EVANGELIZING CLIMATE CHANGE

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ABSTRACT

Any effective response to climate change must address greenhouse gas (GHG) emissions from individuals, who are responsible for nearly one-third of total annual emissions. A leading proposal for doing so, developed by Michael Vandenbergh and Anne Steinemann, advocates the disclosure of information about an individual's emissions, resulting harms, and steps that can be taken to reduce emissions. Providing information on individuals' contributions to climate change will be important in countering common misconceptions that individual activities do not matter to the environment. Such proposals, however, give insufficient attention to the role of personal values. Values matter to efforts to change individual behavior in at least two important ways. First, values underlie beliefs and norms, providing motivations for behavior. Because behavioral norms such as environmental protection are far from universal, efforts to change behavior will have to operate at a deeper level and tap into altruism and other values. Second, values influence how individuals process risk-related information. Efforts to provide individuals with information about GHG emissions and climate change must account for the effect of values on risk perception. This Article proposes a climate change strategy that accounts for the role of values in behavior and examines steps for motivating changes within a particular community, American evangelicals. The suggested steps are patterned after evangelical techniques, which

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in turn can inform efforts to achieve behavioral change in the broader public.

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INTRODUCTION

Climate change is one of the most serious problems the world faces today. Climate change threatens rising sea levels, changed precipitation patterns, and more severe storms, floods, and droughts. These effects will have broad ramifications for biodiversity, food supplies, economic stability, and global security. Fossil fuel combustion and a wide range of other human activities cause climate change by enhancing processes that trap increasing amounts of heat in the Earth's atmosphere.

When considered in the aggregate, individual behaviors such as driving a car or heating one's home contribute significantly to climate change. A growing awareness of the importance of individual behavior has generated increased scholarly attention to the question of how to modify these behaviors.[1] Direct regulation of individual behavior is a theoretical possibility, but generally poses problems of political and practical feasibility. Some scholars have turned to behavioral norms in search of less coercive means of shaping conduct. Providing individuals with information about the effects of their actions, for example, may help activate norms of personal responsibility and promote a norm of carbon-

[1] *See, e.g.*, Ann E. Carlson, *Only By Requiring Lifestyle Change, Not Suggesting It*, ENVTL. F., Nov.–Dec. 2007, at 48; Mark A. Cohen, *Changing Citizens' Preferences, Prices, and Constraints*, ENVTL. F., Nov.–Dec. 2007, at 48; John C. Dernbach, *Harnessing Individual Behavior to Address Climate Change: Options for Congress*, 26 VA. ENVTL. L.J. 107 (2008); Daniel A. Farber, *Controlling Pollution by Individuals and Other Dispersed Sources*, 35 ENVTL. L. REP. 10,745 (2005); Andrew Green, *Self Control, Individual Choice, and Climate Change*, 26 VA. ENVTL. L.J. 77 (2008) [hereinafter Green, *Self Control*]; Andrew Green, *You Can't Pay Them Enough: Subsidies, Environmental Law, and Social Norms*, 30 HARV. ENVTL. L. REV. 407 (2006) [hereinafter Green, *You Can't Pay Them Enough*]; Deborah L. Rhode & Lee D. Ross, *Environmental Values and Behaviors: Strategies to Encourage Public Support for Initiatives to Combat Global Warming*, 26 VA. ENVTL. L.J. 161 (2008); Paul C. Stern, *Need to Make Individuals Aware of Consequences*, ENVTL. F., Nov.–Dec. 2007, at 51; Michael P. Vandenbergh & Brooke A. Ackerly, *Climate Change: The Equity Problem*, 26 VA. ENVTL. L.J. 55 (2008); Michael P. Vandenbergh & Anne C. Steinemann, *The Carbon-Neutral Individual*, 82 N.Y.U. L. REV. 1673 (2007); Michael P. Vandenbergh, *The Individual as Polluter*, 35 ENVTL. L. REP. 10,723 (2005) [hereinafter Vandenbergh, *The Individual as Polluter*]; Michael P. Vandenbergh, *From Smokestack to SUV: The Individual as Regulated Entity in the New Era of Environmental Law*, 57 VAND. L. REV. 515 (2004) [hereinafter Vandenbergh, *From Smokestack to SUV*].

neutral behavior.[2]

Such proposals represent important advances towards achieving behavioral change that can ameliorate global warming. However, there are reasons to believe that these proposals rest on an incomplete model of individual behavior. Individual concern about climate change and the environment generally has not led to widespread behavioral changes reflecting such concern.[3] Moreover, despite significant media attention to global warming in recent years, polls suggest that Americans have been slow to recognize the seriousness of the problem: the average American is no more worried about global warming today than two decades ago; a majority of Americans do not believe that global warming will pose a serious threat to them or their way of life during their lifetimes; and many Americans are not convinced that global warming is occurring or believe that there is no scientific consensus on the issue.[4]

This Article explores the difficult problem of changing individual behaviors and attitudes relevant to global warming. Existing proposals to achieve such changes by activating behavioral norms give inadequate attention to the role of individuals' core values. Drawing on insights from research in law and psychology, and particularly the theory of cultural cognition,[5] I propose an alternative approach that accounts for the effect of underlying values on how individuals process information and behave. I suggest that recognizing the role of values has critical implications for practical strategies for changing individual conduct, for the content of laws to address climate change, and for

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[2] *See* Vandenbergh & Steinemann, *supra* note 1, at 1728–35. Vandenbergh & Steinemann define the norm of carbon neutrality as "a perceived obligation to achieve zero net carbon emissions through a combination of reductions in carbon emissions and purchases of carbon offsets." *Id.* at 1717.

[3] *See infra* notes 130–134 and accompanying text.

[4] *See* Matthew C. Nisbet & Teresa Myers, *Twenty Years of Public Opinion About Global Warming*, 71 PUB. OPINION Q. 444, 450–53 (2007); Frank Newport, *Little Increase in Americans' Global Warming Worries*, GALLUP, Apr. 21, 2008, http://www.gallup.com/poll/106660/Little-Increase-Americans-Global-Warming-worries.aspx; Lydia Saad, *Increased Number Think Global Warming is "Exaggerated*," GALLUP, Mar. 11, 2009, http://www.gallup.com /poll/116590/Increased-Number-Think-Global-Warming-Exaggerated.aspx.

[5] Cultural cognition theory posits that individuals' core values color how people interpret information and shape their beliefs about the world around them. *See infra* Part III.B.

presenting and justifying proposed laws and policies to the public.

Part I of this Article sketches out a brief background on the climate change problem and the contributions of individual behavior to this problem. Part II introduces various models of individual behavior and discusses norm activation[6] as a means of producing behavioral change within the context of these models. Part III explains that proposals based on norm activation theory often give insufficient attention to the values that underlie individuals' norms and beliefs. Encouraging certain values, particularly the value of humanistic altruism, also will be necessary for individual behaviors and attitudes to change. Part IV sketches out a values-sensitive approach for bringing about these changes, focusing in particular on the evangelical[7] community in the United States. The evangelical community comprises a powerful constituency in American politics that generally has expressed skepticism towards the science of climate change as well as efforts to address the problem. At the same time, however, the evangelical movement itself offers promising suggestions of effective techniques for securing values change. These techniques can serve as the foundation of a strategy for changing individual behavior and motivating support for collective action on climate change both within the evangelical community and among the general public.

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[6] *See* Part II.B.

[7] Definitions of the evangelical community vary. Sociologist Michael Lindsay defines an evangelical as "someone who believes (1) that the Bible is the supreme authority for religious belief and practice, (2) that he or she has a personal relationship with Jesus Christ, and (3) that one should take a transforming, activist approach to faith." D. MICHAEL LINDSAY, FAITH IN THE HALLS OF POWER: HOW EVANGELICALS JOINED THE AMERICAN ELITE 4 (2007). *Cf.* Andrew Higgins, *Split Over Global Warming Widens Among Evangelicals*, WALL ST. J., Sept. 28, 2007, at A1, A8 ("Evangelicals in the U.S. share a cluster of core principles: belief in the authority of the Bible, a determination to spread the faith and a commitment to salvation through Jesus. But defining the group beyond that is difficult."); John Copeland Nagle, *The Evangelical Debate Over Climate Change*, 5 U. ST. THOMAS L.J. 53, 58–59 (2008) (discussing possible definitions of "evangelical").

I. CLIMATE CHANGE AND THE ROLE OF INDIVIDUAL BEHAVIOR

A. *The Basics of Global Warming*

In recent months, global warming has received much attention in the popular media and in scholarly journals.[8] The attention reflects both a growing clamor in the international community for a prompt response, and a solid consensus among scientists that human activities are causing climate change. This section briefly summarizes the science of climate change, the growing awareness of the need for immediate and concerted actions to mitigate it, and efforts made thus far to address the problem. The objective is to provide context for the argument to follow, not to set out a comprehensive justification for action on climate change.

1. *The Science*

The Earth's climate is the product of complex interactions between the atmosphere, land surface, snow and ice, oceans and seas, and living things.[9] Energy from the sun drives the climate system and is either reflected back into space or absorbed by the Earth's surface and atmosphere.[10] The climate remains relatively constant because the Earth radiates heat back into space at approximately the same rate that energy is absorbed.[11] Greenhouse gases (GHGs) naturally present in the atmosphere, including carbon dioxide, water vapor, and methane, act as a partial insulator preventing the heat from being radiated back into space.[12] This "greenhouse effect" maintains the Earth's surface temperature at a higher level than it would otherwise be and makes life as we know it possible.[13] Numerous human activities, particularly the combustion of fossil fuels and the removal of forests, release greenhouse gases and magnify the greenhouse

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[8] *See, e.g.*, Juliet Eilperin, *Report Details Effects of Climate Change Across U.S.*, WASH. POST, May 28, 2008, at A2; Bryan Walsh & Tiffany Sharples, *Sizing Up Carbon Footprints*, TIME, May 26, 2008, at 53; *supra* note 1.

[9] *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS 96 (2007) [hereinafter IPCC, PHYSICAL SCIENCE BASIS], *available at* http://www.ipcc.ch/ipccreports/ar4-wg1.htm.

[10] *See id.* at 97.

[11] *See id.*

[12] *See id.* at 97, 100.

[13] *See id.* at 97.

effect.[14]

Popular discussions of climate change sometimes suggest uncertainty about climate change and its causes.[15] The scientific community, however, has reached a consensus that human activities are causing climate change.[16] This consensus is reflected in the reports of the Intergovernmental Panel on Climate Change (IPCC), an organization created in 1988 to provide policymakers with an objective source of information about climate change through assessments of peer-reviewed and published scientific literature.[17]

Issued in 2007, the IPCC's latest reports declare global warming to be "unequivocal"[18] and leave no doubt as to the fact of climate change, its anthropogenic origins, and the dire consequences should current trends continue. The reports catalogue observations of increases in average air and ocean temperatures, widespread melting of snow and ice, and rising average sea levels. The observed warming pattern, the IPCC noted, tracks atmospheric concentrations of GHGs, which "have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years."[19] Based on the overwhelming evidence, the IPCC deems it "very likely" that "[m]ost of the observed increase in globally-averaged temperatures since the mid-20th century is . . . due to the observed increase in

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[14] *See id.*

[15] *See, e.g.*, Jeff Jacoby, Op-Ed., *Warming Debate: Scene 1, Take 2*, BOSTON GLOBE, Aug. 19, 2007, at E9; Raymond J. Keating, Op-Ed., *Climate Shift: Rhetoric Distorts Reality*, NEWSDAY, Feb. 4, 2008, at A29.

[16] *See* Naomi Oreskes, *The Scientific Consensus on Climate Change*, 306 SCIENCE 1686 (2004) (reviewing abstracts of 928 climate change papers published in refereed scientific journals between 1993 and 2003 and concluding that none of them disagreed with consensus position that human activities are causing climate change).

[17] *See* IPCC, PHYSICAL SCIENCE BASIS, *supra* note 9 at 10; Intergovernmental Panel on Climate Change, "About IPCC," http://www.ipcc.ch/about/index.htm (last visited Apr. 14, 2009).

[18] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, FOURTH ASSESSMENT REPORT, CLIMATE CHANGE 2007: SYNTHESIS REPORT 2 (2007) [hereinafter IPCC, SYNTHESIS REPORT], *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

[19] *Id.* at 5 (noting 70 percent rise in GHG emissions from human activities between 1970 and 2004).

anthropogenic GHG concentrations."[20]

Turning to the future, the IPCC predicts further increases in GHG emissions should current policies and practices continue. This will result in additional warming and more dramatic impacts on human societies and the environment.[21] There is some uncertainty regarding exactly how disastrous climate change's effects will be, but it seems increasingly likely that if left unchecked, the impacts will be catastrophic.[22] As described in greater detail in the IPCC reports and other papers, the predicted effects include: inundation of island and coastal communities, reduced water supplies, more frequent droughts and wildfires, increased health risks from longer and more intense heatwaves, more widespread tropical diseases, sharp decreases in agricultural production, and potential armed conflict triggered by resource scarcity.[23]

2. *Efforts to Halt Global Warming*

Climate change is a classic example of a "tragedy of the commons,"[24] a collective action problem in which a resource held in common—the Earth's atmosphere—is subject to overuse and degradation.[25] Governments, industries, and individuals all

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[20] *Id.*

[21] *Id.* at 7.

[22] *See* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: IMPACTS, ADAPTATION AND VULNERABILITY 11–18 (2007) [hereinafter IPCC, IMPACTS], *available at* http://www.ipcc.ch/ipccreports/ar4-wg2.htm; Vandenbergh & Steinemann, *supra* note 1, at 1675–76.

[23] *See* CALIFORNIA CLIMATE CHANGE CENTER, OUR CHANGING CLIMATE: ASSESSING THE RISKS TO CALIFORNIA 5–14 (2006); CNA CORP., NATIONAL SECURITY AND THE THREAT OF CLIMATE CHANGE 6–7 (2007), *available at* http://securityandclimate.cna.org/report/ (predicting that climate change could heighten global tensions, trigger massive migrations, and multiply threats of instability); IPCC, SYNTHESIS REPORT, *supra* note 18, at 7–11; IPCC, IMPACTS, *supra* note 22, at 11–18; NICHOLAS STERN, STERN REVIEW: THE ECONOMICS OF CLIMATE CHANGE 56–57 (2007); Jeffrey Kluger, *By Any Measure, Earth Is at the Tipping Point*, TIME, Apr. 3, 2006, at 30.

[24] *See* Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

[25] Such collective action problems arise where collective action is necessary to achieve group benefits, yet self-interest leads rational individuals to behave in a manner contrary to what would be best for the group. *See* MANCUR OLSON, THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS (rev. ed. 1971).

undertake and benefit from activities that release GHGs, but bear almost none of the climate-related costs of their own activities. As a result, they have little incentive to take these externalities into account when making decisions.[26] The collective action necessary to solve such problems may involve regulation, pressure exerted through social norms, voluntary cooperation, or other means.[27]

Although scientists first hypothesized over one hundred years ago that the Earth's climate might be sensitive to greenhouse gas concentrations,[28] international momentum to act on the problem has developed slowly. The first international agreement to address climate change, the 1992 Framework Convention on Climate Change, was an important milestone in acknowledging the problem.[29] While containing essentially no binding substantive obligations, the Framework Convention set up mechanisms to gather data and study the problem further.[30] In addition, it laid the groundwork for the Kyoto Protocol, which established binding caps on GHG emissions from industrialized parties beginning in the year 2008.[31] However, mounting evidence of the gravity of the problem has led to a growing realization that the emission limits that Kyoto imposes on industrialized parties are inadequate.[32]

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[26] *See* Green, *You Can't Pay Them Enough*, *supra* note 1, at 411–12 (describing global warming as a "large-group externality problem"). A rational individual convinced of the dire consequences of global warming, for example, may nevertheless decide against any individual behavioral changes to reduce his carbon emissions, reasoning that his individual contribution to the overall problem is infinitesimal and that the personal costs of behavioral change would outweigh any marginal benefits.

[27] *See* Carol Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1, 8–11 (1991) (discussing various strategies for commons management).

[28] *See* IPCC, PHYSICAL SCIENCE BASIS, *supra* note 9, at 105.

[29] United Nations Framework Convention on Climate Change, May 9, 1992, S. TREATY DOC. NO. 102-38, 1771 U.N.T.S. 164, *available at* http://untreaty.un.org/English/notpubl/unfccc_eng.pdf.

[30] *See id.* arts. II, IV ¶ 1, V.

[31] Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 3 ¶ 1, Dec. 10, 1997, U.N. Doc. FCCC/CP/1997/L,7/ADD.1, 37 I.L.M. 32.

[32] *See* Tony Grayling, *Beyond Kyoto*, 10 NEW ECON. 125, 125 (2003) ("Kyoto is little more than a very small first step towards addressing climate change."); Brian C. O'Neill & Michael Oppenheimer, *Dangerous Climate Impacts and the Kyoto Protocol*, 296 SCIENCE 1971 (2002) (noting that "the emissions limits required by the Kyoto Protocol would reduce warming only marginally").

Moreover, Kyoto did not put any limits on emissions from developing countries, a point cited by the United States in refusing to ratify the treaty.[33]

It is commonly estimated that global GHG emission levels must be 60 percent to 80 percent below current levels by the year 2050 to avoid the most dangerous impacts of climate change.[34] Growing concern regarding the enormity of this task has prompted further discussions aimed at negotiating a successor treaty to Kyoto. In December 2007, representatives of over 180 nations met in Bali, Indonesia to begin negotiations on a new climate change treaty scheduled to be completed in 2009.[35] These talks face the daunting task of bridging the divide between the industrialized North, whose relative prosperity rests on an ultimately unsustainable carbon-based economy, and the industrializing South, which hopes to follow the North's footsteps in developing its way out of relative poverty.

Although responsible for approximately 22 percent of worldwide GHG emissions,[36] the United States has lagged behind other industrialized countries in addressing climate change. In addition to declining to ratify the Kyoto Protocol, the federal government has refrained from enacting mandatory emissions limits, and instead has relied primarily on voluntary efforts that have had little apparent effect.[37] Some policy changes are

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[33] *See, e.g.*, Press Release, Office of the Press Sec'y, President Bush, Remarks by the President on Global Climate Change (June 11, 2001), *available at* http://usinfo.org/wf-archive/2001/010611/epf103.htm (characterizing Kyoto Protocol as "fatally flawed" and noting that developing countries, including major emitters such as China and India, are exempt from binding limits under Kyoto).

[34] *See* Vandenbergh & Steinemann, *supra* note 1, at 1686–87; UNION OF CONCERNED SCIENTISTS, HOW TO AVOID DANGEROUS CLIMATE CHANGE: A TARGET FOR U.S. EMISSIONS REDUCTIONS 1 (2007), *available at* http://www.ucsusa.org/global_warming/science/emissionstarget.html (recommending overall reductions in global emissions of 40–50 percent below 2000 levels by 2050 and 70–80 percent reductions in industrialized nations).

[35] *See* Laurie Goering, *Pressured U.S. Agrees to UN Deal on Climate "Roadmap" Set for New Treaty by '09*, CHI. TRIB., Dec. 16, 2007, at 1.

[36] *See* ENERGY INFORMATION ADMINISTRATION, EMISSIONS OF GREENHOUSE GASES IN THE UNITED STATES 2007 6 (2008), *available at* http://www.eia.doe.gov/oiaf/1605/ggrpt/pdf/0573(2007).pdf.

[37] U.S. GHG emissions in 2006 were approximately 1.5 percent lower than emissions in 2005, but remained approximately 15 percent higher than 1990 emission levels. *See id.* at 1.

beginning to appear at the federal level, however. The federal energy bill enacted at the end of 2007 takes a modest step towards reducing emissions by requiring auto manufacturers to meet tightened fuel economy standards by 2020.[38] Moreover, proposals pending in Congress, if enacted, would establish long-term and interim targets and timetables for reducing emissions nationwide.[39] It is also worth noting that state and local governments have responded to the general lack of federal action in various ways. California, for example, has enacted statutes that require significant reductions in GHG emissions from all sources by 2020.[40] Taken together, these measures represent important but incomplete first steps in tackling climate change.

B. *The Role of Individuals*

The state and federal regulatory schemes just discussed concentrate on emissions from industrial sources rather than on those from individuals.[41] Similarly, most policy proposals in the

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[38] Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (2007).

[39] *See* Dean Scott, *Talks on Cap-and-Trade Bill Accelerate As Concerns Raised Over Cost, Other Issues*, 39 ENV'T REP. 631 (2008) (describing proposed America's Climate Security Act of 2007); Dernbach, *supra* note 1, at 137–43 (summarizing targets and timetables found in bills pending in Congress); John M. Broder, *2 Democrats Introduce Far-Reaching Bill on Energy and Warming*, N.Y. TIMES, Apr. 1, 2009, at A19 (describing bill that would require 20 percent reduction in emissions from 2005 levels by 2020 and 80 percent reduction by 2050), *available at* http://www.nytimes.com/2009/04/01/us/politics/01energycnd.html?_r=1&scp=1&sq=john%20m.%20broder%20april%201,%202009&st=cse.

[40] *See* Global Warming Solutions Act of 2006, Cal. A.B. 32, 2006 Cal. Stat. ch. 488 (codified at CAL. HEALTH & SAFETY CODE §§ 38500-38599 (2006)) (requiring that greenhouse gas emissions from the state be reduced to 1990 levels by the year 2020). In 2002, California enacted AB 1493, a statute specifically focused on emissions from new motor vehicles. *See* Cal. A.B. 1493, 2002 Cal. Stat. ch. 200 (amending Cal. Health & Safety Code § 42823 and adding Cal. Health & Safety Code § 43018.5). That statute, which resulted in the promulgation of regulations that would reduce such emissions 30 percent by 2016, has been the subject of much legal wrangling. *See* Cent. Valley Chrysler-Jeep v. Goldstene, 529 F. Supp. 2d 1151 (E.D. Cal. 2007) (rejecting preemption challenge); Felicity Barringer, *California Sues EPA Over Denial of Waiver*, N.Y. TIMES, Jan. 3, 2008, at A14 (reporting on lawsuit by California to challenge EPA's denial of waiver necessary to allow AB 1493 to take effect).

[41] *See* Lieberman-Warner Climate Security Act, S. 3036, 110th Cong. (2008); Dernbach, *supra* note 1, at 110–14 (canvassing leading climate change proposals in Congress and concluding they "focus primarily on the largest direct

literature pay little attention to individuals as a source of GHGs. This is not terribly surprising. Environmental regulation has historically focused on industrial sources;[42] industrial and other non-individual sources generate the majority of GHG emissions, and regulating individual behavior presents distinct practical and political difficulties.[43]

Increasingly, however, commentators are calling attention to individual behavior as an important source of GHG emissions.[44] Individuals are responsible for approximately 32 percent of total GHG emissions in the United States, according to one estimate.[45] If those emissions from individuals could be decreased by just one percent, that would represent a reduction of f billion pounds of carbon dioxide.[46] Individuals are important not only as consumers who directly generate GHG emissions, but also as citizens whose support and participation are essential to enact and implement effective policies against climate change.[47] These policies might include legislation to curb emissions domestically, participation in an international climate change treaty regime, and international assistance to developing countries in controlling their emissions.

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and indirect sources of greenhouse gas emissions").

[42] *See* Vandenbergh, *From Smokestack to SUV*, *supra* note 1, at 524–29.

[43] *See* Farber, *supra* note 1, at 10,746 (noting practical difficulty of monitoring very large numbers of small sources and political resistance to regulating individuals and small businesses); Vandenbergh, *The Individual as Polluter*, *supra* note 1, at 10,733 (observing "political unpopularity of regulating individuals").

[44] *See, e.g.*, Vandenbergh & Steinemann, *supra* note 1. This Article discusses individual behavior in the context of industrialized Western nations. Although individual behavior in developing countries is playing a growing role in climate change, the focus on individuals in industrialized nations is warranted by their far greater impact. *See* András Takács-Sánta, *Barriers to Environmental Concern*, 14 HUM. ECOLOGY REV. 26, 28 (2007).

[45] *See* Vandenbergh & Steinemann, *supra* note 1, at 1677; *see also* Green, *You Can't Pay Them Enough*, *supra* note 1, at 412 & n.27. Vandenbergh and Steinemann define individual behavior as "those behaviors that are under the direct, substantial control of the individual and that are not undertaken in the scope of the individual's employment." Vandenbergh & Steinemann, *supra* note 1, at 1690. This definition includes emissions from personal motor vehicle use, personal air travel, and household electricity use. *See id.*

[46] *See* Vandenbergh & Steinemann, *supra* note 1, at 1695.

[47] *See* Dernbach, *supra* note 1, at 114–17; *see also* Thomas Dietz et al., *Environmental Values*, 30 ANN. REV. ENV'T. RESOURCES 335, 356 (2005) (observing that individual action can take varied forms, including political activism, non-activist political behavior such as voting, and consumer choices).

In light of the critical role of individuals, Professors Michael Vandenbergh and Anne Steinemann have proposed the development of an "Individual Carbon Release Inventory" that would provide individuals with information about the adverse consequences of carbon-emitting behaviors.[48] This information, it is hoped, would stimulate changes in behavior as individuals come to understand the connections between their daily activities and global changes in climate.[49] In addition to such information disclosure tools, economic incentives could be designed to induce desirable behaviors among individuals.[50]

Efforts to combat global warming, of course, should not focus on individual behavior alone.[51] Carbon emissions from individual behavior are significant in the aggregate, but other sources account for the majority of all carbon emissions. Moreover, reducing carbon emissions from individual behavior will be difficult because of various factors beyond individual control: corporate power is critical in shaping and constraining market preferences,[52] and the existing architecture of inefficiently designed buildings or sprawling communities often limits households' ability to reduce energy consumption levels.[53] Thus, while major purchasing decisions involving the selection of a home, vehicle, or appliance can present a significant opportunity to reduce emissions, the options available in the marketplace may be limited.[54] Even where individuals are presented with meaningful options for reducing emissions, self-interest and behavioral inertia may prevent change.

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[48] Vandenbergh & Steinemann, *supra* note 1, at 1729–35.

[49] *See id.*

[50] *See* Dernbach, *supra* note 1, at 152–56.

[51] *See* Trip Pollard, *Public Policies, Individual Behavior*, ENVTL. F., Nov.–Dec. 2007, at 50 (warning that focus on individual behavior "must not . . . be used as an excuse to avoid measures to cut the substantial emissions from industrial and commercial activities").

[52] *See* Amy Sinden, *Climate Change and Human Rights*, 27 J. LAND RESOURCES & ENVTL. L. 255, 269 (2007).

[53] *See* Loren Lutzenhiser, *Conserve During a Crisis, But Otherwise Hard*, ENVTL. F., Nov.–Dec. 2007, at 50.

[54] *See* GERALD T. GARDNER & PAUL C. STERN, ENVIRONMENTAL PROBLEMS & HUMAN BEHAVIOR 261 (1996) (distinguishing between curtailment actions, which tend to involve "small, simple behaviors that must be repeated over and over again for long time periods," and efficiency-increasing actions, which tend to involve infrequent or one-time actions, but may also require more capital and information).

Ultimately, the difficulty of changing individual behavior, the wide range of activities contributing to global warming, and the predominance of non-individual emission sources point to the need for a suite of strategies to combat climate change.[55]

Furthermore, efforts to change individual behavior should not rely exclusively on any single approach such as voluntary behavioral changes or strict mandates. The breadth and severity of the problem demand the deployment of a range of policy tools, including traditional forms of regulation, economic incentives, information-based regulation, education, and voluntary efforts.[56] Numerous factors affect behavior,[57] and the effectiveness of any particular tool for bringing about behavioral change will depend on context.[58] Studies of recycling, for instance, have found that measures to increase the convenience of environmentally desirable behavior are usually more effective than techniques of persuasion.[59] In some cases, a combination of methods may be more effective than a single technique.[60] Efforts to inform or persuade consumers to reduce energy use, for example, will likely bring about meaningful behavioral change only in conjunction with extensive government regulation that affects energy efficiency and the range of options available to consumers.[61]

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[55] *See, e.g.*, IPCC, SYNTHESIS REPORT, *supra* note 18, at 14–18 (discussing adaptation and mitigation options); Stephen Pacala & Robert Socolow, *Stabilization Wedges: Solving the Climate Problem for the Next 50 Years With Current Technologies*, 305 SCIENCE 968 (2004) (describing array of options for stabilizing GHG emissions).

[56] *See* Cohen, *supra* note 1, at 48 ("Economics 101 tells us there are three ways to change individual behavior—change preferences, prices, or constraints. Creating the carbon neutral citizen would likely require a combination of all three mechanisms to be truly successful.").

[57] Paul C. Stern, *Understanding Individuals' Environmentally Significant Behavior*, 35 ENVTL. L. REP. 10,785, 10,789 (2005) ("behavior change depends on a conjunction of factors").

[58] *See* Paul C. Stern, *Psychology and the Science of Human-Environment Interactions*, 55 AM. PSYCHOLOGIST 523, 525 (2000) (noting importance of contextual factors such as costs and convenience in determining immediate behavior).

[59] *See* Ann E. Carlson, *Recycling Norms*, 89 CAL. L. REV. 1231, 1296 (2001).

[60] *See* Stern, *supra* note 1, at 51 ("real progress will require multiple influences applied in the right places and at the right time"); Paul C. Stern, *Toward a Coherent Theory of Environmentally Significant Behavior*, 56 J. SOC. ISSUES 407, 419 (2000) (noting "the most effective behavior change programs involve combinations of intervention types").

[61] *See* Ann E. Carlson, *Social Norms and Individual Environmental*

Notwithstanding these qualifications, changing individual behavior remains essential because such behavior is a significant source of GHGs. As suggested in the Introduction, attending to the norms and values underlying behavior is crucial, not only because values and norms influence individual behavior, but also because they motivate public support for government action against climate change. Solving climate change will surely require legal responses prohibiting certain actions while creating incentives or disincentives for other actions. But law alone will not be enough. "Law is an incomplete tool for regulating human behavior," Holly Doremus has explained, because it cannot encompass all behaviors, nor can it be perfectly enforced.[62]

II. CHANGING INDIVIDUAL BEHAVIOR THROUGH NORM ACTIVATION

Influencing individual behavior, norms, and values is no simple matter. Nonetheless, various models provide useful accounts of individual behavior and suggest possible directions to explore in encouraging more climate-friendly behavior.

A. *Modeling Individual Behavior*

Rational choice theory is the leading model of human behavior in microeconomics and is perhaps the predominant behavioral assumption underlying public discourse today.[63] The theory presumes that individuals make decisions that maximize personal utility based on a consideration of costs and benefits.[64] Although this model can be a useful construct for analytical purposes, it is an oversimplification that glosses over important

Behavior, 35 ENVTL. L. REP. 10,763, 10,766–67 (2005) (expressing skepticism regarding ability of social norms to bring about meaningful energy conservation among individuals, given large numbers of individuals whose behavior must change and the small payoff to individuals from behavioral change); Cohen, *supra* note 1, at 49 (calling it "unlikely that the carbon-neutral citizen will ever be realized without major changes in the constraints consumers face"); Pollard, *supra* note 51, at 50 ("To achieve needed changes in individual behavior, people must have meaningful choices. This often requires changing public policies.").

[62] Holly Doremus, *Shaping the Future: The Dialectic of Law and Environmental Values*, 37 U.C. DAVIS L. REV. 233, 235–36 (2003).

[63] *See* Tim Jackson, *Live Better by Consuming Less?*, 9 J. INDUS. ECOLOGY, Jan. 2005, at 19, 21 (contending that rational choice theory "has become so widely accepted that most modern economics textbooks barely even discuss its origins or question its authenticity").

[64] *See* Dietz et al., *supra* note 47, at 341; Jackson, *supra* note 63, at 21–23.

influences on behavior other than individual motivation.[65] As social psychologists point out, people tend to undervalue the role of norms, contexts, and other factors.[66] Absent such factors, it is difficult to explain conduct contrary to one's self-interest, including much behavior that benefits the environment.

The two leading frameworks of social psychology for understanding conservation behavior—the theory of planned behavior and value-belief-norm theory—offer a more complete description of individual behavior by incorporating factors other than personal utility maximization.[67] Perhaps the most important of these factors are norms, informal obligations that motivate behavior through nonlegal sanctions.[68] Under the theory of planned behavior, intention to perform a behavior is antecedent to actual behavior.[69] Three factors, in turn, determine behavioral intention: attitude toward the behavior, social norms, and perceived behavioral control.[70] The theory of planned behavior overlaps with rational choice theory in that the first factor—attitude—refers to a rational-choice based evaluation of the expected outcomes of a behavior and the desirability of those outcomes.[71] Planned behavior theory goes beyond rational choice theory by recognizing that social norms—norms enforced through

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[65] *See* Lynn A. Stout, *On the Proper Motives of Corporate Directors (Or, Why You Don't Want to Invite* Homo Economicus *to Join Your Board)*, 28 DEL. J. CORP. L. 1, 9 (2003) (criticizing common assumption of corporate governance scholarship "that people behave like *homo economicus*—that they are perfectly rational and purely self-interested actors").

[66] *See* Susan Clayton & Amara Brook, *Can Psychology Help Save the World? A Model for Conservation Psychology*, 5 ANALYSES OF SOC. ISSUES & PUB. POL'Y 87, 90 (2005) (describing "fundamental attribution error"—the erroneous attribution of behavior to stable dispositions, rather than contextual factors); Stern, *supra* note 58, at 525 (arguing the same point).

[67] *See* Florian G. Kaiser et al., *Contrasting the Theory of Planned Behavior With the Value-Belief-Norm Model in Explaining Conservation Behavior*, 35 J. APPLIED SOC. PSYCHOL. 2150, 2151 (2005).

[68] *See* Richard H. McAdams, *The Origin, Development, and Regulation of Norms*, 96 MICH. L. REV. 338, 350 (1997) ("norms are enforced by some means other than legal sanctions"); Vandenbergh & Steinemann, *supra* note 1, at 1706.

[69] *See* Icek Ajzen, *The Theory of Planned Behavior*, 50 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 179, 181 (1991).

[70] *See id.* at 188.

[71] *See* Judith DeGroot & Linda Steg, *General Beliefs and the Theory of Planned Behavior: The Role of Environmental Concerns in the TPB*, 37 J. APPLIED SOC. PSYCHOL. 1817, 1818 (2007).

social sanctions—and perceptions of control of behavior also affect behavioral intention.

Proponents of value-belief-norm (VBN) theory, in contrast, contend that personal norms—norms enforced by a sense of guilt or other internal mechanisms[72]—are central to individual behavior. These norms are a function of one's self-ascribed responsibility, one's awareness of the consequences of behavior, and one's ecological worldview, which in turn is determined by one's values.[73] Developed in the context of explaining proenvironmental behavior, VBN theory shies away from the utilitarian assumptions of rational choice theory and planned behavior theory, and concentrates instead on the role of values and norms.[74]

Under any of these theories, an obvious option for changing individual behavior is through direct regulation. Direct regulation of individual behavior may involve command-and-control approaches, as exemplified by a flat prohibition of the disposal of oil in storm drains. Direct regulation may also include economic incentives aimed at individuals, such as pollution fees or green tax credits.[75] Under some circumstances, these tools can have a powerful effect on behavior.[76] Command-and-control regulation

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[72] *See* Vandenbergh & Steinemann, *supra* note 1, at 1706–07. Social psychologists have identified three general classes of outcome desires that motivate individual behavior: tangible benefits, social norms, and personal norms. *See* Lawrence J. Axelrod & Darrin R. Lehman, *Responding to Environmental Concerns: What Factors Guide Individual Action?*, 13 J. ENVTL. PSYCH. 149, 152 (1993).

[73] *See* Kaiser et al., *supra* note 67, at 2153.

[74] *See id.* at 2151; Paul C. Stern et al., *A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism*, 6 HUM. ECOLOGY REV. 81, 83 (1999). Empirically, both the theory of planned behavior and VBN theory are successful in predicting some behavior, but neither provides full explanatory power. *See* Kaiser et al., *supra* note 67, at 2151–53.

[75] *See generally* ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE, & POLICY 143–44 (5th ed. 2006). Regulation of individual behavior also may occur indirectly through mandates on utilities and other large pollution sources that in turn institute incentives for desired consumer behavior. *See* Farber, *supra* note 1, at 10,752.

[76] *See* Stern, *supra* note 57, at 10,789 (noting that "[f]inancial incentives can make a fairly large difference when they can be put in place," although "their effectiveness depends greatly on how they are implemented"). For example, a near quintupling of utility rates in Juneau, Alaska due to the loss of a low-cost source of hydroelectric power led to an immediate 30 percent drop in electricity usage. *See* Anne Sutton, *Outage Helps Alaskan City Learn Value of Oil Lamps, Turning Off TV*, SACRAMENTO BEE, Apr. 30, 2008, at D4.

and economic incentives largely assume a rational choice model of behavior in seeking to change individuals' assessments of the costs and benefits of contemplated conduct. The effectiveness of such regulations, however, also depends on norms and contextual factors. A ban on smoking, for example, may be successful if it reflects developing social norms, but might be ignored entirely if it is contrary to predominant social norms.[77]

Practical considerations demonstrate, however, that direct regulation of individual behavior is not a panacea. Often, command-and-control regulation of individuals is politically infeasible because of its perceived intrusiveness.[78] An attempt to improve air quality in the Los Angeles area by imposing driving restrictions during the early 1970s, for instance, was met with fierce resistance.[79] Command-and-control regulation of individuals also can be inefficient and costly to enforce because of the large number of regulatory targets, their dispersed nature, and the difficulty of detecting environmental harms.[80] Economic incentives likewise face particular difficulties when applied to individuals, given the unpopularity of taxes and the administrative complexity of cap-and-trade schemes.[81]

Targeting behavioral norms offers a less coercive and potentially less costly alternative for achieving individual behavioral change. Public information campaigns typically focus on activating or changing concrete norms, such as a norm of recycling or a norm of using public transportation.[82] Efforts may

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[77] *See* Alex Geisinger, *A Belief Change Theory of Expressive Law*, 88 IOWA L. REV. 35, 63–65 (2002) (explaining how law can affect behavior by influencing attitudes towards a particular behavior as well as beliefs about subjective norms concerning the behavior).

[78] *See* Michael P. Vandenbergh, *Order Without Social Norms: How Personal Norm Activation Can Protect the Environment*, 99 NW. U. L. REV. 1101, 1103; Carlson, *supra* note 59, at 1235.

[79] *See* Craig N. Oren, *How a Mandate Came from Hell: The Making of the Federal Employee Trip Reduction Program*, 28 ENVTL. L. 267, 278 (1998) (noting strong public opposition to EPA's proposal to require gasoline rationing and other measures that would reduce automobile use by 80 percent).

[80] *See* Vandenbergh, *From Smokestack to SUV*, *supra* note 1, at 598; Carlson, *supra* note 59, at 1235.

[81] *See* Green, *You Can't Pay Them Enough*, *supra* note 1, at 407 ("taxes and prohibitions are politically unpopular"); Vandenbergh, *supra* note 78, at 1103–04.

[82] *See* Steven Hetcher, *Norms as Limited Resources*, 35 ENVTL. L. REP.

also be directed at a deeper level and seek to change abstract norms and fundamental values[83]—individuals' general goals that transcend specific situations and "serve as guiding principles in the life of social actors."[84] Norms and values are critical points of leverage not only because of their influence on individual behavior, but also because they can motivate political participation and support for particular environmental policies.[85] The following section explores norm activation as a tool for behavioral change, including possible limitations of such an approach. Concluding that the mere provision of information about the climate-related

10,770, 10,781–82 (2005) (applying VBN theory to recycling); Vandenbergh & Steinemann, *supra* note 1, at 1705 ("To develop effective information-disclosure measures, policymakers need to know the type of information that is most likely to activate the norms that influence low-hanging fruit behaviors and civic behaviors.").

[83] There is some ambiguity regarding the definition of values and norms. *See generally* McAdams, *supra* note 68, at 382–83 (noting different levels of generality used in describing norms). Much of the legal literature distinguishes between abstract norms, which "are stable for extended periods of time," and concrete norms, which prescribe behavioral responses to specific situations. *See, e.g.*, Vandenbergh, *supra* note 78, at 1116–19. The social psychology literature uses the term "values" to refer to basic dispositions (e.g., egoism and altruism) and "abstract norms" to refer to somewhat more concrete, but still general dispositions (e.g., environmental protection, reciprocity). *See, e.g.*, Stern, *supra* note 57, at 10,786–87. Undoubtedly, the concepts of "values" and "abstract norms" do significantly overlap, and for most purposes, it is unnecessary to distinguish between the two. *See* Vandenbergh, *supra* note 78, at 1116–17 n.68 (contending that "[t]he specific values operationalized in empirical tests of the VBN theory . . . correspond roughly to the abstract, second order norms identified in the legal literature"). The point to note is that proposals to change individual behavior tend to focus on activating abstract norms, rather than on changing those norms or underlying values.

[84] Anders Biel & Ulf Dahlstrand, *Values and Habits: A Dual-Process Model*, *in* ENVIRONMENT, INFORMATION, AND CONSUMER BEHAVIOR 33, 35 (Signe Krarup & Clifford S. Russell eds., 2005); *see also* MILTON ROKEACH, THE NATURE OF HUMAN VALUES 5 (1973) (defining value as "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence"); Doremus, *supra* note 62, at 241 & n.24 (referring to values as "the attitudes towards things and people that provide the underlying motivations for human behavior").

[85] *See* Carlson, *supra* note 1, at 48 ("education efforts are likely to work most effectively not in encouraging individual behavioral change but instead in building support for mandatory measures to alter dramatically our choices in transportation, energy usage, and consumption"); Dernbach, *supra* note 1, at 114–17; Green, *You Can't Pay Them Enough*, *supra* note 1, at 410; Hetcher, *supra* note 82, at 10,781.

effects of individual behaviors will likely have only modest effects, I suggest the need for more aggressive efforts to shape values and norms.

B. *Norm Activation as a Tool for Behavioral Change*

To understand the norm activation process, it is worth examining VBN theory in greater detail. The key premise of VBN theory is that behavioral change results from "shifts in beliefs that connect concrete and abstract norms."[86] Specifically, the theory proposes a causal link between "relatively stable, central elements of personality and belief structure" (i.e., values), "more focused beliefs about human-environment relations," and ultimately "a sense of moral obligation that creates a predisposition to act."[87] In this model, exposing individuals to information about the environmental consequences of their behavior produces behavior change by creating two new beliefs: "(1) an awareness of the consequences of the individual's act regarding the objects of an abstract norm;" and "(2) an ascription of personal responsibility for causing or preventing those consequences."[88] Ultimately, changes in beliefs concerning the consequences of one's behavior and acceptance of responsibility for those consequences activate concrete norms that influence individual behavior.

Recognizing the role of norms is critical to understanding how behavioral change can occur in the absence of direct economic benefit to an individual.[89] While the preceding discussion focused

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[86] Vandenbergh & Steinemann, *supra* note 1, at 1707; *see also* Kaiser et al., *supra* note 67, at 2153 (recognizing central role of norms in motivating behavior under VBN theory).

[87] Stern et al., *supra* note 74, at 85–86. In contrast to VBN theory, the theory of planned behavior gives relatively minimal weight to moral considerations. *See* Kaiser et al., *supra* note 67, at 2152–53 (noting criticism of theory of planned behavior, but suggesting that attitudes, one of the key variables under the theory, account for moral norms to some degree).

[88] *See* Vandenbergh & Steinemann, *supra* note 1, at 1707–08; *see also* Doremus, *supra* note 62, at 253–54 (suggesting that norm activation depends on understanding of potential harms, awareness of actions available to address those harms, and sense of personal obligation to act); Stern et al., *supra* note 74, at 85.

[89] Tools for changing or activating norms vary in degrees of coercion from the voluntary—such as information campaigns and educational outreach—to the coercive—such as legal restrictions. *See* Cass R. Sunstein, *Social Norms and Social Roles*, 96 COLUM. L. REV. 903, 948–52 (1996); *see also* Richard H. McAdams, *The Origin, Development, and Regulation of Norms*, 96 MICH. L.

on VBN theory, it is worth noting that other theories of individual behavior also can account for the influence of norms, at least indirectly. Under rational choice theory, the costs and benefits considered by a rational individual can be interpreted to include the social costs and benefits—shame, reputational effects, and the like—that are the product of social norms.[90] And under the theory of planned behavior, social norms—"the perceived expectations of relevant others"[91]—are a key variable in determining behavioral intention.

Social norms can serve as effective means of addressing collective action problems where individuals have face-to-face contact with other potential cooperators who can enforce those norms.[92] However, if an individual's actions are not readily observable by others or occur in loose-knit, large-group situations, social sanctions are likely to have little effect.[93] In these circumstances—circumstances that frequently characterize instances of individual pollution behavior—one must rely instead

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REV. 338, 347 (1997) ("Norms matter to legal analysis because (1) sometimes norms control individual behavior to the exclusion of law, (2) sometimes norms and law together influence behavior, and (3) sometimes norms and law influence each other.").

[90] *See* Sunstein, *supra* note 89, at 945 ("apparent puzzles of rationality are often a product of social norms and moral judgments that are intertwined with those norms"); Michael P. Vandenbergh, *Beyond Elegance: A Testable Typology of Social Norms in Corporate Environmental Compliance*, 22 STAN. ENVTL. L.J. 55, 56 (2003) (characterizing social norms scholarship "as a refinement to the behavioral assumptions of rational choice theory"); Vandenbergh, *supra* note 78, at 1104. This point is perhaps most famously illustrated in Robert Ellickson's study demonstrating the influence of informal social norms on the behavior of Shasta County, California ranchers. ROBERT C. ELLICKSON, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES (1991) (describing how changes in legal rules of cattle trespass were rendered moot in the face of preexisting social norms, as illustrated by unchanged fencing practices).

[91] Kaiser et al., *supra* note 67, at 2151.

[92] *See* Carlson, *supra* note 59, at 1245.

[93] *See* Vandenbergh, *supra* note 78, at 1105; Carlson, *supra* note 59, at 1245. Carlson cites recycling behavior as an example of a "large-number, small-payoff collective action problem" for which social norms are of limited power to solve. *Id.* at 1234. Recommending in such contexts that efforts focus on reducing barriers to desired behavior rather than on activating social norms, Carlson notes that commingled curbside pickup recycling programs—which require relatively little effort on the part of individual households in comparison to programs where households must separate different types of materials—tend to be the most successful in terms of participation rates and volumes of material collected. *See id.* at 1275–78.

on personal norms if one is to rely on norms at all.[94] Climate change exemplifies a situation in which both social norms and personal norms have important roles to play. Some individual behaviors that are relevant to climate change, such as the choice of a motor vehicle or the installation of solar panels, are readily observable, but many other behaviors, such as the amount of energy use within one's home or the frequency of vehicle use, are much more difficult to monitor and sanction.[95]

Arguing that "the key to affecting behavior in these settings lies in developing the ability to activate the relevant personal norms,"[96] Vandenbergh has advocated the use of informational tools as a critical means of bringing about behavioral change.[97] Often described as the "third wave" in pollution control policy,[98] information-based regulation relies on consumers and public interest groups to effectuate regulatory policy through individual decisions and public pressure.[99] With respect to GHG emissions, Vandenbergh and Anne Steinemann have proposed an "Individual Carbon-Release Inventory" that would disclose data on carbon emissions from individuals and on behavioral changes that would reduce emissions.[100] They contend that providing information about the mean, relative, and aggregate effects of individual behaviors is essential to activating personal norms of environmental concern and reciprocity and overcoming the common misconception that individual behavior is not a

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[94] Personal norms are particularly important in movements that seek to bring about social change because such movements cannot build on existing social norms. *See* Stern et al., *supra* note 74, at 83.

[95] *See* Green, *You Can't Pay Them Enough*, *supra* note 1, at 422.

[96] Vandenbergh, *supra* note 78, at 1106.

[97] *Id.* at 1146–64 (contending that "Individual Toxic Release Inventory" would facilitate risk avoidance, influence individual behavior by activating personal norms, and increase social norm enforcement).

[98] *See, e.g.*, Thomas Dietz & Paul C. Stern, *Exploring New Tools for Environmental Protection*, *in* NEW TOOLS FOR ENVIRONMENTAL PROTECTION 3, 4–5 (Thomas Dietz & Paul C. Stern eds., 2002) (describing environmental education and information-based efforts as "new tools" of environmental policy); Clifford S. Russell et al., *Environment, Information and Consumer Behavior: an Introduction*, *in* ENVIRONMENT, INFORMATION, AND CONSUMER BEHAVIOR, *supra* note 84, at 1, 4 (noting first wave involved "command and control" regulation and second wave involved "market based incentives").

[99] *See* Russell et al., *supra* note 98, at 5.

[100] Vandenbergh & Steinemann, *supra* note 1, at 1729–32.

substantial cause of pollution.[101] Acknowledging criticisms regarding the efficacy of prior information campaigns,[102] Vandenbergh and Steinemann stipulate that any informational effort must be well-designed and integrated with other policy instruments to be effective.[103]

C. *Limitations to Proposals Based on Norm Activation*

Combined with policy incentives for environmentally desirable behaviors, information campaigns like the one proposed have some potential to change behavior[104] and are an important first step. For a number of reasons discussed below, however, informational tools alone likely will not suffice to achieve the desired degree of behavioral change. Behavior is a complex phenomenon influenced by various factors such as social context, physical environment, past experience, and fundamental motives.[105] By itself, awareness of the environmental facts may have relatively little effect on individual behavior.[106] This section identifies obstacles to behavioral change, thereby laying the groundwork for developing a more powerful strategy for effectuating change that builds on the individual carbon release inventory proposal.

1. *Barriers to Norm Activation*

First, activating norms is no easy matter. In a society awash in information, successfully communicating one's message to the intended audience presents a formidable task. Studies of the effectiveness of consumer labeling and other information

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[101] *See id.* at 1709, 1729–31; *see also* Vandenbergh, *supra* note 78, at 1129–38 (reviewing product labeling and recycling schemes).

[102] *See* Vandenbergh & Steinemann, *supra* note 1, at 1704.

[103] *See id.* at 1704, 1724.

[104] *See* NAT'L RESEARCH COUNCIL, DECISION MAKING FOR THE ENVIRONMENT: SOCIAL AND BEHAVIORAL SCIENCE RESEARCH PRIORITIES 74–76 (Garry D. Brewer & Paul C. Stern eds., 2005) (noting that government agencies and firms often rely on information campaigns to inform and influence environmentally significant behavior, but also identifying need for additional research in designing informational efforts).

[105] *See* Clayton & Brook, *supra* note 66, at 90–93.

[106] *See* Alexander Grob, *A Structural Model of Environmental Attitudes and Behavior*, 15 J. ENVTL. PSYCHOL. 209, 215 (1995) (finding that among several variables studied in model, "the weakest effect was due to factual environmental awareness").

campaigns suggest that recipients of information either never absorb or do not use most of the information available.[107]

Even if information reaches the intended recipient, psychological mechanisms may work against norm activation. Psychologists have identified various cognitive shortcuts and biases that affect how individuals process information.[108] The absorption of information can be hindered, for example, by the tendency of people to be overconfident about the accuracy of the knowledge they already possess.[109] Individuals may selectively accept information that reinforces preexisting views, while rejecting information to the contrary.[110] In addition, people tend to estimate the probability of a future event on the basis of their personal experience with a similar event in the past, a phenomenon known as the availability heuristic.[111] This cognitive shortcut tends to produce underestimates of the risk of unprecedented events.[112] The availability heuristic affects public perceptions of risk, which are based not only on analytic, objective data provided by scientists, but also on feelings derived from personal experience and intuitive responses to such experience.[113]

Thanks to psychological mechanisms such as the availability heuristic, individuals are likely to underestimate the risks of global warming, even when confronted with objective information about

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[107] *See* GARDNER & STERN, *supra* note 54, at 90 (discussing key factors in increasing effectiveness of information campaigns); Clifford Rechtschaffen, *The Warning Game: Evaluating Warnings Under California's Proposition 65*, 23 ECOLOGY L.Q. 303, 328–29 (1996) (noting difficulties in communicating information about risks); *see also* Alex Williams, *That Buzz in Your Ear May Be Green Noise*, N.Y. TIMES, June 15, 2008, at ST1 (describing consumer confusion over which behaviors are environmentally preferable), *available at* http://www.nytimes.com/2008/06/15/fashion/15green.html.

[108] *See* GARDNER & STERN, *supra* note 54, at 227–34.

[109] *See id.* at 232.

[110] *See* Raymond S. Nickerson, *Confirmation Bias: A Ubiquitous Phenomenon in Many Guises*, 2 REV. GEN. PSYCH. 175 (1998) (discussing confirmation bias).

[111] *See* GARDNER & STERN, *supra* note 54, at 228–29.

[112] *See id.* at 229–30; Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 COGNITIVE PSYCH. 207 (1973).

[113] *See* Paul Slovic, *Perception of Risk*, 236 SCIENCE 280 (1987); 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, 104–05 (2006).

those risks.[114] The availability heuristic tends to lead people to discount the risks of climate change because of the unprecedented nature of the problem, but it is not the only psychological bias that disfavors immediate action to counter global warming. Individuals tend to give especially little weight to future costs and benefits when comparing them to present ones, a propensity referred to as hyperbolic discounting.[115] Economists generally agree that some discounting of future costs and benefits is reasonable. Hyperbolic discounting, however, results in almost no regard for future impacts. Compounding the problem, events in the near future, as opposed to those in the distant future, are often viewed in particularly concrete terms and thus tend to trigger emotional responses that motivate behavioral reactions.[116]

The net effect of these biases, not surprisingly, is the perception among many Americans of climate change as a relatively minor concern with effects, at most, on people and places that are distant in space and time.[117] As psychologist Elke Weber has suggested, "[a]ctions to mitigate climate change are unattractive . . . because they require immediate sacrifices in consumption that are compensated only by heavily-discounted and highly-uncertain benefits at a much later point in time."[118]

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[114] *See* Weber, *supra* note 113, at 108 (contending "ordinary, continental Americans and even people whose economic livelihood depends on weather and climate events . . . may not receive sufficient feedback from their daily or yearly personal experience to develop a reaction of alarm about global warming," in contrast to climate scientists, "whose research personally exposes them to observe the noticeable consequences of climate change").

[115] *See id.* at 109. Psychologists have also suggested a phenomenon of "geographic discounting," in which the intensity of one's feelings about land uses and other activities with environmental effects varies inversely with the distance of that activity from one's geographic place. *See* Bryan G. Norton & Bruce Hannon, *Environmental Values: A Place-Based Theory*, *in* THE EARTHSCAN READER IN ENVIRONMENTAL VALUES 207, 209 (Linda Kalof & Terre Satterfield eds., 2005).

[116] *See* Weber, *supra* note 113, at 110.

[117] *See* Alan Carlin, *Risky Gamble*, ENVTL. F., Sept.–Oct. 2007, at 42, 45 (noting various psychological characteristics of the global warming problem that will keep it at a relatively low level of priority, including "a long time horizon, uncertainty, and no visible effects to remind people that there is a problem"); Anthony Leiserowitz, *Climate Change Risk Perception and Policy Preferences: The Role of Affect, Imagery, and Values*, 77 CLIMATE CHANGE 45, 64 (2006).

[118] Weber, *supra* note 113, at 109. Rather than spurring action, the provision of information may even generate a sense of helplessness that can undermine efforts to promote environmentally beneficial behavior. *See* GARDNER & STERN,

2. *Norm Activation or Changed Beliefs May Not Lead to Action*

The absorption of information, even if it activates a norm of environmental protection, does not necessarily result in behavioral changes to benefit the environment.[119] Indeed, VBN theory merely "predicts the formation of concrete norms understood as mental elements, not actions."[120] Intent, in other words, does not always lead to action. A sizeable body of psychological research suggests that environmental attitudes are predictive of environmental behavior, but "only to a moderate degree."[121] Similarly, several studies of environmental information campaigns have found measurable changes in knowledge and attitudes, but little or modest effects on individual behavior.[122] Even campaigns that appeal to economic self-interest, such as those highlighting cost savings for consumers through reduced energy use, have been relatively unsuccessful.[123]

These findings underscore the notion that human behavior is a complex phenomenon in which norms play a significant but not exclusive role. Even if a concrete norm is activated, structural constraints and other external factors can limit behavioral choices

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supra note 54, at 224–26, 247–48 (describing strategies for coping with threats perceived as uncontrollable).

[119] *See* Hetcher, *supra* note 82, at 10,783; Dale Jamieson, *An American Paradox*, 77 CLIMATIC CHANGE 97, 100 (2006) (concluding that "providing new information or changing people's desires is unlikely to be sufficient for making environmentalism behaviorally salient").

[120] Hetcher, *supra* note 82, at 10,783.

[121] RAYMOND S. NICKERSON, PSYCHOLOGY AND ENVIRONMENTAL CHANGE 84–85 (2003) (summarizing studies); *see also* Stephen M. Smith & Curtis P. Haugtvedt, *Implications of Understanding Basic Attitude Change Processes and Attitude Structure for Enhancing Pro-Environmental Behaviors*, *in* ENVIRONMENTAL MARKETING: STRATEGIES, PRACTICE, THEORY, AND RESEARCH 155, 156 (Michael Jay Polonsky & Alma T. Mintu-Wimsatt eds., 1995) (contrasting rapid and broad adoption of pro-environmental attitudes with marginal or nonexistent changes in pro-environmental behaviors).

[122] *See* Doug McKenzie-Mohr, *Promoting Sustainable Behavior: An Introduction to Community-Based Social Marketing*, 56 J. SOC. ISSUES 543, 544–45 (2000) (describing studies).

[123] *See id*. at 545; *see also* NICKERSON, *supra* note 121, at 94–95 (noting that information campaigns that rely on information alone to reduce energy use or encourage conservation among consumers are a "relatively ineffective approach," with typically "small and temporary" effects). Some of these findings may be attributable to the fact that individuals can be subject to conflicting norms, a point that VBN theory does not address. *See* Hetcher, *supra* note 82, at 10,783.

and influence individual actions.[124] A commuter might prefer to use public transportation, for example, but may have no option other than to drive alone if public transportation is unavailable. And where environmentally favorable options are available, concerns of time, safety, cost, and convenience may serve as formidable barriers to change.[125] In general, the greater the barriers to action, the less likely it will be that pro-environmental attitudes will affect behavior.[126] In such circumstances, reducing the barriers to environmentally positive behavior may be at least as important in bringing about behavioral change as efforts to activate social or personal norms.[127]

III. THE UNDERAPPRECIATED ROLE OF VALUES

Publicizing information about the environmental impacts of individual behavior may lead to greater awareness of climate change and of individuals' contribution to the problem. The preceding discussion, however, cautions against expecting too much from these initiatives alone. Such proposals are limited by the frequently attenuated connections between information dissemination, activated norms, and changed behavior. More importantly, they largely assume the prevalence of desired

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[124] *See* GARDNER & STERN, *supra* note 54, at 69; Dietz et al., *supra* note 47, at 338 ("many environmentally consequential behaviors are strongly influenced by factors outside an individual's control"); Stern, *supra* note 57, at 10,789 (discussing contextual constraints on behavior); *see also* Florian G. Kaiser & Heinz Gutscher, *The Proposition of a General Version of the Theory of Planned Behavior: Predicting Ecological Behavior*, 3 J. APPLIED SOC. PSYCHOL. 586, 586–87 (2003) (discussing role of situational constraints on behavior).

[125] *See* GARDNER & STERN, *supra* note 54, at 76–78 (discussing internal and external barriers to change); McKenzie-Mohr, *supra* note 122, at 546. The technique of community-based social marketing emphasizes the importance of identifying and overcoming barriers to changed behavior. *See* McKenzie-Mohr, *supra* note 122, at 546–47.

[126] *See* NICKERSON, *supra* note 121, at 85.

[127] *See* Carlson, *supra* note 59, at 1236 ("reducing the effort required to engage in the desired behavior can have far greater success in increasing the numbers of people who will cooperate over a long period of time than efforts to intensify social norms"). Carlson's analysis focuses in particular on recycling behavior. The role of barriers in determining recycling rates, however, hardly renders altruistic norms irrelevant. *See* Hetcher, *supra* note 82, at 10,778–79. No matter how convenient, recycling requires some sort of sacrifice that is difficult to explain in the absence of a notion of psychic benefits that rest on such norms. *See id.* at 10,778 & n.71.

behavioral norms and of the underlying values that support them.[128] Vandenbergh's proposal, for instance, assumes that abstract norms of environmental protection and reciprocity are widespread.[129]

As this Part explains, values are relevant to climate change-related individual behavior in two critical ways. First, values are deeply held, fundamental determinants of environmental attitudes and behaviors. Because of the importance of values, efforts to address global warming must consider measures to bring about value change. Second, values color how individuals perceive and process information, and thus affect individuals' identification and perception of risks. Any attempt to influence individual behaviors must account for the interplay between values and behavior in order to be effective.

A. *Looking to Underlying Values*

Although the environmental protection norm is more widespread today than a half-century ago, it is unclear whether it is now powerful and pervasive enough to serve as a foundation for meaningful behavioral change. Individuals tend to behave in environmentally destructive ways despite apparently high levels of environmental concern.[130] While polls in the United States and other countries often find broad public support for the environment, they commonly conclude that "individuals do not appear to be willing to spend very much to address environmental issues unless they perceive the change to affect them directly and that they will notice a change in their lives."[131] This disconnect between attitudes and behaviors is reflected in the specific arena of climate change. Belief that climate change is a serious problem

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[128] *See* GARDNER & STERN, *supra* note 54, at 93 ("Education is only likely to induce behavior that is compatible with people's deeper values.").

[129] *See* Vandenbergh, *supra* note 78, at 1116 & n.67. Acknowledging that environmental protection norms are "not universally held," Vandenbergh & Steinemann, *supra* note 1, at 1712, Vandenbergh suggests reliance on more universal norms such as the abstract norm of personal responsibility. *See infra* text accompanying notes 163–165.

[130] *See* Stern, *supra* note 58, at 525.

[131] Green, *You Can't Pay Them Enough*, *supra* note 1, at 415; *see* Axelrod & Lehman, *supra* note 72, at 149 (recounting opinion polls finding vast majority of public "highly concerned about environmental problems," but nonetheless "primarily inactive" in terms of individual environmental behaviors).

has not translated into widespread carbon-neutral behavior and has only recently begun to result in political support for policies to combat the problem.[132] These findings suggest that environmental protection is a "shallow" norm that is unlikely to be a strong motivator of carbon-neutral individual behavior,[133] even if people learn of the environmental impacts of their behavior.[134]

1. *Values Underlying the Norm of Environmental Protection*

To understand the potential role of values change in strengthening the environmental protection norm, it is helpful to consider Craig Segall's discussion of the three "perceptual shifts" necessary for an effective response to climate change among individuals. First, Segall suggests there must be a shift in perception in which individuals realize that human activities have significant environmental impacts.[135] Second, there must be a shift in causal understanding in which individuals "disaggregate [the collective] effects [of human activity] to recognize the impacts of [one's] own actions and lifestyle."[136] Third, there must be a moral shift: climate change "must be seen as fundamentally unjust, a disaster that one bears personal culpability for."[137]

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[132] *See generally* Jamieson, *supra* note 119, at 97–98 (describing the general phenomenon where Americans "endorse environmentalism . . . in theory but not in practice" as "an American Paradox").

[133] *See* Green, *You Can't Pay Them Enough*, *supra* note 1, at 415; *see also* MICHAEL SHELLENBERGER & TED NORDHAUS, THE DEATH OF ENVIRONMENTALISM 11 (2004), www.thebreakthrough.org/images/Death_of_Environmentalism.pdf (noting that for most Americans, "the environment never makes it into their top ten list of things to worry about").

[134] *See* Green, *You Can't Pay Them Enough*, *supra* note 1, at 415 (suggesting environmental protection norm "appears closely connected to individual welfare" and thus may have little purchase with respect to problem of climate change); Jamieson, *supra* note 119, at 100 ("[p]roviding new information or changing people's desires is unlikely to be sufficient for making environmentalism behaviorally salient. . . . To put the point plainly, moving from an American-style paradoxical environmentalism to one in which environmentalism determines one's thought and practice requires some kind of large-scale personal transformation.").

[135] Craig Segall, *Darkness, Visible: Global Warming and British Anti-Slavery*, 36 ENVTL. L. REP. 10,845, 10,851 (2006).

[136] *Id.* at 10,851.

[137] *Id.* at 10,851; *cf.* Jeff Goodell, *The Limits of Ethical Capitalism*, ORION MAG., Jan.–Feb. 2007, at 11, *available at* http://www.orionmagazine.org/index.php/articles/article/98/ ("Ultimately, it wasn't arguments for enlightened capitalism that ended slavery. It was moral clarity, backed by guns. . . . Like

Vandenbergh and Steinemann's proposal to expose individuals to information about the climate-related consequences of their behavior seeks to effectuate the first and second shifts identified by Segall. Their proposal aims to activate concrete norms by changing beliefs about the climate-related consequences of one's behavior and one's responsibility for those consequences. What their proposal does not address is the third shift that Segall calls for: a fundamental change in core, underlying values.

Values do not act alone in shaping behavior, of course. Indeed, under VBN theory, values lie some causal distance from desired behavior.[138] Nevertheless, at least one commentator has argued that "the most important effects on environmental behavior come from personal-philosophical values."[139] VBN theory itself considers values to be "the most fundamental determinants of environmental concern" and "the most stable determinants of environmentalism across the life course" because they influence worldviews and specific beliefs pertinent to environmental behaviors.[140] Vandenbergh likewise acknowledges the importance of values, but sees values change as a long-term process that offers relatively unpromising prospects for dealing with climate change in the short-term.[141]

So how might the environmental protection norm's influence on behavior be strengthened? Focusing on the fundamental values underlying the norm may help to provide an answer. Psychologists have suggested that there are at least three primary values underlying the norm of environmental protection: self-interest, altruism toward other humans (humanistic altruism), and

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slavery, global warming is a problem that is too big, too complex, and too deeply rooted to be solved by the lure of cold, hard cash alone.").

[138] *See* Stern, *supra* note 58, at 525.

[139] Grob, *supra* note 106, at 215; *see also* Raymond DeYoung, *Changing Behavior and Making It Stick: The Conceptualization and Management of Conservation Behavior*, 25 ENV'T & BEHAV. 485, 488 (1993) (describing the "self-discovery" process in which "people undergo[] a deep personal change about a certain environmental issue whereby they gain insight or understanding far beyond simple awareness"); Stern, *supra* note 58, at 525 (suggesting values and attitudes are relevant to individual behavior, especially where contextual factors are weak, and tend to have greater force with respect to long-term support for environmental policies).

[140] Dietz et al., *supra* note 47, at 356 (noting values tend to be invoked when individuals reflect on difficult choices).

[141] *See* Vandenbergh, *supra* note 78, at 1116 n.67.

altruism towards other species and the biosphere (biospheric altruism).[142] Self-interest and humanistic altruism assign only instrumental value to other species or the environment, whereas biospheric altruism assigns intrinsic value to the environment itself.[143]

Self-interest is undoubtedly a deeply rooted and fundamental human value. Arguably the leading motivator of human behavior, self-interest has an evolutionary basis,[144] and it lies at the center of rational choice theory and other contemporary belief systems.[145] In the absence of legal structures that create incentives for cooperation on a global scale, however, self-interest is likely to play only a minimal role in motivating individual behavior changes against global warming. As noted at the outset, climate change is a collective action problem in which rational actors face relatively weak incentives to change individual behaviors.[146] Moreover, direct regulation of individuals is difficult and politically unlikely.[147]

Biospheric altruism, or ecocentrism, provides a radically different basis for the environmental protection norm. Ecocentrism recognizes an intrinsic value to the environment inclusive of, but not exclusive to, its benefits to humanity.[148]

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[142] *See* Dietz et al., *supra* note 47, at 344, 356; Stern et al., *supra* note 74, at 85.

[143] *See* Dietz et al., *supra* note 47, at 344.

[144] *See generally* RICHARD DAWKINS, THE SELFISH GENE 1 (30th ed. 2006) ("[T]his book is not intended as a general advocacy of Darwinism. Instead, it will explore the consequences of the evolution theory for a particular issue. My purpose is to examine the biology of selfishness and altruism.").

[145] *See* George S. Howard, *Adapting Human Lifestyles for the 21st Century*, 55 AM. PSYCHOL. 509, 511 (2000) (noting dominance of utility maximization model in economic theory, behavioral psychology, and sociobiology). In Shalom Schwartz's theoretical model of motivational values, Schwartz identifies eleven basic values that are recognized in most cultures. Several of these values —particularly hedonism, achievement, and power—reflect a higher-order value of "self-enhancement" that roughly corresponds to self-interest. Shalom H. Schwartz, *Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries*, *in* 25 ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY 1, 5–12 (M. P. Zanna ed., 1992).

[146] *See supra* text accompanying notes 24–27.

[147] *See supra* Part II.A.

[148] *See, e.g.*, J. BAIRD CALLICOTT, IN DEFENSE OF THE LAND ETHIC: ESSAYS IN ENVIRONMENTAL PHILOSOPHY 3–4 (1989) (describing ecocentrism as shifting the locus of intrinsic value from individuals to the ecosystem as a whole); ALDO LEOPOLD, A SAND COUNTY ALMANAC 239–40 (1966) (proposing land ethic); J.

Implementation of such an approach would involve a dramatic departure from the predominant ethos of Western society, which typically places man at the center of the moral universe. Indeed, because an ecocentric approach is completely foreign to the worldview of the majority of people in the world today, it is hard to imagine its widespread acceptance in the near future.[149] The promotion of ecocentrism as a strategy against climate change may even be counterproductive, contributing to the marginalization of climate change if it is perceived as merely an "environmental" problem.[150]

Addressing climate change through a values shift, however, need not rest on an ecocentric approach. Granted, climate change poses serious ramifications for almost every ecosystem on the planet. But it is also undoubtedly a human problem that will cause vast suffering for humankind.[151] Unless climate change is halted, catastrophic consequences will affect the lives of millions in both present and future generations.[152] To the extent a shift in values is necessary, a shift towards humanistic altruism rather than ecocentrism will suffice. This concern for other human beings need not be rooted in purely altruistic grounds, as cooperative environmental behavior may involve both altruistic and selfish motives.[153] Nevertheless, promoting a broad concern for one's fellow humans in response to climate change will involve a reconceptualization of personal responsibility beyond our

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Baird Callicott, *Non-Anthropocentric Value Theory and Environmental Ethics*, *in* THE EARTHSCAN READER IN ENVIRONMENTAL VALUES 67, 68 (Linda Kalof & Terre Satterfield eds., 2005); Green, *You Can't Pay Them Enough*, *supra* note 1, at 408.

[149] *See* Prue Taylor, *The Business of Climate Change: What's Ethics Got to Do With It?*, 20 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 161, 169–70 (2007).

[150] *See* Shellenberger & Nordhaus, *supra* note 133, at 12 (attributing the recent failures of the environmental movement to its fixation on the environment as a real "thing" to be protected, distinct from human beings).

[151] *Id.* at 12 (querying "[w]hy . . . a *human*-made phenomenon like global warming—which may kill hundreds of millions of *human beings* over the next century—[is] considered 'environmental'").

[152] *See supra* Part I.A.1; IPCC, IMPACTS, *supra* note 22, at 11–18; Vandenbergh & Steinemann, *supra* note 1, at 1732–33 (advocating emphasis on information regarding health and economic harms due to climate change).

[153] *See* Mirilia Bonnes & Marino Bonaiuto, *Environmental Psychology: From Spatial-Physical Environment to Sustainable Development*, *in* HANDBOOK OF ENVIRONMENTAL PSYCHOLOGY 28, 43 (Robert B. Bechtel & Arza Churchman eds., 2002).

individual lives, beyond our communities, and beyond our national boundaries to humanity as whole.[154]

The promotion of humanistic altruism or a more communitarian outlook will not be easy.[155] As a general matter, changing underlying values is more difficult than addressing contextual barriers to behavioral change.[156] And because "environmentally relevant behavior lies at the end of a long causal chain" involving various factors, the influence of values on behavior is often indirect.[157] Nevertheless, a values shift can have powerful effects by giving rise to changed individual behaviors as well as pressure for political action.[158] Moreover, because humanistic altruism is closely related to a number of basic norms already familiar to society, a climate change strategy focused on individual behavior can build on deeply rooted and widely held moral principles.

For one, environmental concern has been described as "an outgrowth of the Golden Rule"—the principle that one should treat others as one would like to be treated.[159] Although the Golden Rule hardly commands a universal following, it is a widely respected principle that finds expression in the major religions of the world.[160] It serves as a foundation for human rights and is

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[154] *Cf. id.* at 44 ("the main point is to foster people's perception of a situation as a collective problem rather than as a personal one"). Schwartz's model refers to humanistic altruism by the term "universalism," defined as "tolerance and protection for the welfare of *all* people and for nature." Schwartz, *supra* note 145, at 12.

[155] *See* GARDNER & STERN, *supra* note 54, at 70 ("basic values and beliefs usually change slowly—in entire populations, it may take a generation (or more) for major changes to be achieved"); *cf.* JAMES GUSTAVE SPETH, RED SKY AT MORNING 198–200 (2004) (contending a crisis may be necessary to trigger a shift in values towards environmental protection).

[156] *See* GARDNER & STERN, *supra* note 54, at 74, 78–79 (contending that education cannot easily change values but that attempts to change behaviors by changing attitudes are most effective when barriers to action are low); *see also* Steven Hitlin & Jane Allyn Piliavin, *Values: Reviving a Dormant Concept*, 30 ANN. REV. SOCIOL. 359, 361 (2004) (describing values as "more durable than attitudes" and as "enduring goals").

[157] Stern, *supra* note 58, at 525; *see* Hitlin & Piliavin, *supra* note 156, at 381.

[158] *See* GARDNER & STERN, *supra* note 54, at 70; Dietz et al., *supra* note 47, at 356 (contending that values are "hardest to change in the short run, but in the long run . . . may have the most impact on decisions about the environment").

[159] Paul C. Stern, *Psychological Dimensions of Global Environmental Change*, 43 ANN. REV. PSYCHOL. 269, 280 (1992).

[160] *See* JEFFREY WATTLES, THE GOLDEN RULE 4 (1996).

sometimes described as "*the* supreme moral principle."[161] Indeed, recent efforts to frame climate change as a human rights issue[162] essentially reflect an attempt to build on the value of humanistic altruism through application of the Golden Rule.

Humanistic altruism is also related to the abstract norm of personal responsibility. Vandenbergh and Steinemann have argued that personal responsibility could serve as an attractive foundation for developing a concrete norm of carbon-neutral behavior because it is "remarkably widespread across the political spectrum, resonat[ing] even with those who oppose regulatory solutions to social problems."[163] The current popular discourse on personal responsibility, however, often "fall[s] short . . . in failing to acknowledge the role of personal responsibility in ameliorating environmental harms, and climate change in particular."[164] In contrast to Vandenbergh and Steinemann's broad conception of personal responsibility as encompassing a responsibility not to harm others, popular calls for "personal responsibility" often involve exhortations for individuals to take responsibility for their own behavior instead of relying on the government or the community.[165] This conception of personal responsibility, in other words, is a narrow one that focuses on the self rather than on others. Because the consequences of one's carbon-related behavior fall overwhelmingly on others, the failure to connect climate change with this narrow conception of personal responsibility is unsurprising.

Ultimately, widespread behavioral change requires that the popular understanding of personal responsibility be expanded to encompass the responsibility not to harm others, a move that would recognize the altruistic basis for the norm. An illustration

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[161] *See id.* at 5.

[162] *See, e.g.*, Sinden, *supra* note 52.

[163] Vandenbergh & Steinemann, *supra* note 1, at 1713–17.

[164] *Id.* at 1716. Given this difficulty, Vandenbergh and Steinemann's proposal to disseminate information about the economic and human health harms associated with climate change is unlikely to activate the personal responsibility norm in many. *See id.* at 1717.

[165] *See id.* at 1715 (acknowledging this point). Vandenbergh and Steinemann suggest that liberal commentators, in turn, may be reluctant to assign personal responsibility for environmental harms out of a concern that such a focus will divert attention away from corporate responsibility for environmental harms. *See id.* at 1715.

of this broader understanding is reflected in concrete norms of environmental behavior that people should not litter and that they should clean up their own waste.[166] It is also reflected in an important doctrine of international law: the polluter pays principle.[167] Framing the generation of GHG emissions as the generation of waste for which one is responsible and which causes harm to other humans—akin to contaminating a communal well or dumping waste on a neighbor's property—is an important step towards changing individual behavior.[168] But widespread behavioral change will also require us to overcome tendencies towards selfishness and parochialism.[169]

2. *The Analogy to Abolitionism*

The shift in values and norms necessary to solve the climate change problem may be quite dramatic. Indeed, some commentators have likened the required shift to the shift in societal values and attitudes that resulted in the abolition of slavery.[170] Climate change poses the same fundamental questions as slavery regarding society's willingness to recognize and confront the moral costs of its underlying economic structure.[171] First, both controversies are centered on practices "considered vital to the

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[166] *See* Jonathan Baron, *Thinking About Global Warming*, 77 CLIMATIC CHANGE 137, 139 (2006).

[167] *See* DAVID HUNTER ET AL., INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 516–18 (3d ed. 2007).

[168] *See* Baron, *supra* note 166, at 139–40.

[169] *See id.* at 141 (noting tendency of people to favor members of their own group or nation over others).

[170] A number of commentators have drawn this analogy. *See, e.g.*, Christian Azar, *Bury the Chains and the Carbon Dioxide*, 85 CLIMATIC CHANGE 473, 474 (2007); Marc D. Davidson, *Parallels in Reactionary Argumentation in the US Congressional Debates on the Abolition of Slavery and the Kyoto Protocol*, 86 CLIMATIC CHANGE 67, 67 (2008); Goodell, *supra* note 137, at 11; David W. Orr, *Saving Future Generations From Global Warming*, CHRON. OF HIGHER EDUC., Apr. 21, 2000, at B7; Segall, *supra* note 135, at 10,845. *See generally* Christopher D. Stone, *Is Environmentalism Dead?*, 38 ENVTL. L. 19, 24–25 (2008) (comparing environmental movement with abolitionism and other social movements). Aside from the United States and Britain, abolitionist movements also arose, though less prominently, in France and Brazil. *See* Steven Mintz & John Stauffer, *Introduction to Part II*, *in* THE PROBLEM OF EVIL: SLAVERY, FREEDOM, AND THE AMBIGUITIES OF AMERICAN REFORM 127, 130 (Steven Mintz & John Stauffer eds., 2007).

[171] *See* Segall, *supra* note 135, at 10,845.

economy and pivotal to everyday life."[172] Slavery served as a critical cog in early 19th century economies and was viewed as essential to sustaining plantation agriculture.[173] Similarly, fossil fuel combustion and the cheap energy it produces are foundational to today's global economy, enabling modern industrial production, global trade, transportation services, and sprawling lifestyles.[174] Second, climate change and slavery both involve the externalization of costs from the powerful to the powerless.[175] For slavery, the costs included terrible human suffering, loss of freedom and dignity, and uncompensated labor borne by the slaves themselves. For climate change, the costs—sea level rise, more severe and frequent storms, and other projected consequences—will be borne largely by future generations.[176] Climate change involves significant intragenerational shifting of costs as well, with disproportionate impacts on indigenous peoples, some of whom are being forced to relocate or give up traditional cultural practices,[177] and the global poor, who often are least able to adapt.[178] Climate change and the abolition of slavery are also

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[172] Davidson, *supra* note 170, at 68.

[173] *See* Davidson, *supra* note 170, at 68 ("In the mid-nineteenth century slave labour was the cheap and indispensable energy source underpinning the economies of the Southern United States.").

[174] *See* Segall, *supra* note 135, at 10,851 (comparing role of slavery in pre-abolition Britain with role of fossil fuels). Indeed, today's industrialized economies are arguably more dependent on carbon than Britain was dependent on the slave trade. *Id.* at 10,852.

[175] *See* Davidson, *supra* note 170, at 69–70; Orr, *supra* note 170, at B7 ("Both the use of human beings as slaves and the use of fossil fuels inflate the wealth of some by robbing others.").

[176] *See* Davidson, *supra* note 170, at 70; *supra* Part I.A.1.

[177] *See* Christopher Furgal & Jacinthe Seguin, *Climate Change, Health and Vulnerability in Canadian Northern Aboriginal Communities*, 114 ENVTL. HEALTH PERSP. 1964, 1968 (2006) (listing concerns such as "impacts to food security because of changes in sea-ice access routes to hunting areas or ice-road stability and effects on reliable transport of market food stuffs; combined impacts on mental health due to reduced ability of individuals to practice aspects of traditional lifestyles; and impacts to infrastructure and threats of community disruption or relocation"); Geoffrey York, *Indigenous People Describe Real Perils of Global Warming*, GLOBE & MAIL (Toronto), Dec. 14, 2007, at A20; *see also* GARY T. GARDNER, INSPIRING PROGRESS: RELIGIONS' CONTRIBUTIONS TO SUSTAINABLE DEVELOPMENT 85 (2006) (describing relocation of village in South Pacific nation of Vanuatu because of rising ocean levels).

[178] *See* IPCC IMPACTS, *supra* note 22, at 13 ("New studies confirm that Africa is one of the most vulnerable continents . . . because of multiple stresses and low adaptive capacity."); Daniel A. Farber, *Adapting to Climate Change: Who*

comparable in a third way: the difficulty of change in the face of vested interests that benefit from the status quo. Just as entrenched economic and political interests resisted the abolition of slavery, powerful forces such as the utility and automotive industries have opposed efforts to combat climate change.[179]

The comparison to abolitionism underscores the nature of the task at hand. That is, motivating an effective response to global warming is as much about changing core values of society as it is about developing more efficient technologies or instituting regulatory systems to limit emissions. Energy conservation measures and technological improvements undoubtedly will help to achieve the emissions reductions that must occur. But given the magnitude of the reductions required[180] and the tremendous rate at which emissions from China and other developing nations are skyrocketing in the meanwhile,[181] these factors alone will not be enough.

The comparison to abolitionism also provides hints on how such change might be achieved. Particularly relevant is the antislavery movement in Great Britain, which, in contrast to its counterpart in the United States, achieved its goal with relatively little violent conflict.[182] The analysis here is necessarily tentative, given the continuing debate over the effectiveness of abolitionism and the vastly different historical, social, and cultural contexts at issue.[183] Nevertheless, the British antislavery movement provides

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Should Pay, 23 J. LAND USE & ENVTL. L. 1, 24–25 (2007).

[179] Indeed, these interests have raised arguments in favor of the status quo that resemble arguments made against abolition, including contentions that global warming is beneficial, that the benefits of responding are uncertain, that a change in policies and lifestyles will be prohibitively expensive, and that policy choices are a matter of state sovereignty. *See* Azar, *supra* note 170, at 475 (comparing arguments over abolishing slave trade in Britain with arguments over climate change); Davidson, *supra* note 170, at 71–80 (comparing arguments made in U.S. Congress against abolition with those made against ratification of the Kyoto Protocol).

[180] *See supra* note 34 and accompanying text.

[181] See Peter N. Spotts, *Global Carbon Emissions in Overdrive*, CHRISTIAN SCI. MONITOR, May 22, 2007, at 1 (noting that "developing countries account for only about 23 percent of emissions accumulated since the start of the Industrial Revolution" but that "they also account[ed] for 73 percent of the global emissions growth in 2004").

[182] *See* Segall, *supra* note 135, at 10,852–53 (recounting events leading to British abolition).

[183] *See, e.g.*, JOHN R. MCKIVIGAN, ABOLITIONISM AND AMERICAN REFORM xii

an instructive example of popular mobilization and values change.

The antislavery movement that developed in Great Britain in the wake of the disastrous American War of Independence[184] mobilized "millions of men and women of diverse classes and religions to petition Parliament for the abolition of slavery."[185] While the conventional view of British abolition as the inevitable product of moral progress is too simplistic, moral suasion did play an important role.[186] Arising out of religious convictions regarding the sinfulness of slavery,[187] the movement succeeded by transcending its religious roots.[188] Through leaflets, speeches, boycotts, and the like,[189] antislavery activists used "vivid, unforgettable description[s] of acts of great injustice done to their fellow human beings"[190] to stimulate a "patriotic crusade."[191] In response to such pressure, and with relatively little violent conflict, Britain abolished the slave trade in 1807 and emancipated slaves in its colonies in 1833, moves that are estimated to have cost that

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(John R. McKivigan ed., 1999) (noting historians "strongly disagree" about the effectiveness of abolitionist tactics).

[184] *See* Dee E. Andrews, Book Review, 93 J. AM. HISTORY 1232 (2007) (reviewing CHRISTOPHER LESLIE BROWN, MORAL CAPITAL: FOUNDATIONS OF BRITISH ABOLITIONISM (2006)).

[185] Mintz, *supra* note 170, at 132; *see* ADAM HOCHSCHILD, BURY THE CHAINS: PROPHETS AND REBELS IN THE FIGHT TO FREE AN EMPIRE'S SLAVES 5 (2005) ("[I]t was the first time a large number of people became outraged, and stayed outraged for many years, over someone *else's* rights. And most startling of all, the rights of people of another color, on another continent.").

[186] *See* SEYMOUR DRESCHER, FROM SLAVERY TO FREEDOM: COMPARATIVE STUDIES IN THE RISE AND FALL OF ATLANTIC SLAVERY 1–3 (1999) (noting moral, economic, and political explanations offered by various scholars for elimination of British slave system); Chaim D. Kaufmann & Robert A. Pape, *Explaining Costly International Moral Action: Britain's Sixty-year Campaign Against the Atlantic Slave Trade*, 53 INT'L ORG. 631, 650–54 (1999) (discussing political factors that led to success of antislavery initiatives).

[187] *See* DAVID TURLEY, THE CULTURE OF ENGLISH ANTISLAVERY 1780–1860 7 (1991); Kaufmann & Pape, *supra* note 186, at 643. American abolitionism had similar origins. *See* MCKIVIGAN, *supra* note 183, at vii; Mintz, *supra* note 170, at 129 ("Religion lay at the heart of opposition to slavery.").

[188] *See* DRESCHER, *supra* note 186, at 67–74 (noting broad social support reflected in antislavery petitions).

[189] *See* DRESCHER, *supra* note 186, at 81; HOCHSCHILD, *supra* note 185, at 6.

[190] HOCHSCHILD, *supra* note 185, at 366.

[191] TURLEY, *supra* note 187, at 6; *see also* DRESCHER, *supra* note 186, at 81 (noting the British antislavery movement "institutionalised . . . a shared activity, a shared vision of the future, and ultimately, a myth of national achievement with more than a grain of truth").

nation 1.8 percent of its annual national income for over half a century.[192]

Ultimately, antislavery activists succeeded by making Britons understand that slavery was at the root of "the sugar they ate, the tobacco they smoked, [and] the coffee they drank."[193] Drawing these sorts of intense and personal connections today may be necessary to prompt individuals to change their behaviors and to rally for political action against climate change. Scientific research documenting global warming and its impacts can play a crucial role in establishing links between individual behavior and record droughts, heatwaves, and other changes that affect everyday life. Such research can also tie individual conduct to elements of the environment that people deeply care about, whether they are drowning polar bears or receding beaches. Information establishing these sorts of connections must then be communicated to the public in ways that stimulate values change and that activate abstract norms. The Internet, public service campaigns, and other means of communication employing visual imagery and modern marketing techniques should be employed to prompt empathetic responses and should be combined with targeted efforts to reduce barriers to behavioral change.[194]

B. *Cultural Cognition Theory*

In making emotional connections between daily life and the institution of slavery, antislavery activists intuitively recognized the importance of values to bringing about the end of slavery. Values not only are of foundational importance to beliefs and norms that support existing policies, but also affect how

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[192] *See* HOCHSCHILD, *supra* note 185, at 5; Kaufmann & Pape, *supra* note 186, at 631, 643. In contrast to the United States, emancipation of slaves in the British colonies did not create a population of freed slaves that had to be integrated overnight into English society. Emancipation nevertheless imposed significant economic costs on Britain, given its dominance of the slave trade and world sugar production. *See id.* at 631.

[193] HOCHSCHILD, *supra* note 185, at 6.

[194] *See generally* PHILIP KOTLER ET AL., SOCIAL MARKETING: IMPROVING THE QUALITY OF LIFE 5 (2d ed. 2002) (discussing social marketing, "the use of marketing principles and techniques to influence a target audience to . . . [change] a behavior for the benefit of individuals, groups, or society as a whole"); *see also* McKenzie-Mohr, *supra* note 122, at 546 (discussing the community-based social marketing approach, which focuses on uncovering and overcoming barriers to behavioral change).

individuals judge social risks and dangers. Efforts to alter behavior relevant to climate change must take into account this basic insight of cultural cognition theory. While contextual barriers and psychological biases account for much of the difficulty faced by informational tools in changing behavior,[195] these factors leave unexplained the sometimes vehement resistance to the mounting scientific evidence of global warming. Recent work on cultural cognition by Professor Dan Kahan and others supplies a persuasive explanation for this phenomenon and offers hints at how this resistance might be overcome.

The basic premise of cultural cognition theory is that individuals' positive and normative beliefs about the world around them are shaped by their core values, which inevitably color how people interpret information.[196] The theory assumes that preferences for organizing society fall along two axes: hierarchy-egalitarianism and individualism-communitarianism.[197] A hierarchical view favors a distribution of social goods based on essentially fixed social attributes such as class or gender; conversely, an egalitarian view opposes such a distribution of social goods.[198] A communitarian view favors the subordination of individual interests to the collective; by contrast, an individualist view comprehends individuals, rather than the collective, as responsible for their own well-being.[199] These preferences for social organization strongly influence how individuals judge societal risks and dangers. Thus, even when presented with the same objective data regarding risks and harms,

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[195] *See supra* Part II.C.

[196] *See* Dan M. Kahan, *The Cognitively Illiberal State*, 60 STAN. L. REV. 115, 117 (2007) [hereinafter Kahan, *The Cognitively Illiberal State*]; Dan M. Kahan et al., *The Second National Risk and Culture Study: Making Sense of—and Making Progress in—The American Culture War of Fact* 11–12 (GWU Legal Studies Research Paper No. 370; Yale Law School, Public Law Working Paper No. 154; GWU Law School Public Law Research Paper No. 370; Harvard Law School Program on Risk Regulation Research Paper No. 08-26), *available at* http://ssrn.com/abstract=1017189 [hereinafter Kahan, *The Second National Risk*].

[197] *See* Kahan et al., *The Second National Risk*, *supra* note 196, at 2.

[198] *See id.*; Kahan, *The Cognitively Illiberal State*, *supra* note 196, at 122–23.

[199] *See* Kahan et al., *The Second National Risk*, *supra* note 196, at 2; Kahan, *The Cognitively Illiberal State*, *supra* note 196, at 122–23; *see also* MARY DOUGLAS, NATURAL SYMBOLS 54–64 (1970) (discussing classifications of cultural worldviews).

people develop highly disparate views of the need for legal regulation.[200] Egalitarians tend to be sensitive to environmental hazards and receptive to regulation of commercial activities that produce social inequality, whereas individualists are inclined to "dismiss claims of environmental risk as specious, in line with their commitment to the autonomy of markets and other private orderings."[201]

Cultural cognition presents a challenge to the central ideal of liberal democracy—the ideal that legal obligations should be premised on secular grounds that can be supported by persons of diverse cultural and moral persuasions.[202] Kahan argues this ideal is unattainable because lawmakers' policy choices unavoidably reflect a partisan understanding of virtue, thanks to inescapable psychological biases.[203] The enactment of particular policies, in other words, necessarily represents the affirmation of certain cultural values and the denigration of others.[204] This condition of "cognitive illiberalism," according to Kahan, is "endemic in our law today."[205]

Cultural cognition goes a long way toward explaining why people hold widely varying perceptions of the seriousness of global warming[206] and how instrumental policy disputes over responding to climate change can become imbued with cultural meaning.[207] Dealing with the threat of global warming, in other

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[200] *See* Kahan, *The Cognitively Illiberal State*, *supra* note 196, at 117 (suggesting criminalization of marijuana, banning of handguns, and exclusion of gays from the military as examples of issues subject to this phenomenon).

[201] Dan M. Kahan et al., *Fear of Democracy: A Cultural Evaluation of Sunstein on Risk*, 119 HARV. L. REV. 1071, 1083–84 (2006).

[202] *See* Kahan, *The Cognitively Illiberal State*, *supra* note 196, at 116–17 (describing liberal ideal that citizens "justify their positions on grounds susceptible of affirmation by persons of diverse moral persuasions," and suggesting that "we lack the psychological capacity . . . to make, interpret, and administer law without indulging sensibilities pervaded by our attachment to highly contested visions of the good").

[203] *See id.* at 117.

[204] *See id.* at 125.

[205] *Id.* at 117.

[206] *See* Kahan et al., *The Second National Risk*, *supra* note 196, at 4 (reporting results of study finding that "[i]ndividuals' worldviews . . . explained individuals' beliefs about global warming more powerfully than any other individual characteristic").

[207] *See* Kahan, *The Cognitively Illiberal State*, *supra* note 196, at 129 (contending "the debate over climate changes is of a piece with the debate over

words, is not just about developing a rational response to risk and uncertainty. Rather, proposed responses to climate change calling for wealth redistribution, heightened regulation, involvement of international institutions, or participation of scientific elites in policymaking may threaten the values of persons who favor hierarchical and individualist social orderings.[208] In this polarized context, simply proclaiming "the facts" on climate change may do little to persuade global warming skeptics who feel culturally threatened. Such an approach may even increase resistance to action on climate change, especially among those for whom the issue has assumed cultural significance.[209]

The remedy for the quandary presented by cognitive illiberalism, according to Kahan, is "expressive overdetermination"—an approach that openly recognizes the effects of cultural cognition in policymaking.[210] Under expressive overdetermination, both legislators and ordinary citizens would "acknowledge, and not conceal, how they understand a law or policy proposal to express meanings distinctive of their own worldviews."[211] By integrating appeals to distinct cultural values, public justifications for law would provide affirmation of the worldviews of each cultural group.[212] Such an approach is well-suited for the increasingly polarized context of climate change policy, and has implications for developing support for policies and determining which policy tools should be used.

IV. DEVELOPING A VALUES-SENSITIVE STRATEGY FOR EVANGELIZING CLIMATE CHANGE

As demonstrated by the discussion in this Article thus far,

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the teaching of evolution in public schools, most likely because of the conspicuous role that natural scientists from elite universities play in both").

[208] *See* Kahan et al., *The Second National Risk*, *supra* note 201, at 1092; Kahan, *The Cognitively Illiberal State*, *supra* note 196, at 141.

[209] *See* Kahan, *The Cognitively Illiberal State*, *supra* note 196, at 147 ("To proclaim that one's position on an issue like gun control or global warming rests on a culturally impartial view of the facts impugns the intelligence and character of those who hold competing positions and thus invariably triggers animosity.").

[210] *See id.* at 145.

[211] *Id.* at 145.

[212] *See id.* at 145–46. *But cf.* David A. Skeel, Jr. & William J. Stuntz, *Christianity and the (Modest) Rule of Law*, 8 U. PA. J. CONST. L. 809, 831–39 (2006) (arguing against legal moralism).

designing a strategy for changing individual beliefs and actions relevant to global warming is a complex task that must build on insights from psychology, law, and other fields. Proposals to provide emissions data to individuals have only modest prospects for actually altering individual behavior, given the weakness of the environmental protection norm. Invoking or changing underlying values, with the aim of strengthening the environmental protection norm, offers greater potential for transforming behavior, but can be very difficult to accomplish. These difficulties highlight the need for an approach that builds on existing information proposals, yet is sensitive to the importance of underlying values and possibly takes advantage of existing values. This Part of the Article seeks to develop such an approach, and does so in the context of the evangelical community, which offers an instructive experience. Acknowledging that the problem is not merely an informational one, and incorporating insights from cultural cognition theory, I sketch out the basic components of a novel strategy for changing individual understanding and behavior relevant to climate change. Implementation of the strategy could occur through campaigns by national, state, or local government bodies,[213] advocacy work of nongovernmental organizations, or private efforts.

A. *Focus on the Evangelical Community*

This discussion of a new strategy for behavior change that would address environmental concerns focuses on the evangelical community in the United States.[214] This focus is warranted for several reasons. First, evangelicals constitute approximately thirty percent of the U.S. population[215] and wield tremendous influence in American politics. As one observer has noted, every president elected since 1976 "has been affiliated with evangelicalism in one

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[213] *See, e.g.*, Victor B. Flatt, *Act Locally, Affect Globally: How Changing Social Norms to Influence the Private Sector Shows a Path to Using Local Government to Control Environmental Harms*, 35 B.C. ENVTL. AFF. L. REV. 455, 469–72, 475–77 (2008) (advocating efforts by local leaders and communities to influence environmental behavior of corporate actors by educating and persuading individual business leaders).

[214] *See supra* note 7 for a brief discussion of the term "evangelical."

[215] *See* Brian McCammack, *Hot Damned America: Evangelicalism and the Climate Change Policy Debate*, 59 AM. Q. 645, 646 (2007). An estimated 100 million or more Americans are evangelicals, depending on how the movement is defined. *See* Higgins, *supra* note 7, at A8.

way or another," and "[e]vangelicals have been the driving force behind debates over abortion, same-sex marriage, and foreign affairs."[216] Second, evangelicals have demonstrated strong resistance to political action on climate change, playing a significant role in impeding legislation on the issue.[217] This resistance has its roots in a distrust of science among evangelicals that manifested itself most prominently in the struggle over the teaching of evolution in public schools.[218] The scientific evidence and models central to the demonstration of man-induced climate change are part of a discourse and epistemology that can appear to be in conflict with evangelical religious methodology and belief.[219]

It is important, however, not to overstate the skepticism that generally characterizes evangelical views of climate change. Recently, some evangelical leaders have voiced growing concern about the problem, and the American evangelical community has become increasingly divided over the causes, consequences, and relative importance of climate change.[220] This development suggests that examples of effective ways to change values, beliefs, and behaviors that are relevant to climate change can be found

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[216] *See* LINDSAY, *supra* note 7, at 3.

[217] *See* McCammack, *supra* note 215, at 655–56 (discussing hostility of James Inhofe, evangelical Christian and former chairman of the Senate Committee on Environment and Public Works, to climate change); Nagle, *supra* note 7, at 63–64; Higgins, *supra* note 7, at A8 ("[M]any veteran leaders of the religious right regard the green movement as a dangerous distraction."). *But see* Nagle, *supra* note 7, at 63–64 (acknowledging divide within the evangelical community, with some segments supporting action on global warming). Polls to measure attitudes toward global warming and the environment, while generating varied results, have tended to find somewhat lower levels of environmental awareness and concern among evangelicals. *See* McCammack, *supra* note 215, at 659–60.

[218] *See* McCammack, *supra* note 215, at 653; Nagle, *supra* note 7, at 71–72; *see, e.g.*, Kahan, *The Cognitively Illiberal State*, *supra* note 196, at 128–30 (describing YouTube video of home-schooling lesson in which mother and child discuss creationism and climate change). The fact that "evangelical Protestants were at the forefront of the scientific revolution," however, suggests that the tension between science and evangelicalism is hardly inherent. Nagle, *supra* note 214, at 71.

[219] *See* Nagle, *supra* note 7, at 71("Many evangelicals are often more skeptical than many other individuals about the nature of scientific claims . . . .").

[220] *See* Nagle, *supra* note 7, at 56, 63–64, 73–74; *see also* Laurie Goodstein, *Evangelical Leaders Join Global Warming Initiative*, N.Y. TIMES, Feb. 8, 2006, at A12 (describing various evangelical leaders' support for and opposition to initiative to fight global warming), *available at* http://www.nytimes.com/2006/02/08/national/08warm.html; Higgins, *supra* note 7, at A8.

within the evangelical community. Indeed, contemporary evangelism itself employs a powerful set of techniques for influencing personal values and behaviors. Using modern marketing strategies and contemporary cultural forms, the evangelical movement has experienced strong growth, attracting followers from a range of secular and nonsecular backgrounds.[221] To the extent that changing individual behavior relevant to climate change requires an awakening or shift in values, the evangelical movement can serve as a valuable source of experience in the language of moral obligation.[222] Techniques of witnessing and outreach, in other words, not only shed light on how climate change might best be communicated among evangelicals, but also can serve as a model for promoting action on climate change among society more generally.[223]

B. *Techniques*

Various evangelical techniques can be adapted to climate change advocacy. These include: preaching and leadership, personal witnessing, storytelling, affirmation, and obtaining personal commitment. The discussion that follows explores how each of these techniques can be used to communicate with, persuade, and motivate the evangelical community on the issue of climate change in a culturally resonant manner. It is not only the

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[221] *See* Donald E. Miller, *Postdenominational Christianity in the Twenty-First Century*, 558 ANNALS OF THE AM. ACAD. POL. & SOC. SCI. 196, 197 (1998) (contrasting strong growth of evangelical "postdenominational" or "nondenominational" churches with decline of mainline Christian denominations in the United States); Miller, *supra* at 206–07 (describing marketing strategy of such churches); Mark A. Shibley, *Contemporary Evangelicals: Born-Again and World-Affirming*, 558 ANNALS OF THE AM. ACAD. POL. & SOC. SCI. 67, 68 ("nondenominational churches are the fastest-growing segment of American religion").

[222] *See* Segall, *supra* note 135, at 10,862 (recommending that climate change activists "invest very heavily in organizers, in outreach, and in connections with religious leaders and other voices experienced in the language of moral obligation").

[223] The point here is not to argue for an environment-centered religion or for the necessity of a religious conversion experience as a precondition to effective behavioral change. *Cf.* Jamieson, *supra* note 119, at 100 (dismissing religious conversion as model for environmentalism). Rather, the thrust of my argument is that climate change concerns should be communicated in a way that affirms deeply rooted values, while seeking to encourage other values that could be linked to environmentally beneficial norms and actions.

method of advocacy that matters, of course, but also the message itself. Here, an emphasis on values important to the evangelical community, particularly humanistic altruism, can be an effective way to develop or invigorate norms of environmental protection and personal responsibility.[224]

While tailored to the evangelical community, the strategy sketched out is based on insights of cultural cognition theory and findings of psychological research that are general in nature. As such, some of the techniques may be effective well beyond the evangelical community. The discussion notes some of these broader applications.

1. *Preaching/Leadership*

Traveling around the globe and using contemporary forms of communication to reach the masses, former Vice President Al Gore is essentially the world's leading "evangelist" for the campaign against global warming.[225] Gore has urged action against global warming in his book and documentary, *An Inconvenient Truth*, and has played a critical role in drawing attention to the issue. More recently, he launched the "we" campaign—a three-year, $300 million advocacy effort to mobilize public support in the United States for legislation to reduce GHG emissions.[226] Certainly, Gore seeks to persuade audiences that global warming is happening and that it is in our collective self-interest to do something about it. But like the antislavery activists of the 19th century, he also seeks to shift listeners' entire frame of reference by casting global warming as a social, moral, and human issue.[227]

Gore's lecture accepting the Nobel Peace Prize is a prime example of moral crusading, remarkable for its religious terms and

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[224] Indeed, such an emphasis would be essential, lest advocacy efforts be perceived by evangelicals as an attempt to substitute environmentalism for religion. *See* David A. Skeel, Jr., *Evangelicals, Climate Change, and Consumption*, 38 ENVTL. L. REP. 10,868 (2008).

[225] *Cf.* Aaron Sachs, *Special Topics in Calamity History*, 35 REV. AM. HIST. 457, 458 (2007) (noting potential comparison of Gore "to itinerant preachers of the early nineteenth century").

[226] *See* Juliet Eilperin, *Gore Launches Ambitious Advocacy Campaign on Climate*, WASH. POST, Mar. 31, 2008, at A4 (describing Alliance for Climate Protection's "we" campaign).

[227] *See* Sachs, *supra* note 225, at 460.

imagery.[228] In the speech, Gore repeatedly declares that he has a "purpose" that he has "prayed that God would show [him] a way to accomplish."[229] Describing his experience as a "quest," he characterizes the choice faced by humanity in Biblical terms[230] before calling for action with another quote from Scripture: "In every land, the truth—once known—has the power to set us free."[231] In relying heavily on Biblical themes and language, Gore's lecture aims to connect with the evangelical community. Nevertheless, his words have a broader appeal beyond evangelical, Christian, or even religious audiences. Urging international cooperation as well as individual innovation, Gore leaves no doubt as to his view that climate change has a moral context, and is not just an environmental problem with technical solutions.[232] Gore seeks to promote the value of humanistic altruism by appealing to basic morality and listeners' sense of right and wrong.

For those who remain skeptical of climate change, the weakness in Gore's strategy may have little to do with its substantive message or its rhetorical style. Rather, cultural cognition theory suggests that the strategy's primary limitation is the carrier of the message himself: Al Gore. The cultural identity of an advocate can have a very powerful effect on how the advocate's message is perceived.[233] Because Gore is a life-long

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[228] Al Gore, Nobel Lecture (Dec. 10, 2007) (transcript available at http://nobelprize.org/nobel_prizes/peace/laureates/2007/gore-lecture_en.html).

[229] *See id.* These opening words mirror the theme of the bestselling Christian devotional book, *The Purpose Driven Life*. Written by Rick Warren, the book has sold over 30 million copies and is one of the bestselling nonfiction books of all time. *See* Christopher Quinn, *Profits of Religion*, ATLANTA J.-CONST., July 11, 2007, at B1.

[230] Gore, *supra* note 228 ("'Life or death, blessings or curses. Therefore, choose life, that both thou and thy seed may live.'") (quoting *Deuteronomy* 30:19 (King James)).

[231] *Id.* (quoting *John* 8:32 (New International) "Then you will know the truth, and the truth will set you free.").

[232] *Id.* ("When we unite for a moral purpose that is manifestly good and true, the spiritual energy unleashed can transform us."). In testimony before Congress on climate change, Gore employed similar rhetoric, incorporating the theme of manifest destiny in a religious and nationalistic appeal for legislative action. *See* Simon Tattrie, *Manifest Destiny & Crisis: A Rhetorical Analysis of Al Gore's Global Warming Rhetoric* (Dec. 3, 2007) (unpublished manuscript, on file with author).

[233] *See* Kahan et al., *The Second National Risk*, *supra* note 196, at 11–12 (reporting experiment in which policy advocates' perceived cultural worldviews were found to accentuate or mute cultural polarization).

environmentalist and former Democratic Presidential candidate, certain audiences will likely devalue or reject his views, regardless of how well-presented and scientifically supported they may be.[234]

What's needed, or rather, *who's needed*, are "cultural vouchers." These are "individuals bearing authority and credibility within their cultural groups" who can defend the science and policies of climate change to members of their own cultural groups on grounds consistent with those groups' worldviews.[235] Because they can serve as cultural vouchers, the small but growing numbers of evangelical Christian leaders calling for immediate action on climate change[236] are likely to be more effective advocates.[237] Apparently recognizing the importance of such figures, the "we" campaign recently aired an advocacy advertisement featuring televangelist Pat Robertson along with Al Sharpton.[238]

A cultural voucher on climate change with potentially broad appeal beyond the evangelical community is Florida Governor Charlie Crist. Governor Crist, a Republican, has signed various executive orders to reduce GHG emissions and has hosted a high-profile climate change summit.[239] As a result, Crist has emerged as a leading advocate for action on climate change.[240] Crist's

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[234] The context in which Gore's Nobel Prize lecture was given—the awarding of an international prize by the Norwegian Parliament—might further undermine the efficacy of his words among audiences distrustful of international institutions.

[235] Kahan, *The Cognitively Illiberal State*, *supra* note 196, at 147. Kahan points to American social welfare laws, tradeable emission laws, and the Native American Grave Protection and Repatriation Act as examples of laws enacted as a result of the efforts of cultural vouchers. *See id.* at 146–47.

[236] *See supra* text accompanying note 230.

[237] *See generally* Kahan et al., *The Second National Risk*, *supra* note 196, at 12 ("the cultural identity of advocates is an incredibly powerful mechanism").

[238] *See* Eilperin, *supra* note 226, at A4.

[239] *See* Mark Schrope, *Playing By a Different Set of Rules*, NATURE REP.: CLIMATE CHANGE, Vol. 5, Oct. 2007, at 68–70, *available at* http://www.nature.com/climate/2007/0710/pdf/climate.2007.54.pdf (reporting that Crist "has embraced climate change as 'one of the most important issues that we will face this century'"); Felicity Barringer, *Florida Plan Will Focus on Emissions and Climate*, N.Y. TIMES, July 12, 2007, at A15 (describing steps taken by Crist on climate change), *available at* http://www.nytimes.com/2007/07/12/us/12florida.html.

[240] *See* David Adams, *Crist on a Global Mission in NYC*, ST. PETERSBURG TIMES, Sept. 26, 2007, at B1 (cataloging Crist's growing international profile on climate change).

actions on global warming have received a surprising amount of support, a fact attributable not only to Florida's particular vulnerability to rising sea levels but also to Crist's conservative credentials: as a state senator, Crist co-sponsored a law authorizing prison labor in leg irons.[241] Identifying cultural vouchers like Crist, who can lead by legislation as well as by example, is an important means of communicating to climate change skeptics and fostering climate-friendly values and norms.[242]

2. *Witnessing*

A second important aspect of evangelism is evangelizing—the act of bearing public witness to one's faith through personal testimony and outreach.[243] The importance of witnessing to the evangelical movement is consistent with psychological research finding that face-to-face communication and other forms of direct personal contact can be especially effective in achieving behavioral change.[244] Studies of recycling behavior, for instance, have found particularly strong increases in recycling rates among residents who were contacted by a "block leader" who explained the benefits and ease of recycling.[245]

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[241] *See* Barringer, *supra* note 239, at A15 (noting support for Crist's policies); Tim Padgett, *He's Undoing Much of What Jeb Bush Left Behind in Florida*, TIME, May 14, 2007, at 46 (noting Crist earned the nickname "Chain Gang Charlie" as a state senator and describing Crist as "remarkably popular").

[242] Former Arkansas Governor and presidential candidate Mike Huckabee provides another possible example of a cultural voucher on climate change. Huckabee has expressed some concern about climate change, but has not taken a position on the use of an emissions cap-and-trade scheme. While acknowledging "our responsibility to leave this planet in better shape for the future generations than we found it," Huckabee has also stated that "[w]hether humans are responsible for the bulk of climate change is going to be left to the scientists." *See* David Ivanovich, *Are Candidates' Plans on Energy Realistic? Words May be More Provocative Than Substantive*, HOUSTON CHRON., Feb. 3, 2008, at A1.

[243] *See* Miller, *supra* note 221, at 206 (describing marketing strategy or "outreach," efforts of rapidly growing evangelical churches, including use of "culturally current ways [of] attract[ing] people who otherwise might never enter the door of a church"); Shibley, *supra* note 221, at 69.

[244] *See* Carlson, *supra* note 59, at 1287–91 (summarizing studies finding increased recycling behavior where programs included face-to-face communication and feedback); *id.* at 1297 ("intervention techniques, such as face-to-face communication and feedback mechanisms, produce higher levels of norm compliance than do straightforward information provision and written pleas").

[245] *See* Carlson, *supra* note 59, at 1287.

Climate change outreach efforts need not be limited to contacts between private individuals. For example, Vandenbergh and Steinemann argue for a range of national, state, and local public information campaigns and labeling programs to disseminate information about carbon emissions and ways to reduce them.[246] Such campaigns can reach broader audiences than face-to-face communication, which tends to require more time and resources.[247] But in light of the psychological research indicating that personal efforts to spread the message are likely to be more effective, these programs may need to rely on voluntary, face-to-face initiatives as well.[248]

Witnessing can have a magnified impact if it targets people in positions of power and influence.[249] Within the evangelical community, persons concerned about climate change have made efforts to convince pastors of its moral and theological implications, in the hope that the churches they lead will adopt environmentally friendly policy positions and practices.[250] Emphasizing the ramifications of climate change for humans, particularly for the poor, may prove effective among evangelicals, as they are familiar with the command to love thy neighbor.[251] Evangelicals have taken this command to heart in supporting efforts to combat AIDS and reduce global poverty,[252] and may do the same with respect to global warming if the case for human suffering is adequately made.

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[246] *See* Vandenbergh & Steinemann, *supra* note 1, at 1731–32.

[247] *See* Carlson, *supra* note 59, at 1287–89.

[248] *Cf.* Rhode & Ross, *supra* note 1, at 168–69 ("For some people and in some environmental contexts, grassroots organizations, local officials, or even friends and work associates may have more credibility than state officials or spokespersons for utilities and other regulated agencies.").

[249] *Cf.* Eilperin, *supra* note 226, at A4 (quoting "we" campaign organizer as "focus[ing] on individuals known in the advertising world as 'influencers' who talk to a disproportionate number of people in their communities").

[250] *See, e.g.*, Higgins, *supra* note 7, at A1 (describing such efforts within Baptist churches in Texas); McCammack, *supra* note 215, at 666 n.38 (noting "conversion" of evangelical leader to "truth" of climate change).

[251] *See* Nagle, *supra* note 7, at 68, 82 (suggesting that among evangelicals, the most effective response to critique that climate regulation will hurt the poor is the argument that climate change "is the major relief and development problem of the twenty-first century").

[252] *See id.* at 78 (referring to polls that indicate near-uniform support among evangelicals for such efforts).

Witnessing also has applications outside of the evangelical community. Targeting business leaders and bringing to bear social and personal reputational pressures may be particularly effective.[253] The "greening" of Wal-Mart Chairman Rob Walton and Wal-Mart CEO Lee Scott provides a prominent example. As described by *Fortune Magazine*, Walton was befriended by Peter Seligmann, a conservationist and co-founder of the environmental organization Conservation International.[254] Over the course of several years, Seligmann gradually convinced Walton that Wal-Mart, given its sizeable environmental footprint and its even greater market influence, "could be a driver of tremendous change" for environmental good.[255] Walton, in turn, introduced Seligmann to Scott, who at the time was looking for ways to improve the company's flagging public image.[256] Under Scott's direction, and with the input of environmentalists and consultants, Wal-Mart has since adopted a number of initiatives involving increased recycling, reduced energy use, elimination of excess packaging, and marketing of sustainably produced goods.[257] And consistent with the evangelization model, Wal-Mart in turn has sought to spread the sustainability message to its customers, successfully executing a campaign to sell one hundred million energy-efficient compact fluorescent light bulbs by exerting pressure on suppliers and giving the bulbs prime display space in stores.[258]

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[253] *See* Flatt, *supra* note 213; *cf.* Rena I. Steinzor, *Reinventing Environmental Regulation: The Dangerous Journey From Command to Self-Control*, 22 HARV. ENVTL. L. REV. 103, 163 (1998) ("the most extraordinary examples of corporate environmentalism are initiated at the highest levels in a corporation by people who possess a far-sighted vision of how to position their firms strategically in response to economic and social trends").

[254] *See* Marc Gunther, *The Green Machine*, FORTUNE, Aug. 7, 2006, at 42, 46.

[255] *Id.* at 46.

[256] *See id.* at 48.

[257] *See id.* at 48, 52, 54.

[258] *See* Michael Barbaro, *Wal-Mart Puts Some Muscle Behind Power-Sipping Bulbs*, N.Y. TIMES, Jan. 2, 2007, at A1, *available at* http://www.nytimes.com/2007/01/02/business/02bulb.html?scp=1&sq=Wal-Mart%20Puts%20Some%20Muscle%20Behind%20Power-Sipping%20Bulbs&st=cse; Claudia H. Deutsch, *Wal-Mart's Environmental Report Card*, N.Y. TIMES, Nov. 16, 2007, at C9, *available at http://www.nytimes.com/2007/11/16/business/16walmart.html?scp=1&sq=Wal-Mart%92s Environmental Report Card&st=cse* (reporting Wal-Mart's claim that it sold 100 million compact fluorescent bulbs in twelve-month period).

Undoubtedly, Wal-Mart has done much of this out of self-interest: many of these measures not only made good press, but also made economic sense. Scott has admitted as much, leaving the company vulnerable to criticism that its basic business model of high consumption rates and low production costs remains unchanged.[259] Furthermore, the extent to which Wal-Mart's efforts will make a meaningful positive difference to the environment as a whole remains uncertain. For instance, notwithstanding reductions in per-store energy use, Wal-Mart's total carbon dioxide output rose 9 percent in 2007 due to continued expansion of the company.[260] Nevertheless, the changes at Wal-Mart are noteworthy in light of the chain's economic power and broad influence across society, particularly among working-class populations that the environmental movement historically has struggled to reach. Ultimately, powerful corporations like Wal-Mart can serve as influential "converts" in the efforts to address global warming.

3. *Storytelling*

Whether in the form of Biblical parables or personal testimonies, storytelling plays an important role in evangelization.[261] Stories are effective means of communication because they make concrete and personal what would otherwise be distant and abstract, thus giving a human face to experience and suffering.[262] Within the evangelical community, it is this human dimension to global warming that has convinced some to take a stand on the issue.[263] Viewed in light of cultural cognition theory, it becomes apparent that the power of storytelling derives not only from its mode of discourse, but also from the subject matter of the

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[259] *See* Deutsch, *supra* note 258 (noting criticism of Wal-Mart by nonprofit groups).

[260] *See* Yian Q. Mui, *At Wal-Mart, 'Green' Has Various Shades*, WASH. POST, Nov. 16, 2007, at D1.

[261] *See* Miller, *supra* note 221, at 203 (noting focus of contemporary evangelicals "on retelling the narratives of the Bible and seeking analogues to the experience of their members").

[262] *Cf.* Richard Delgado, *Storytelling for Oppositionists and Others: A Plea for Narrative*, *in* NARRATIVE AND THE LEGAL DISCOURSE: A READER IN STORYTELLING AND THE LAW 289, 310–12 (David Ray Papke ed., 1991) ("Stories humanize us and force us to see reality through the eyes of others.").

[263] *See* GARDNER, *supra* note 177, at 91.

story—the widespread human suffering that global warming is expected to cause. Concern for the poor is a central theme of Biblical texts, and climate change narratives that highlight its disproportionate impacts on the poor draw on altruistic values held by evangelicals.[264]

Storytelling can be an effective tool in changing views and behavior beyond the evangelical community.[265] Just as abolitionists aroused moral outrage by publicizing former slaves' personal accounts of bondage and suffering,[266] climate change activists have begun to use stories to emphasize that global warming is a human issue and not just an environmental one. These stories include human rights claims brought by indigenous peoples in international courts,[267] as well as accounts linking climate change to the death and destruction caused by Hurricane Katrina.[268] Such stories can tap into altruistic values and help to forge a common, global identity to motivate individual and collective action.[269] Ultimately, these stories may be more influential than hard data on climate change's health and economic damages (which in any case are incomplete[270]) in driving changes in individual values and norms.

4. *Empowerment/Affirmation*

Scholars of modern evangelicalism have identified its "world-affirming" character—the accommodation of various aspects of

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[264] *See id.*; Nagle, *supra* note 7, at 68.

[265] *See* Rhode & Ross, *supra* note 1, at 168 (recommending use of "[c]ompelling visual images and personal stories").

[266] *See* RICHARD S. NEWMAN, THE TRANSFORMATION OF AMERICAN ABOLITIONISM 7 (2002).

[267] *See* Sinden, *supra* note 52, at 271 (describing international legal claims of human rights violations filed by indigenous communities in an effort to reframe climate change as a moral problem in which "the powerful few [are] preventing the political system from acting to protect the powerless many").

[268] *Cf.* James B. Elsner, *Evidence in Support of the Climate Change—Atlantic Hurricane Hypothesis*, 33 GEOPHYSICAL RES. LETTERS L16705 (2006) (discussing support for hypothesis that climate change is contributing to greater hurricane intensity).

[269] *Cf.* Clayton & Brook, *supra* note 66, at 94 (suggesting importance of creating an overarching identity to help defuse environmental conflict).

[270] *See* Vandenbergh & Steinemann, *supra* note 1, at 1733 ("Much remains to be done to compile both human health and economic information.").

contemporary culture—as crucial to its success.[271] Setting aside debates over the theological soundness of such moves, one can understand how the resulting atmosphere of acceptance, rather than condemnation, can be attractive. An analogous approach can be applied to climate change as well. By integrating appeals to distinct cultural values into public justifications for law, an approach of expressive overdetermination affirms the cultural views of the diverse communities that constitute the broader public.[272] More specifically, climate change can and ought to be justified to the evangelical community in terms of Biblical commands such as stewardship and the duty to care for one's neighbors.[273] Gore's Nobel Prize lecture exemplifies this approach without limiting itself to one subset of his global audience.[274]

The principle of affirmation can be understood to include not just acceptance, but also active encouragement. Given the scope of the problem and the collective action required to address it, a danger of public campaigns on global warming is that individuals may become too discouraged to act. Environmentalists are perceived in some quarters as self-righteous, and a moralizing effort that creates a sense of guilt or helplessness could be ineffective or even counterproductive.[275] The "we" campaign seeks to avoid this by emphasizing the ability of individuals to make a difference by changing their behavior and by pressuring elected officials.[276] Similarly, involving people in efforts to solve the problem such as through public meetings or roundtable discussions can generate active engagement in the issue, as well as

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[271] *See* Shibley, *supra* note 221, at 72–74 (discussing casual dress, contemporary music, and reformulation of gender roles in contemporary evangelical churches).

[272] *See supra* text accompanying notes 210–212.

[273] *See* Nagle, *supra* note 7, at 67–68 (discussing theological bases for acting against climate change).

[274] *See supra* Part IV.B.1.

[275] *See* Jeff Allen, *Environmentalism in Limbo*, ENVTL. F., Sept.–Oct. 2007, at 24, 27 (criticizing "environmentalists [who] are more concerned with feeling righteous personally than they are with achieving results for the planet"); Stephen Kaplan, *Human Nature and Environmentally Responsible Behavior*, 56 J. SOC. ISSUES 491, 498 (2000) (contending that sense of helplessness may explain decline in environmental concern and environmentally responsible behavior).

[276] *See* We Campaign, Minimize Your Own Impact, http://www.wecan solveit.org/content/pages/20/ (last visited April 15, 2009).

creative solutions.[277] While efforts to encourage behavioral change should not make light of the immensity of the task ahead, they will work only by fostering a sense of possibility and empowerment.

A strategy of affirmation also may have implications for the types of behavioral changes to be encouraged. Changes to reduce energy consumption, for instance, can be classified into two general categories: positive actions that involve adopting more energy-efficient technology (such as purchasing a more fuel-efficient car), and negative actions that involve curtailing the use of existing technology (such as driving less frequently).[278] From the standpoint of an affirmation strategy, increased efficiency actions are preferable to curtailment actions because the former are perceived as less burdensome on existing lifestyles than the latter.[279] As it turns out, increased efficiency actions are generally preferable for another reason—they often produce greater energy savings.[280]

5. *Commitment*

Evangelicalism involves a conscious, life-encompassing choice manifested in public professions of faith.[281] Public acts of commitment affirm new identities and bring into force the norms of a particular community. This can be true for secular as well as religious commitments. Psychologists have found that the making of pledges to change one's behavior can be an effective means of bringing about long-lasting change with respect to specific conservation-related behaviors. This is particularly true where those pledges are established through face-to-face contact.[282] As

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[277] *See* Kaplan, *supra* note 275, at 499–502 (advocating approach of participatory problem solving).

[278] *See* GARDNER & STERN, *supra* note 54, at 260.

[279] *See id.* at 261. Another psychological difference between curtailment actions and increased efficiency actions is that curtailment actions usually involve repeated behaviors and thus require long-term behavioral modification, whereas increased efficiency actions usually involve one-time (or infrequent) decisions that may require substantial capital expenditures. *See id.*

[280] *See id.* at 261; *see also* Stern, *supra* note 58, at 524–25 (criticizing view that "solving environmental problems requires sacrificing the benefits of modern technology").

[281] *See* LINDSAY, *supra* note 214, at 4.

[282] *See* Carol M. Werner et al., *Commitment, Behavior, and Attitude Change: An Analysis of Voluntary Recycling*, 15 J. ENVTL. PSYCH. 197, 198, 206 (1995)

such, commitments can be especially useful in addressing problems of intertemporal choice, i.e., where limited willpower, bounded rationality, and short-term thinking hamper individuals' ability to act in ways that promote their long-term preferences.[283] Although resource-intensive to obtain, commitments can be an effective way of securing specific behavioral changes as well as attitudinal changes.[284]

Government policies can foster these techniques in order to help individuals carry out choices that reflect long-term preferences.[285] For example, the government could publish the names of citizens who have taken pledges of carbon neutrality or have otherwise committed to climate-friendly programs.[286] Or governments could set default rules to favor climate-friendly options, prescribing, for example, energy-saving options as the default result. By requiring consumers to make an affirmative choice of less climate-friendly equipment, such arrangements "de-bias" the law by countering individual biases that tend to undervalue long-term interests.[287]

C. *Further Implications*

Adopting an approach that acknowledges the critical role of values has broader implications that extend beyond strategic questions of how to motivate changes in individual climate-related behavior.

For one, these implications may involve substantive policy choices. The results of the "Second National Risk and Culture

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(reviewing commitment effects in studies of household recycling rates and finding recycling rates were highest among subjects who received a flyer, telephone call, and face-to-face interaction, and who signed a commitment to recycle); De Young, *supra* note 139, at 498–99.

[283] *See* Green, *Self Control*, *supra* note 1, at 81, 93–94.

[284] *See* Werner et al., *supra* note 282, at 206 (finding that written commitment and behavior led to attitude change).

[285] *See* Green, *Self Control*, *supra* note 1, at 94–101.

[286] *See, e.g.*, Green, *Self Control*, *supra* note 1, at 95 (explaining that public prononcements increase the reputational costs of not meeting a commitment); Vandenbergh & Steinemann, *supra* note 1, at 1734–35 (proposing a permanent public monument, the "Carbon-Neutral Registry," which would list the names of persons who have taken pledges to be carbon neutral).

[287] *See* Green, *Self Control*, *supra* note 1, at 95–96. Opt-out programs increase participation rates not only by making it easier to say yes than to say no, but also by reinforcing social norms. *See* Rhode & Ross, *supra* note 1, at 183.

Study," for instance, suggest that nuclear power should be given serious consideration in the search for alternatives to fossil fuels. Conducted by researchers in cultural cognition, the study was designed to test whether the particular policy that people anticipate will be used to address climate change affects how they process factual information.[288] Subjects in the study received one of two versions of a newspaper article calling either for increased anti-pollution regulation or for increased use of nuclear power as a policy response to global warming.[289] The researchers found that persons with individualist or hierarchical orientations were more willing to accept factual claims indicating that global warming is a serious problem if they received the version of the article calling for nuclear power rather than pollution control.[290] Nuclear power, the researchers explained, "is a symbol of industrial markets, human mastery over nature, and the power and competence of scientific and industrial elites."[291] Thus, the "pro-nuclear" version of the article apparently framed the factual information in a culturally affirming way for individuals otherwise predisposed to dismiss global warming risks.[292]

More generally, the central role of values in motivating concrete norms and individual behavior underscores the need for efforts to change them. As discussed above, changing values is not easy.[293] Yet ignoring values in a long-term global warming strategy would be a mistake, given their importance and the scope of the global warming problem. Efforts to influence values may include environmental education programs, which seek to nurture an appreciation of the environment, and civics classes, which promote civic participation and a sense of community. Fostering a concern for others and a sense of common human interests can occur in other ways as well. Programs to encourage public service, such as the Peace Corps and VISTA,[294] can be developed

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[288] *See* Kahan et al., *The Second National Risk*, *supra* note 196, at 4.

[289] *See id.* at 4–5.

[290] *See id.* at 5–6.

[291] *Id.* at 6; *see also* Dietz et al., *supra* note 47, at 359 (noting research finding that persons holding traditional values tend to view nuclear power more favorably than persons holding altruistic values).

[292] *See* Kahan et al., *The Second National Risk*, *supra* note 196, at 6.

[293] *See supra* text accompanying notes 138–141.

[294] *See generally* James L. Perry, *Civic Service in North America*, 33 NONPROFIT & VOLUNTARY SECTOR QTLY. 167S (2004).

to assist individuals, businesses, and governments in their efforts to reduce GHG emissions. Moreover, political leaders and other public figures can affect the tone of public discourse and guide the development of values, not only through policy initiatives, but also through their words and personal actions.[295]

More aggressive efforts to shape values may raise concerns about government propaganda. On the one hand, public information campaigns have the potential to undermine democratic political processes.[296] On the other hand, promoting concern for the welfare of others may be a legitimate governmental purpose. Moreover, seeking to shape the environmental values of our successors may be particularly appropriate with respect to environmental policy strategies that require long-term commitments.[297] Ultimately, there are some institutional safeguards against abuse. These include the fragmentation of authority within the executive branch and between different levels of government, as well as congressional and judicial oversight of executive activity.[298] Scrutiny of information campaigns by nongovernmental organizations and citizens can play an important role as well.

Finally, the social psychology literature on cognitive biases, norms, and values reminds us that regulating behavior is not simply a matter of using law and policy to adjust the economic calculations of rational actors. Per cultural cognition theory, how a problem is framed and how a policy response is justified are pertinent as well. More importantly, the significance of values calls into doubt the suitability of relying only on cost-benefit analysis and other economic tools to determine policy responses to

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[295] President John F. Kennedy's inaugural address exhortation, "Ask not what your country can do for you—ask what you can do for your country" inspired idealism among many Americans and helped to launch the Peace Corps and other national service programs. *See* Perry, *supra* note 294, at 169S. And during the 2008 campaign, President Barack Obama issued a call for public service and proposed creation of an Energy Corps to conduct renewable energy and environmental cleanup projects. *See* Jonathan Weisman, *Obama Calls for National Service*, WASH. POST, July 3, 2008, at A4.

[296] *See* Janet A. Weiss & Mary Tschirhart, *Public Information Campaigns as Policy Instruments*, 13 J. POL'Y ANALYSIS & MGMT. 82, 97–98 (1994) (describing potential negative consequences for democratic values).

[297] *See* Albert C. Lin, *Virtual Consumption: A Second Life for Earth?*, 2008 B.Y.U. L. REV. 47, 113 (2008).

[298] *See* Weiss & Tschirhart, *supra* note 296, at 101–02.

problems like climate change.[299] The information that economic analysis provides can be useful, and policy instruments based on economic incentives will be needed in the climate change policy arsenal. Nonetheless, just as it is mistaken to assume that people are purely rational, self-interested maximizers of utility,[300] it is equally problematic to conclude that public preferences can—or should—be deduced automatically from calculations of maximum social utility. Such an approach ignores the role of underlying values in shaping democratic policy preferences.

CONCLUSION

Solving the problem of climate change will require multiple approaches aimed at diverse contributors to the problem, including the behavior of individuals. Although direct regulation of individual behavior is difficult, the law has a role to play in defining the economic, social, and cultural context in which individual behavior occurs.[301] Law also can shape values and define norms, whether by providing a forum and redress for the victims of climate change or by reflecting the cultural preferences and values of the citizens it governs. Reliance on law alone, however, will not be enough. A strategy for evangelizing climate change among individuals must incorporate the insights of research psychology and involve effective advocacy by governmental and non-governmental actors. Much work still needs to be done to understand how individual values and behaviors change. Global warming presents us with an urgent and concrete setting for carrying out some of that work.

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[299] *See* Lisa Heinzerling & Frank Ackerman, *Law and Economics for a Warming World*, 1 HARV. L. & POL'Y REV. 331, 357 (2007) (rejecting cost-benefit analysis as "formula for optimal public decision-making" and arguing instead for deliberative discussions "about public goods and priorities . . . that respect[] the importance of the underlying values").

[300] *See supra* notes 65–66 and accompanying text.

[301] *See, e.g.*, Doremus, *supra* note 62, at 240 (noting role of law in assuring that others will follow through on actions to address collective action problems).