRIORITIES 3* (2006), available at http://ecoamerica.typepad.com/blog/files/ecoAmerica_AEVS_Report.pdf (“Americans’ active support for environmental protection has been steadily eroding. . . . And while 77% of Americans say they worry about the environment a great deal or [a] fair amount, for most of them it is neither a personal nor a public policy priority.”).

248. See WALLACE STEGNER, *BEYOND THE HUNDREDTH MERIDIAN* 202–42 (Penguin Books 1992) (1953) (describing, in a chapter entitled “Blueprint for a Dryland Democracy,” John Wesley Powell’s proposals for land and resource settlement in the arid west during the 1870s).

249. See JOHN WESLEY POWELL, *REPORT ON THE LANDS OF THE ARID REGION OF THE UNITED STATES WITH A MORE DETAILED ACCOUNT OF THE LANDS OF UTAH*, at vii–ix (2d ed. 1879).

the survey, settlement could resume in an orderly manner, based upon what the land and resources could sustain.²⁵⁰ Powell was not anti-settlement. Nor was he even a conservationist, let alone an anti-growth radical environmentalist. Rather, he wanted to ensure that resource exploitation would occur in a manner that would be sustainable in the long run and would allow human communities to flourish in an environment marked by scarcity.²⁵¹ Powell knew well the limits of the Arid Region. He, along with various crews of intrepid and rag-tag amateur surveyors, had already begun the project of cataloguing every acre between the one-hundredth meridian and the Sierra mountains.²⁵² His recommendations to Congress, submitted in what has become known as the Arid Lands Report, were based on his personal, intimate, and very scientific knowledge of the land and its limits.²⁵³

Two aspects of Powell's proposals are salient to the subject matter of this Article. First, Powell aimed to promote democratic communities capable of local natural resource governance. The recommendations that supported this ideal included first, that homestead boundaries should be determined by topography and availability of water, rather than by rectangular grids,²⁵⁴ and second, that cooperative districts composed of bona fide settlers should govern irrigation and pasturage lands.²⁵⁵ With sound scientific information (afforded by the surveys) and local institutions, Powell believed the arid west could be settled humanely, sustainably, and democratically.²⁵⁶

The second relevant aspect of Powell's approach was that the state, in the form of the federal government, had to impose the necessary restraint on the populace to ensure that democratic agrarian communities would form. Without a temporary halt to settlement, accompanied by clear rules about how settlement would take place and the conditions that would pertain for ownership of land and water, Powell believed that the ordinary person would suffer and that agrarian democracy would fail.²⁵⁷ Powell was willing to employ his expertise in

250. *See id.*

251. *See id.*; *see also* STEGNER, *supra* note 248, at 220–29 (describing Powell's motivations, which included settling the land in a manner consistent with the land's capacities to support small farming communities).

252. *See* STEGNER, *supra* note 248, at 116–201.

253. *See generally* POWELL, *supra* note 249.

254. *See id.* at 27–37.

255. *See id.*

256. *See* STEGNER, *supra* note 248, at 220–29.

257. *See id.* at 220–26; *see also* DONALD WORSTER, *A RIVER RUNNING WEST: THE LIFE OF JOHN WESLEY POWELL* 354–60 (2001) (describing Powell's motivations and efforts to get his Arid Lands proposals passed). “The large economic interests did not line up in support, understandably, since Powell's motive was to save the West for the people, not the corporations.” *Id.* at 358.

top-down fashion to ensure that individuals and communities could thrive in the Arid Region.

As discussed in Part I, scholars and activists have identified the analogous need for expertise and imposition of restraint (including market-based solutions as a form of restraint) at the highest levels of government in the context of climate change.²⁵⁸ Approaching the problem at the lower ends of the scale, some individual states, counties, and American Indian tribes are engaging in climate adaptation planning in order to achieve a mix of expertise, regulation, and support for communities.²⁵⁹ Yet they are doing so without the aid of top-down legislation or enforcement of limitations on carbon. Powell's plans, by contrast, included both the high and low levels of organization.²⁶⁰ What if federal climate legislation, along with some mechanism for putting a price on greenhouse gas emissions, included local climate-action districts charged with the authority and means to develop the most sustainable, flexible, and locally appropriate practices for living in a zero-carbon (and ecologically uncertain) world?²⁶¹ Note that this is different from, though not necessarily exclusive of, suggesting that federal legislation should include mechanisms to modify or shape our norms and behavior.²⁶² Rather, the idea, like Powell's, is to legislate in a manner that allows people to realize their values and norms on the ground and in communities, the way people actually live.²⁶³ There are likely several possible designs for achieving this idea through federal law and policy.²⁶⁴ This Article's modest objective in this regard is

258. See discussion *supra* Section I.B. Professor Richard Lazarus has gone one step further, aptly describing the need for the federal government to restrain itself from unraveling its own climate regime, if it passes one. See Lazarus, *supra* note 8, at 1184–204 (describing obstacles to passing climate legislation as well as post-passage likelihood of receding from legislative commitments).

259. See, e.g., GOVERNOR OF THE STATE OF CALIFORNIA, 2009 CALIFORNIA CLIMATE ADAPTATION STRATEGY (2009); Ron Sims, *King County Proposes Global Warming Action Plan* (Feb. 7, 2007), <http://your.kingcounty.gov/exec/news/2007/0207warming.aspx>; *Swinomish Climate Change Initiative*, http://www.swinomish-nsn.gov/climate_change/project/project.html (last visited Nov. 14, 2011).

260. See POWELL, *supra* note 249, at 27–37.

261. This idea is consistent with Professor Ostrom's proposal for a polycentric approach. See Ostrom, *supra* note 3, at 14–15.

262. See Green, *supra* note 7 (analyzing the effect of legislation on the development of social norms); Vandenbergh et al., *supra* note 7 (arguing that a combination of legislation, information, and economic incentives may be an effective means to reduce household emissions).

263. The bioregionalism movement is similar in spirit and outline to this suggestion. See ROBERT L. THAYER, JR., *LIFEPLACE: BIOREGIONAL THOUGHT AND PRACTICE* 1–9 (2003) (describing tenets of bioregionalism). The key difference is that citizens engaged in local climate action are intimately involved in their own regions and communities while at the same time working in service to a planetarian (global, as well as future-generational) goal.

264. See, e.g., Patricia E. Salkin, *Cooperative Federalism and Climate Change: New*

merely to begin the conversation about the value of such a structure.

The vision of regional democratic communities, governing consistently with what the land and water would sustain over the long run, sounds utopian, and indeed it was, at least in Powell's day. Those aspects of Powell's proposals never became law, and as quickly as settlement was paused, it resumed again.²⁶⁵ The surveys were not completed in time, and settlers rushed the land, seizing their rectangular homestead plots, and facing, for many, repeated cycles of failure.²⁶⁶ Many western natural resource experts have mused over whether much heartache, corruption, and ecological waste could have been avoided if Powell's plans had been realized.²⁶⁷ What will the experts of the next century muse about with respect to what we found too odd, too utopian, and too unrealistic today?

CONCLUSION

Climate change is the ultimate reflection of human control, domination, and influence. We have altered the earth's atmosphere, with effects ranging from the chemical composition of the world's oceans to the life cycle of a small beetle.²⁶⁸ If humans are responsible for the contours of life on both the largest and smallest scales, then whether to walk or drive, whether to hang the laundry, whether to leave the lights on—suddenly all of these mundane decisions have the potential to be shot through with morality. This is the ethical framework being created in local climate action groups, where neighbors meet to swap tips about insulating window treatments, hoping that their daily habits will translate into communities capable of saving the world, or failing that, of communities fit for the lost world to come.

Localism, in the context of climate change, acknowledges the sweep of human control and influence, and attempts to construct a morality to match it. For the majority of people, however, the law of global

Meaning to "Think Globally—Act Locally," 40 ENVTL. L. REP. 10,562, 10,570 (2010) (listing recommendations for federal and state governments to ensure robust local government participation and community engagement).

265. See STEGNER, *supra* note 248, at 337.

266. See *id.* at 328–45.

267. See, e.g., Charles Wilkinson, *Western Water: The Ethical and Spiritual Questions*, 1 SEATTLE J. FOR SOC. JUST. 367, 371–73 (2002); Charles F. Wilkinson, In Memoriam, *Prior Appropriation 1848–1991*, 21 ENVTL. L. v, x–xii (1991).

268. See Ken Caldeira & Micahel E. Wickett, *Anthropogenic Carbon and Ocean pH*, 425 NATURE 365, 365 (2003) (“We find that oceanic absorption of CO₂ from fossil fuels may result in larger pH changes over the next several centuries than any inferred from the geological record of the past 300 million years . . .”); Jacques Régnière & Barbabra Bentz, *Mountain Pine Beetle and Climate Change*, 2008 USDA RES. F. ON INVASIVE SPECIES 63 (2008) (describing climate effects on the lifecycle of the pine beetle), available at <http://www.nrs.fs.fed.us/pubs/gtr/gtr-nrs-p-36papers/47regniere-p-36.pdf>.

warming remains an enervating topic.²⁶⁹ This can be attributed, at least in part, to the ways in which the collective action features of global warming leave to the state the familiar, and familiarly dull and begrudged, role of expert super-bureaucrat. If we overemphasize the state's role at the expense of the role of the local law of climate change, we come away bored, despairing, apathetic, or all three.²⁷⁰ Bored because the problem is so abstract and technical that only scientists, engineers, economists, and other wonky types can understand it—let alone do anything about it. Despairing because the problem seems unsolvable without massive changes in politics. And apathetic because, combining the abstract and technical nature of the problem with its seeming insolubility, why care?²⁷¹

Yet, as participants in local climate action groups recognize, they need the state to assume the roles that only it can play—regulator, taxer, nudger-in-chief—to ensure that their local efforts are not futile. Lurking behind this paradox is a still-deeper one. Even if the state assumes these roles very soon, it remains possible (or probable) that the world will never succeed at stabilizing the climate at a level that avoids serious consequences for our and other species. But if the worlds being created in local climate action groups take hold, they will at least have arrived, ethically, at the possibility of tending the planet (and whichever communities it will sustain), even as global surface temperatures continue to rise. Developing norms, laws, and perhaps most importantly, senses of humor to facilitate the planetarian identity may be the best we can do, and not in the defeatist sense—it may actually be the best thing that humans can do. If the law of local climate action contributes to this small revolution, then it may complement the quantitative and technological accomplishments of national environmental regulation in ways that lead us to a cleaner, greener, more sustainable world. And if these accomplishments are not forthcoming in the realm of climate change, then at least some human communities will have formed the habits of flexibility, mutual support, and low-impact living necessary to face the alternative. Either localism will redeem statist versions of environmental law by helping each to realize the planetarian goals of the other, or localism alone will nurture a planetarian identity, the object of which will be a moving target in every conceivable sense.

269. See, e.g., ECOAMERICA & SRI CONSULTING, *supra* note 247 (surveying Americans on a range of environmental issues and finding waning support for environmentalism generally, as well as fluctuating views about the value of government action).

270. See *id.* at 10–11. Key findings of this national survey of American views on the environment included that “[i]ssue complexity has paralyzed many Americans,” “[e]nvironmentalism is hampered by anti-science attitudes,” and that “[i]ndifference is a major factor among some groups of Americans.” *Id.*

271. See *id.* at 11.

