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# Reconceptualizing the Future of Environmental Law: The Role of Private Climate Governance

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**2015 SYMPOSIUM:  
KEYNOTE ADDRESS**

**Reconceptualizing the Future of  
Environmental Law: The Role of Private  
Climate Governance**

MICHAEL P. VANDENBERGH\*

The title of this Symposium, *Re-conceptualizing the Future of Environmental Law*, accurately captures the challenge facing environmental law scholars and policymakers in 2015. The success of environmental law in the future will not arise from doubling down on the approaches developed over the last 50 years. Instead, it will arise from our willingness to learn from the past without being bound by the conceptual frameworks that dominated the early development of the field.

In particular, a successful future for environmental law is more likely to emerge if we acknowledge that the environmental problems, policy plasticity, and regulatory institutions that shaped the early decades of the field are no longer dominant, and if we develop new responses that reflect the shifts that have occurred on each of these points. I begin by identifying several important shifts in environmental problems, policy plasticity, and institutions. I then explore how new conceptual frameworks—sometimes explicit and sometimes not—are already leading to

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new responses to some of the most challenging environmental issues.

No environmental issue is more challenging than climate change, and physicist Jonathan Gilligan and I have argued for a conceptual shift that involves recognizing the opportunity to buy time with private governance.<sup>1</sup> We have not argued that private governance is a complete response or that it is the only new approach to climate change, but we have asserted that private initiatives can achieve a private governance wedge—emissions reductions that grow each year and average a billion tons per year over the 2016-2025 period.<sup>2</sup> By drawing on existing efficiency incentives and motivations to reduce corporate and household carbon emissions, private initiatives can buy time while national and international governmental processes are in gridlock. In addition, many of these initiatives can complement a carbon price after it is adopted. The challenge is to make the conceptual shift: to move beyond the early history of

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1. See generally Michael P. Vandenbergh & Jonathan M. Gilligan, *Beyond Gridlock: The Private Governance Response to Climate Change*, 40 COLUM. J. ENVTL. L. (forthcoming 2015), available at <http://ssrn.com/abstract=2533643> [hereinafter Vandenbergh & Gilligan, *Beyond Gridlock*]. For a short summary of the ideas presented at this keynote address, see TEDx, *Can Your Company Stop Global Warming? Michael P. Vandenbergh at TEDxNashville* (May 11, 2014), YOUTUBE, <http://youtu.be/2bXNcEQ6QX0>, archived at <https://perma.cc/99CN-KJ9Y>.

2. Other promising new approaches that do not assume a comprehensive international or national carbon price include polycentric governance. See generally Robert O. Keohane & David G. Victor, *The Regime Complex for Climate Change*, 9 PERSP. ON POL. 7, 7 (2011) (advocating for a climate change regime complex); John R. Nolon, *In Praise of Parochialism: The Advent of Local Environmental Law*, 26 HARV. ENVTL. L. REV. 363 (2002) (land use law at the local level); Elinor Ostrom, *Nested Externalities and Polycentric Institutions: Must We Wait for Global Solutions to Climate Change Before Taking Actions at Other Scales?*, 49 ECON. THEORY 353 (2012); Matt Potoski & Aseem Prakash, *Green Clubs: Collective Action and Voluntary Environmental Programs*, 16 ANN. REV. OF POL. SCI. 399 (2013) (conceptualize voluntary environmental programs as clubs); Benjamin K. Sovacool, *An International Comparison of Four Polycentric Approaches to Climate and Energy Governance*, 39 ENERGY POL'Y 3832 (2011); Richard B. Stewart et al., *Building a More Effective Global Climate Regime Through a Bottom-Up Approach*, 14 THEORETICAL INQUIRIES L. 273, 274 (2013) (identifying bottom-up mitigation strategies). For a view on private climate governance from a political science perspective, see JESSICA GREEN, *RETHINKING PRIVATE AUTHORITY: AGENTS AND ENTREPRENEURS IN GLOBAL ENVIRONMENTAL GOVERNANCE* (2013).

environmental law and recognize that environmental governance is not synonymous with public governance.

## I. LEARNING AND UNLEARNING THE LESSONS OF HISTORY

History can be a guide to the future, but it also can create blinders that hinder our ability to recognize and develop effective responses to new problems. The idea that generals fight the last war is mentioned so often that it has become trite, but it is uncomfortably true regarding environmental law and policy. Three often unstated assumptions fit into that category. The first is that the environmental problems of today are not exceptional—that they differ, if at all, only in degree from the problems of the past. The second is that the policy plasticity of the past—the ability to adopt comprehensive legislation at the national level and international agreements at the global level—exists today much as it did in the heyday of environmental lawmaking from 1970 to 1990.<sup>3</sup> The third is that the most important regulatory institutions—including the regulatory actors, actions and targets—of the 1970-1990 period remain the same today. All three of these assumptions no longer hold true, and the sooner we abandon them, the sooner we will be able to generate the creativity and momentum necessary to fashion a future for environmental law that we can all be proud of decades from now.

### A. Environmental Problems

As to the problems of today, climate change is simply different from earlier threats. Whether it is “the mother of all collective action problems”<sup>4</sup> or just the most challenging collective action problem, no environmental threat addressed by the statutory framework erected in 1970-1990 matches climate change in the magnitude and irreversibility of the potential

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3. The onset of gridlock at the international level arguably began in 2000 rather than 1990. JONATHAN M. HARRIS & BRIAN ROACH, *THE ECONOMICS OF GLOBAL CLIMATE CHANGE* 35 (2007).

4. Sarah Krakoff, *Fragmentation, Morality, and the Law of Global Warming* 28 (Colorado Law Legal Studies Research Paper Series, Working Paper No. 07-10, 2007); see also Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 *CORNELL L. REV.* 1153, 1155–56 (2009).

harm, the cost of the response, the global scale, the deep integration of environmental harms and economic activity, and the justice concerns between developed and developing countries and between current and future generations.

The last point about future generations is particularly easy to overlook in debates about the appropriate responses to climate change. Policy debates tend to focus on the next several months or years, and justice advocates often focus on the burdens of climate mitigation and the wealth disparity among populations living in developed and developing countries today, rather than the tens or hundreds of future generations that will live in a disrupted world.<sup>5</sup> Psychologists tell us that near-term, vivid, local events are most likely to affect beliefs, norms and behavior, but the most certain and most severe climate events are far easier to project over a long-term and global scale.<sup>6</sup> Economists' arguments regarding the use of discount rates reinforce this temporal lens. The value of the climate change harms that will be avoided in future centuries is miniscule in the calculus after the application of almost any non-zero discount rate.<sup>7</sup>

Not surprisingly, policy debates and scientific reports follow this pattern as well. The debate over the Waxman-Markey cap and trade bill in 2008-2009 often focused more on the several hundred dollar annual increase in the average household

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5. See generally Michael Vandenberg & Jonathan M. Gilligan, *Macro Risks: The Challenge for Rational Risk Regulation*, 22 DUKE ENVTL. L. & POL'Y F. 401 (2011) [hereinafter Vandenberg & Gilligan, *Macro Risks*].

6. See Michael P. Vandenberg & Kaitlin Raimi Toner, *Climate Change: Leveraging Legacy*, 41 ECOL. L.Q. 139 (2015) [hereinafter Vandenberg & Raimi, *Leveraging Legacy*].

7. See Paul R. Portney & John P. Weyant, *Introduction*, in DISCOUNTING AND INTERGENERATIONAL EQUITY 15 (Paul R. Portney & John P. Weyant eds., 1999) ("Assume . . . that the gross domestic product of the world will be \$8 quadrillion in the year 2200 in current dollars. Suppose that we want to calculate the present value of that sum using the 7% discount rate that the Office of Management and Budget recommends for such purposes. The answer we get is a surprising \$10 billion. In other words, it would not make sense for the world's present inhabitants to expend more than \$10 billion today (or about \$2 per person) on a measure that would prevent the loss of the entire GDP of the world 200 years from now."). For a recent assessment of the costs of climate change if climate disruption affects the economic growth assumptions included in economic models, see Frances C. Moore & Delevane B. Diaz, *Temperature Impacts on Economic Growth Warrant Stringent Mitigation Policy*, 5 NATURE CLIMATE CHANGE 127, 127-28 (2015). See also HARRIS & ROACH, *supra* note 3, at 35.

electricity bill than the multigenerational benefits of reducing carbon emissions. Similarly, scientific reports about projected sea level rise often end in 2100, and the public debate commonly focuses on whether the common estimate of a two-foot sea level rise in 2100 is too high or low.<sup>8</sup> Yet even if carbon emissions peak today and decline substantially over the following decades, sea levels will still be increasing 1,000 years from now.<sup>9</sup> Although the precise future sea levels are not clear, the likely increase is far above two feet and could easily be tens of feet, with more to come. In short, we are acting as if the deep future holds essentially no value to us today. No other environmental issue, with the possible exception of nuclear waste disposal, raises a similar concern.

## B. Policy Plasticity

As Michael Gerrard has demonstrated in a clever photograph, federal environmental regulations have grown to the point where the stack of environmental volumes of the Code of Federal Regulations dwarfs the stack of Internal Revenue Service tax regulations.<sup>10</sup> A natural conclusion from viewing these stacks is that government responses to environmental problems are robust. EPA's recent climate regulations provide some support for that view, but by now many of us have noted that no major federal pollution control statute has been enacted in the United States (U.S.) in the last quarter century.<sup>11</sup> The statutory

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8. See Vandenberg & Gilligan, *Macro Risks*, *supra* note 5, at 425. See generally Ann Powers, *Sea Level Rise and Its Impact on Vulnerable States: Four Examples*, 73 LA. L. REV. 151 (2012) (discussing the effects of sea level rise).

9. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE 2001: SYNTHESIS REPORT 89 (Robert T. Watson et al. eds., 2001), available at [http://www.grida.no/publications/other/ipcc\\_tar/](http://www.grida.no/publications/other/ipcc_tar/), archived at <http://perma.cc/96BH-RLFF>.

10. Michael Gerrard, Photograph, 2014 (copy on file with the author).

11. See, e.g., Todd Aagard, *Environmental Law Outside the Canon*, 89 IND. L.J. 1239, 1239-41 (2014) (noting absence of major statutes and arguing for embedded and disbursed public environmental governance); Richard Lazarus, *Congressional Descent: The Demise of Deliberative Democracy in Environmental Law*, 94 GEO. L.J. 619, 619, 629 (2006) (describing congressional action in mid-2000s as "effectively moribund"); David Uhlmann, *The Quest for a Sustainable Future*, 1 MICH. J. ENVTL. & ADMIN. L. 1, 9 (2012) (noting absence of statutes); Michael P. Vandenberg, *The Emergence of Private Environmental Governance*, 44 ENVTL. L. REP. 10125, 10132 (2014) (providing chart of major pollution

authority behind Gerrard's regulatory pile is critical for effective climate mitigation, but the legislative process has been in virtual gridlock since the fall of 1990.

We can debate the causes, and the gridlock could break at any moment, but the legislative inaction in the U.S. is at least a cautionary note about the likelihood of major new legislation in the near term.<sup>12</sup> For some environmental problems, legislative inaction at the federal level is a rational response: The statutes are up to the task, and the environmental issues are largely in hand. Yet few believe that the statutory framework erected during the 1970-1990 period provides the optimal national response across the board. Efforts to achieve many objectives—whether to scale back the federal role, to make existing instruments more efficient, to address new problems, or to increase the use of emissions trading and other innovative new instruments—have all failed since the Clean Air Act Amendments of 1990.

Although these objectives are important, the best argument for legislative action is that the federal statutory framework is woefully inadequate to address climate change. EPA's use of existing authorities to reduce emissions from motor vehicle emissions, new major stationary sources, and existing electric generating units, when combined with state and local actions, the growth of natural gas supplies, and other factors, should make it possible for the U.S. to achieve the 17% emissions reduction target announced in connection with the Copenhagen negotiations in 2009.<sup>13</sup> But it is important to recognize just how modest that target is: achieving the 17% reduction from 2005 levels by 2020 will leave U.S. annual emissions in 2020 higher by almost 4%, or roughly 200 million metric tons per year, than if

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control statutes 1970-2013); Michael P. Vandenberg, *Private Environmental Governance*, 99 CORNELL L. REV. 129, 129 (2013) (noting a two decade absence of major pollution control statutes) [hereinafter Vandenberg, *Private Environmental Governance*].

12. See Vandenberg, *Private Environmental Governance*, *supra* note 11, at 131-32.

13. Darren Samuelsohn and Lisa Friedman, *Obama Announces 2020 Emissions Target, Dec. 9 Copenhagen Visit*, N.Y. TIMES, Nov. 25, 2009, <http://www.nytimes.com/cwire/2009/11/25/25climatewire-obama-announces-2020-emissions-target-dec-9-22088.html?pagewanted=all>, archived at <http://perma.cc/ZV62-WQ77>.

the U.S. had achieved its Kyoto target of 7% emissions reductions from 1990 levels during the 2008-2012 Kyoto compliance period.<sup>14</sup>

In addition, the prospects for adopting and implementing a carbon price at the national and international levels over the next decade are dim.<sup>15</sup> In the U.S., a carbon tax or cap and trade system is possible in the near term, but unlikely. The legislation would have to draw on widespread, but weak, support from the U.S. population to overcome concentrated opposition from the fossil fuel industry and from advocates of smaller government.<sup>16</sup> The House of Representatives is unlikely to support a meaningful carbon price with its current membership, and the current configuration of congressional districts makes near-term change unlikely.<sup>17</sup> In the Senate, sixty votes would be required, even in the absence of a Presidential veto.<sup>18</sup> An international agreement with credible commitments for emissions reductions has been difficult to achieve, and even if the negotiations succeed,

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14. These figures are based on the following assumptions and calculations: 1990 levels were 6,233.23 million metric tons, so a 7% reduction from 1990 levels is 5,796.9039 million metric tons. In 2005 levels were 7,253.78 million metric tons, so a 17% reduction from 2005 levels is 6,020.6374 million tons. The difference is  $6,020.6374 - 5,796.9039 = 223.7335$ . The percentage change is  $223.7335 / 5,796.9039 = 3.859534397\%$ . This assumes that emissions would have remained constant after the Kyoto reductions. Data for calculations, see *Greenhouse Gas Inventory Data Explorer*, EPA (July 21, 2014), <http://www.epa.gov/climatechange/ghgemissions/inventoryexplorer/index.html#allsectors/allgas/econsect/all>, archived at <http://perma.cc/PVB5-AXWD>.

15. For a discussion, see Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 19.

16. See, e.g., *Public's Policy Priorities For 2015*, PEW RESEARCH CENTER (Jan. 15, 2015), [http://www.people-press.org/2015/01/15/publics-policy-priorities-reflect-changing-conditions-at-home-and-abroad/1-15-2015-priorities\\_01/](http://www.people-press.org/2015/01/15/publics-policy-priorities-reflect-changing-conditions-at-home-and-abroad/1-15-2015-priorities_01/), archived at <http://perma.cc/A2CV-LRP2> (reporting that "global warming" ranks 22nd of 23 issues).

17. See Joe Williams & Anthony Salvanto, *Control of the House and Redistricting's Effect*, CBS NEWS (Nov. 4, 2012, 11:15 AM), <http://www.cbsnews.com/news/control-of-the-house-and-redistrictings-effect/>, archived at <http://perma.cc/T2AZ-V5G7>.

18. One way to bypass this barrier is to adopt climate legislation as an appropriations measure. That is difficult to do, but the process used for the Affordable Care Act suggests that it is not impossible. See generally, *Filibuster and Cloture*, U.S. SENATE, [https://www.senate.gov/artandhistory/history/common/briefing/Filibuster\\_Cloture.htm](https://www.senate.gov/artandhistory/history/common/briefing/Filibuster_Cloture.htm) (last visited Apr. 5, 2015), archived at <https://perma.cc/6JDG-4CDM>.



ratification of a treaty in the U.S. will require sixty-seven votes in the Senate.<sup>19</sup>

A more likely approach is a continuation of recent piecemeal efforts that seek to reduce U.S. emissions and induce movement by other countries without requiring congressional action.<sup>20</sup> These may be the most viable efforts, but they are unlikely to yield adequate levels of emissions reductions in the near term. Meanwhile, every decade of delay locks in almost one degree Fahrenheit of increased global average temperature and a forty percent increase in costs.<sup>21</sup>

I certainly do not have a crystal ball, and legislators could respond to shifts in public opinion in the event of major heat waves, droughts, or other natural events. Movement by other countries also could occur and could change the political landscape in the U.S. Yet even as climate scientists have become more certain about the role of humans in causing climate change, a large segment of the American population has become less certain.<sup>22</sup> In addition, even after a major climate bill is adopted, several years will be necessary to fully implement a national carbon price.<sup>23</sup> An international carbon price will take even

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19. U.S. CONST. art II, § 2.

20. See, e.g., Elinor Ostrom, *A Long Polycentric Journey*, 13 ANN. REV. OF POL. SCI. 1, 5-6 (2010) (examining polycentric responses to climate change); DAVID G. VICTOR, *GLOBAL WARMING GRIDLOCK: CREATING MORE EFFECTIVE STRATEGIES FOR PROTECTING THE PLANET* 264 (2011) (discussing strategy involving clubs of countries); Richard B. Stewart et al., *Building a More Effective Global Climate Regime Through a Bottom-Up Approach*, 14 THEORETICAL INQUIRIES L. 273, 274 (2013) (evaluating bottom-up initiatives); see generally, Kenneth W. Abbott, *Strengthening the Transnational Regime Complex for Climate Change*, 88 TRANSNAT'L ENVTL. L. 543 (2012) (examining global private governance initiatives); Daniel C. Esty, *Bottom-up Climate Fix*, N.Y. TIMES, Sept. 21, 2014, <http://www.nytimes.com/2014/09/22/opinion/bottom-up-climate-fix.html?ref=opinion>, archived at <http://perma.cc/8B98-2NMU> (evaluating bottom-up initiatives); Sarah Light, *The New Insider Trading: Markets within the Firm*, 34 STAN. ENVTL. L.J. (2015) (examining carbon markets within firms); Eric Orts, *Climate Contracts*, 29 VA. ENVTL. L. J. 197, 232 (2010) (proposing contracting arrangements).

21. For a discussion and citations, see Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 7.

22. See Michael P. Vandenberg et al., *Energy and Climate Change: A Climate Prediction Market*, 61 UCLA L. REV. 1962, 1964 (2014) [hereinafter Vandenberg et al., *A Climate Prediction Market*].

23. American Clean Energy and Security Act of 2009 (ACES), H.R. 2454, 111th Cong. (2009) (bill was defeated in the Senate).

longer. After a carbon price begins to bite, the legislation not only will have to survive repeal efforts (something the recent Australian carbon tax could not do), but also increase over time. All of these favorable outcomes are possible, but it is risky to be overly optimistic about the policy plasticity of an adequate carbon price or any other comprehensive legislative response.

### C. Regulatory Institutions

In addition to shifts in environmental problems and policy plasticity, the available regulatory institutions have changed since the 1970-1990 period. This includes not only the regulatory actors, but also the regulatory actions and targets. The shift has occurred in ways that affect the most promising strategies for climate mitigation and the future of environmental law more generally.

#### 1. Actors

When confronted by a major social problem, many policy analysts ask: “What can government do?”<sup>24</sup> Our vocabulary reinforces this framing. Terms ranging from “policymaker” and “regulation” to “international” all signal that government is the actor seeking to shift behavior. But why not ask: “What can any organization do?” When we re-frame the question this way, it is easy to see a broader range of actors that can and do address environmental problems. For example, private corporations, advocacy groups, and other non-profit groups are performing standard-setting and enforcement functions across a wide range of environmental problems.<sup>25</sup>

Private governance is not new. If private governance occurs when private organizations play the traditional governmental roles of reducing negative externalities, managing common pool resources, and promoting the production of public goods, then various forms of private governance have been in place for

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24. See, e.g., Michael Levi, *The Hidden Risks of Energy Innovation*, ISSUES IN SCI. & TECH. (2013), available at <http://issues.org/29-2/michael-2/>, archived at <http://perma.cc/GH3U-ELUQ> (stating that “[d]omestic policy design faces one central question: Where should government intervene?”).

25. For an overview, see Vandenberg, *Private Environmental Governance*, *supra* note 11, at 141-47.

decades or centuries.<sup>26</sup> Private standards have regulated everything from food production in ancient times, to medieval labor practices, to late nineteenth century fire safety.<sup>27</sup> But a remarkable expansion has occurred over the last several decades in the role that private organizations play in environmental protection.<sup>28</sup> The private organizations playing this role include not only corporations and advocacy groups, but also private standards and certification organizations, private universities, religious organizations, labor groups, and other private non-profit groups. Although the effects of these private environmental governance activities are not well understood, in many cases the groups appear to be filling important gaps in public environmental governance.<sup>29</sup>

## 2. Actions

In turn, viewing a new set of actors as playing an environmental governance role can open up new possibilities for the types of actions that can be taken. Whether the framework is

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26. Common law torts could be considered a form of public or private law, but I place torts outside the private environmental governance category given the strong public role in adjudicating and enforcing tort judgments. See Sarah E. Light & Michael P. Vandenberg, *Private Environmental Governance*, in ENVIRONMENTAL DECISION MAKING, ENCYCLOPEDIA OF ENVIRONMENTAL LAW (Robert Glicksman & LeRoy Paddock eds., forthcoming 2015).

27. See TIMOTHY LYTTON, *KOSHER: PRIVATE REGULATION IN THE AGE OF INDUSTRIAL FOOD* 70-103 (2012) (food); RACHEL P. MAINES, *ASBESTOS AND FIRE: TECHNOLOGICAL TRADEOFFS AND THE BODY AT RISK* (2005) (fire safety); Kenneth W. Abbott & Duncan Snidal, *The Governance Triangle: Regulatory Standards Institutions and the Shadow of the State*, in THE POLITICS OF GLOBAL REGULATION 44, 46 (Walter Mattli & Ngaire Woods eds., 2009) (climate change mitigation at global level); Tim Bartley, *Certifying Forests and Factories: States, Social Movements, and the Rise of Private Regulation in the Apparel and Forest Products Fields*, 31 POL. & SOC'Y 433, 433-34 (2003) (forests); Marc Allen Eisner, *Private Environmental Governance in Hard Times: Markets for Virtue and the Dynamics of Regulatory Change*, 12 THEORETICAL INQUIRIES IN L. 489, 489 (2011) (climate change mitigation); Errol E. Meidinger, *Environmental Certification Programs and U.S. Environmental Law: Closer Than You Think*, 31 ENVTL. L. REP. 10162, 10162 (2001) (forests); David Vogel, *The Private Regulation of Global Corporate Conduct*, 49 BUS. & SOC'Y 68, 68 (2010) (business ethics).

28. See Vandenberg, *Private Environmental Governance*, *supra* note 11, at 129.

29. See STEERING COMM. OF STATE-OF-KNOWLEDGE ASSESSMENT OF STANDARDS & CERTIFICATION, *TOWARD SUSTAINABILITY: THE ROLES AND LIMITATIONS OF CERTIFICATION* 9 (2012) (citing studies).

Kip Viscusi's four institutional mechanisms,<sup>30</sup> Jim Salzman's five regulatory categories,<sup>31</sup> or other ways to describe the tools available to address environmental problems, private governance in many cases offers private parallels to the instruments typically used by government (e.g., command and control regulation, market mechanisms, and informational regulation)<sup>32</sup> and to the subject matter areas of environmental law (e.g., air, toxics, and fisheries).<sup>33</sup> The new instruments include private standards and certification systems, private supply chain requirements, corporate employee efficiency programs, non-governmental organization (NGO) social norm initiatives, and many others.

For example, when NGOs pressure banks to disclose and reduce the environmental effects of their borrowers' projects, the result is not federal regulation or an international agreement, but a set of private standards called the Equator Principles.<sup>34</sup> The vast majority of global project finance lending is now conducted by banks that have agreed to comply with the Equator Principles. These private standards were produced through a process that closely resembles Administrative Procedure Act notice-and-comment rulemaking, and the standards require borrowers to conduct environmental studies that are similar to those required for major federal actions under the National Environmental Policy Act.

Similarly, after failed efforts in the 1980s to generate an international agreement on forestry issues, NGOs and major forest products firms formed the Forest Stewardship Council

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30. W. Kip Viscusi, *Toward a Diminished Role for Tort Liability: Social Insurance, Government Regulation and Contemporary Risks to Health and Safety*, 6 YALE J. ON REG. 65, 65 (1989) (identifying four institutional mechanisms: government regulation, market forces, liability, and social insurance).

31. James Salzman, *Teaching Policy Instrument Choice in Environmental Law: The Five P's*, 23 DUKE ENVTL. L. & POL'Y F. 363, 363, 374 n.29 (2013) (identifying five environmental regulation categories: prescription, property, penalties, payments and persuasion).

32. See Sarah E. Light & Eric W. Orts, *Parallels in Public and Private Environmental Governance*, 5 MICH. J. ENVTL. & ADMIN. L. (forthcoming 2015) (discussing public-private instrument parallels).

33. See Vandenberg, *Private Environmental Governance*, *supra* note 11, at 133-34 (discussing public-private subject matter parallels).

34. For a discussion and citations, see Vandenberg, *Private Environmental Governance*, *supra* note 11, at 151.

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(FSC), a private standard, certification, and labeling system.<sup>35</sup> Private certification systems such as FSC now apply to roughly fifteen percent of all temperate forests, and a smaller but still substantial share of other forests.<sup>36</sup> Similarly, the Marine Stewardship Council (MSC), another private standards, certification, and labeling system now sets sustainability standards for fisheries that supply almost ten percent of global fish landings for human consumption.<sup>37</sup> The figure is roughly fifty percent of all fish caught in the U.S. for human consumption, and a quick look at the fish sandwich available at the leading fast food restaurant in the U.S. will provide an example of the MSC label.<sup>38</sup>

These examples of collectively set private standards do not require a major departure from typical conceptions of environmental governance, although government takes a back seat to private organizations in these private governance initiatives. Other forms of private environmental governance are more challenging. Examples include the inclusion of environmental requirements in supply chain contracting arrangements, corporate programs that target employees' household energy use, and NGO programs that target household carbon emissions. Although these initiatives do not fit as neatly into traditional conceptions of governance, they play comparable roles to government regulations and programs by reducing negative externalities, managing common pool resources, and producing public goods.

### 3. Sources

The shift in the actors and actions that are considered part of environmental governance also can affect our conception of the sources of environmental harms and the targets of environmental governance. Most important, when private governance is a possibility, the behavior of sources that are largely beyond the reach of traditional government regulatory tools may become easier to influence. Two examples demonstrate this point.

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35. *Id.* at 148.

36. *Id.* at 149.

37. *Id.* at 150.

38. Vandenberg, *Private Environmental Governance*, *supra* note 11, at 150.

First, when the House Commerce Committee was preparing to draft the legislation that eventually become the Waxman-Markey cap-and-trade bill, the staff produced a series of very thoughtful reports identifying the sources of carbon emissions and the range of potential legislative responses.<sup>39</sup> The report on the sources of emissions took a conventional approach, drawing on the EPA annual greenhouse gas inventory to identify the leading sources in the U.S. Using this conceptual framework, electric generation and transportation appeared to contribute roughly a third of U.S. emissions, and traditional government regulation of power plants and motor vehicle manufacturers appeared to be the obvious response. In contrast, the “residential” share was only five percent, a number that suggests little need to allocate major regulatory resources in that direction.<sup>40</sup>

Referring to this small share, the Committee staff noted that households and other small contributors were not promising targets of climate legislation. Yet the 5% figure excluded from the residential share all of the emissions associated with household electricity use and personal motor vehicle transportation, both activities that are under the substantial direct control of most households. When these emissions are included in the residential share, the total is roughly a third to 40% of U.S. emissions.<sup>41</sup> Viewed in this light, household and personal motor vehicle energy use merit more attention.

In turn, new types of actions can be taken if the sources include households, not just electric power plants or auto manufacturers. Many low-cost, non-intrusive behavioral and other options that are not appropriate for large industrial sources

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39. See Michael P. Vandenberg et al., *Implementing the Behavioral Wedge: Designing and Adopting Effective Carbon Emissions Reduction Programs*, 40 ENVTL. L. REP. 10547, figs.1 & 2 (2010) [hereinafter Vandenberg et al., *Implementing the Behavioral Wedge*].

40. *Id.* This approach still dominates EPA’s presentation of carbon emissions data. See EPA, INVENTORY OF GREENHOUSE GASES AND SINKS: 1990-2011 (2013), available at <http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2013-Main-Text.pdf>, archived at <http://perma.cc/7ZPN-RJTB>.

41. Vandenberg et al., *Implementing the Behavioral Wedge*, *supra* note 39, at 10549 n.12. Individuals or households are not the only sources that are often overlooked. See, e.g., Daniel A. Farber, *Controlling Pollution by Individuals and Other Dispersed Sources*, 35 ENVTL. L. REP. 10745 (2005) (noting the importance of small businesses). See also Sarah E. Light, *The Military-Industrial Complex*, 55 B.C. L. REV. 879 (2014) (focusing on Military consumption of energy).

are effective for households.<sup>42</sup> Not only is the range of actions broader if households are viewed as an important source, but it may be easier for a range of private organizations (e.g., NGOs, utilities, and corporations through customer and employee programs) to steer household behavior than it is for governments to do so.<sup>43</sup> An example is the eco-driving program that has emerged through a cooperative effort between major environmental NGOs and automakers.<sup>44</sup>

A second example demonstrates how re-conceptualizing the actors and actions of environmental governance can affect our view of the sources of an environmental problem. When we think of the sources of toxic chemicals, we often think of the industrial facilities that release toxics from the smokestack. Programs ranging from Section 112 of the Clean Air Act, to the hazardous waste management requirements of the Resource Conservation and Recovery Act, to the Toxic Release Inventory industrial facility reporting program are built on this model: They regulate or require reporting of toxic emissions from large facilities. Although large volumes of toxics also go out the door in the products made by these facilities, the government regulatory scheme for the most part does not extend to the consumption end of the toxics lifecycle.

In recent years, private organizations have developed initiatives developed on the premise that the seller of goods, not just the manufacturer of the goods, is the source of the emissions. The result is a series of NGO reputation campaigns that target corporations, and commitments by Target, Wal-Mart, and other retailers to use supply chain contracting requirements to ban a long list of toxics from the products they buy. In a sense, this is the modern version of the pollution prevention concept that was popular in the late 1980s through mid-1990s. It was very difficult

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42. See Jason J. Czarnezki, *Everyday Environmentalism: Concerning Consumption*, 41 ENVTL. L. REP. 10374, 10374 (2011); Thomas Dietz et al., *Household Action Can Provide a Behavioral Wedge to Rapidly Reduce US Carbon Emissions*, 106 PROCEEDINGS OF NAT'L ACAD. SCI. 18452, 18452 (2009).

43. A recent possible exception is the demand reduction building block of the Clean Power Plan. See Amanda Carrico et al., *US Climate Policy Needs Behavioral Science*, 5 NATURE CLIMATE CHANGE 177 (2015).

44. See Jack N. Barkenbus, *Eco-driving: An Overlooked Climate Change Initiative*, 38 ENERGY POL'Y 762, 765 (2010); Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 55-56.

for government to pursue pollution prevention opportunities aggressively given its limited statutory authorities and concerns about intrusion into industrial and commercial processes, but private governance initiatives are doing so.<sup>45</sup> As a leading chemical industry trade association executive recently observed in response to failed federal toxics efforts, “[t]he loss of public confidence [means] we’re going to increasingly have retailers that are regulators, like Wal-Mart and Target.”<sup>46</sup>

#### 4. Effects

Are these private environmental governance initiatives effective? Some private initiatives may be closer to greenwashing than governance, but that is unlikely for many types of private environmental governance given the participants, incentives, and transparency.<sup>47</sup> In addition, many forms of private environmental governance are widespread, suggesting that if they do affect behavior, they can have large environmental effects.<sup>48</sup> More research is needed, but the important question to ask when assessing the efficacy of any governance initiative, whether public or private, is “as compared to what other viable option?” A complete solution is often not the goal of many private environmental initiatives, but if we ignore the limited policy plasticity of most comprehensive government responses, we may overlook private responses that can provide a partial answer and can be adopted and implemented given the existing policy plasticity.

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45. See Pollution Prosecution Act of 1990, Pub. L. No. 101-593, 104 stat. 2962 (1990). For a discussion of concerns about government involvement in industrial processes as reflected in the Resource Conservation and Recovery Act, see ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION LAW, SCIENCE, AND POLICY (7th ed. 2013).

46. *Upcoming Lautenberg Bill Could Be Key Test for TSCA Reform This Congress*, INSIDE EPA WEEKLY REPORT, Apr. 1, 2011, at 1, 6.

47. See STEERING COMM. OF STATE-OF-KNOWLEDGE ASSESSMENT OF STANDARDS & CERTIFICATION, *supra* note 29.

48. I examined the top firms by sales in eight leading sectors and found that more than half of the firms (three quarters by sales, suggesting that larger firms do more of this than smaller firms) impose environmental requirements on their suppliers. See Michael P. Vandenberg, *The New Wal-Mart Effect: The Role of Private Contracting in Global Governance*, 54 UCLA L. REV. 913, 916–17 (2007).



Will private governance initiatives make public governance less likely? Private governance initiatives could displace or compete with public governance, or they could play a gap-filling role, stepping in when government lacks the political capital, resources or expertise to act. They also could play a complementary or accelerating role.<sup>49</sup> Far more research is needed on the extent to which private governance plays these roles and the conditions under which it does so. In the interim, it is important to avoid the temptation to assume either negative or positive spillover.

## II. THE PRIVATE CLIMATE GOVERNANCE WEDGE

As I mentioned at the outset, climate change will drive the evolution of environmental law and policy, and government responses are in gridlock. Jonathan Gilligan and I have argued that private governance initiatives can complement public measures and generate a private climate governance wedge in the interim.<sup>50</sup> Perhaps the greatest challenge to this argument is the view that only the coercive power and resources of government can achieve meaningful levels of emissions reductions. Engineers and others have used bottom-up studies to argue that a large efficiency gap exists, which, if closed, could yield several billion tons of emissions reductions worldwide.<sup>51</sup> Economists often argue that there are no twenty-dollar bills sitting on sidewalks and have gone so far as to describe the efficiency gap as an “engineer’s fallacy.”<sup>52</sup> The overall size of the efficiency gap is beyond the

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49. The emergence of the FSC standard after the collapse of international forestry governance efforts is an example of the gap-filling role that private governance can play. Private standards such as the chemical industry’s Responsible Care program may be both an effort to supplement government regulation and an effort to enhance a sector’s reputation to head off more intrusive government regulation (e.g., after the Bhopal disaster). Cary Coglianese & Jennifer Nash, *Management -Based Strategies for Improving Private Sector Environmental Performance*, FACULTY SCHOLARSHIP REPOSITORY (2005), available at [http://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1104&context=faculty\\_scholarship](http://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1104&context=faculty_scholarship), archived at <http://perma.cc/9FCZ-K87L>.

50. Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 13.

51. For a discussion and citations, see Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 64.

52. *Id.* For a recent discussion of the twenty-dollar bill argument, see David Bornstein, *Investing in Energy Efficiency Pays Off*, N.Y. TIMES (Feb. 6, 2015),

scope of this essay, but below I explore the reasons why it is plausible to believe that the gap is large enough for private governance initiatives to achieve annual emissions reductions in the billion-ton range over the next decade. I begin by explaining what might motivate the actors who are essential to private climate governance, then turn to examples of existing initiatives and viable new initiatives.

### A. Motivations for Private Governance

Why is it plausible to believe that private initiatives can achieve major emissions reductions in the absence of government coercive power or resources? In general, private initiatives are possible because corporations and individuals typically seek to reduce costs, and carbon emissions often arise because of inefficiencies in the use of fossil fuels and other resources. Private initiatives also can harness existing support for climate mitigation, but our analysis does not live or die on the effects of normative influences on corporate or household behavior.<sup>53</sup> Opportunities to increase efficiency often are unexploited because of widespread market and behavioral failures. No academic discipline has a monopoly on the theory and methods necessary to evaluate the motivations for private governance, but work in economics, psychology, sociology, organizational behavior, political science, law, and other fields provides valuable insights.<sup>54</sup>

An example of a market failure that affects household carbon emissions is the split incentive that arises when renters pay the electric bill, but landlords control the purchasing decisions regarding energy-using appliances. This split incentive limits landlords' incentives to purchase efficient appliances, even if the appliances would produce substantial net cost savings. Similarly,

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3:30 PM), <http://opinionator.blogs.nytimes.com/2015/02/06/investing-in-energy-efficiency-pays-off/>, archived at <http://perma.cc/JT8G-VUC6>.

53. For a discussion of the reasons why non-profit groups may be able to induce firms and households to act, see Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 31-33.

54. The focus of this symposium "on the continued expansion of environmental law into distinct areas of the law, requiring an increasingly multidisciplinary approach beyond the confines of federal statutes," accurately captures an important direction for the field. See generally Benjamin Sovacool, *Energy Studies Need Social Science*, 511 NATURE 529, 529-30 (2014).

an industry market failure occurs when under customary rate structures ship owners only pay thirty percent of the fuel costs of shipping goods, with the owner of the goods paying the other seventy percent, leaving the ship owner with limited incentives to invest in more fuel-efficient ships or operating procedures.

In addition, a deep literature in psychology, sociology and behavioral economics has identified behavioral failures regarding energy, including steep discount rates and pervasive informational failures. For example, Shahzeen Attari and colleagues have documented a wide range of these failures, such as the fact that individuals underestimate by forty times the amount of energy used by their clothes dryers.<sup>55</sup> Our research team has identified similar failures on issues ranging from motor vehicle idling to the value of hot water for cleaning hands.<sup>56</sup> By overcoming these types of market and behavioral failures, private initiatives can accelerate efficiency gains, drawing on corporate and household self-interest to reduce emissions.

Private initiatives also can draw on two forms of support for climate mitigation. A small subset of the U.S. population views climate mitigation as a top priority, and strong preferences for climate mitigation can be expressed not only at the ballot box, but through philanthropic decisions, participation in advocacy groups, decisions in the workplace, and consumer purchasing decisions. Climate mitigation is a low priority for a far larger group, however, and government laws and policies often do not reflect these types of preferences, particularly when concentrated interests oppose action.<sup>57</sup> For the group that supports climate mitigation but assigns it a low priority, private governance

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55. Shazeen Z. Attari et al., *Public Perceptions of Energy Consumption and Savings*, 107 PROCEEDINGS OF NAT'L ACAD. SCI. 16054, 16055-56 (2010).

56. See generally Amanda R. Carrico et al., *Costly Myths: An Analysis of Idling Beliefs and Behavior in Personal Motor Vehicles*, 37 ENERGY POL'Y 2881 (2009) (demonstrating motor vehicle idling myths); Amanda R. Carrico et al., *The Environmental Cost of Misinformation: Why the Recommendation to Use Warm Water for Handwashing is Problematic*, 37 INT'L J. OF CONSUMER STUDIES 433 (2013) (demonstrating hot water hand washing myths).

57. See, e.g., Roberto A. Ferdman, *A New Pew Survey Shows Americans Might Finally Be Getting Serious About Global Warming*, WONKBLOG (Jan. 15, 2015), available at <http://www.washingtonpost.com/blogs/wonkblog/wp/2015/01/15/new-pew-survey-shows-americans-might-finally-be-getting-serious-about-global-warming/>, archived at <http://perma.cc/TRE6-HBY4> (noting that climate change ranked 22nd out of 23 issues in terms of policy priority for 2015).

provides opportunities to act in ways that require little investment of time or money, such as selecting a lower-carbon item when choosing between two comparably priced goods, making a small, cost-beneficial shift in household behavior, or opting to do business with a firm that has a positive reputation on climate issues.

In addition, much of the conservative rejection of climate science is animated by solution aversion: the fear that acknowledging anthropogenic climate change will lead to a large, intrusive government response.<sup>58</sup> Private climate initiatives offer a way to circumvent this problem. Those who place a high value on small government can acknowledge the existence of the problem because the solution is not government regulation, but the use of private organizations and markets to accelerate efficiency gains.<sup>59</sup>

## B. Private Climate Governance Initiatives

The remarkable growth of private climate governance in the last decade is another reason to believe that private initiatives can generate major reductions at low cost and without government action. I focus here on large corporations and households, but other organizations, including small businesses, religious organizations, civic organizations, and other non-profit organizations, also can be the source of emissions reductions.

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58. For a discussion of the social science on climate beliefs and worldviews, see Vandenberg et al., *A Climate Prediction Market*, *supra* note 22, at 1962. See also Troy Campbell et al., *Solution Aversion: On the Relation Between Ideology and Motivated Disbelief*, 107 J. PERSONALITY & SOC. PSYCHOL. 809 (2014) (discussing “solution aversion”). For a recent blog discussion of the literature in this area, see Andrew Revkin, *How ‘Solution Aversion’ and Global Warming Prescriptions Polarize the Climate Debate*, DOTEARTH (Nov. 10, 2014, 4:01 PM), [http://dotearth.blogs.nytimes.com/2014/11/10/how-solution-aversion-and-global-warming-prescriptions-polarize-the-climate-debate/?\\_r=0](http://dotearth.blogs.nytimes.com/2014/11/10/how-solution-aversion-and-global-warming-prescriptions-polarize-the-climate-debate/?_r=0), archived at <http://perma.cc/2NHT-3XAQ>.

59. See Vandenberg et al., *A Climate Prediction Market*, *supra* note 22, at 1987-88.

### 1. Corporations

Initiatives involving corporations can achieve roughly half of the private governance wedge.<sup>60</sup> Corporations not only have incentives to achieve efficiencies, but they are motivated by reputational concerns, consumer purchasing concerns, investor and lender pressure, and employee morale concerns, among others. Of course, not all corporations are motivated to reduce emissions. Firms also may attempt to head off more stringent government requirements, may seek to raise rivals' costs, or act in other ways that raise concerns.<sup>61</sup>

Regardless of the source of motivation, however, the range of corporate private climate initiatives underway in the U.S. and around the world is remarkable. One effort, the Carbon War Room, is pursuing market failures in five corporate sectors with the goal of achieving total (not annual) emissions reductions of a billion tons from each sector.<sup>62</sup> Other initiatives use corporate, project, investor, lender, and product disclosure to drive emissions reductions. For example, the CDP (formerly the Carbon Disclosure Project) uses the pressure of over \$90 trillion in investor assets to induce firms to disclose their emissions. Although causation is hard to assess, recent reports suggest that firms that disclose emissions to CDP have reduced carbon dioxide emissions by hundreds of millions of tons. Similarly, major lenders to electric utilities in the U.S. have adopted the Carbon Principles, which require the disclosure of projected carbon emissions from proposed new power plants, as well as efforts to reduce emissions.<sup>63</sup> In addition, although product carbon labeling is less common in the U.S. than in some other countries, our research suggests that a private product labeling initiative could have important effects on firms in some sectors.<sup>64</sup>

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60. See Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 51 (discussion of the emissions reduction potential and specific corporate actions).

61. See, e.g., Carolyn Fischer & Thomas P. Lyon, *Competing Environmental Labels*, 23 J. ECON. & MGMT. STRATEGY 692 (2014).

62. Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 37-38.

63. *Id.* at 39.

64. See Michael P. Vandenberg, Thomas Dietz, & Paul C. Stern, *Commentary: Time to Try Carbon Labeling*, 1 NATURE CLIMATE CHANGE 4, 4-6 (2011). See also Jason Czarnezki, *The Future of Food Eco-Labeling: Organic, Carbon Footprint, and Environmental Life-Cycle Analysis*, 30 STAN. ENVTL. L.J. 3, 6 (2011).

Carbon disclosure can have particularly large effects if the incentives for emissions reductions are transferred through corporate supply chains. An example of this type of supply chain contracting activity is a 2010 announcement by Wal-Mart and the Environmental Defense Fund in which Wal-Mart committed to reduce its supply chain carbon emissions by 20 million metric tons, an amount equal to almost half of the emissions from the US iron and steel industry.<sup>65</sup> Global supply chains can transfer pressure for low carbon goods and low carbon production across national boundaries, creating incentives to reduce carbon emissions by suppliers in developed and developing countries.<sup>66</sup>

## 2. Households

Private initiatives directed at households can achieve the other half of the private climate governance wedge. A large share of these reductions can be achieved through “behavioral wedge” actions that address market failures and behavioral failures.<sup>67</sup> Behavioral wedge initiatives often use the types of non-intrusive, low cost measures that can be conducted by private advocacy groups, corporations, and other private organizations.<sup>68</sup> Our research team estimated that the reasonably achievable emissions reductions from behavioral wedge actions can exceed roughly 400 million tons per year in the U.S. by 2020, and amount larger than all of the emissions of France.<sup>69</sup>

In addition to the behavioral wedge actions, numerous other actions are targets of opportunity for private governance initiatives.<sup>70</sup> For example, as mentioned above, individuals hold myths that, if corrected, could yield large emissions reductions without unrealistic assumptions about altruism or willingness to change behavior. Individuals not only underestimate their clothes dryers’ energy consumption by forty times,<sup>71</sup> but also believe on

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65. Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 45.

66. See Michael P. Vandenberg, *Climate Change: The China Problem*, 81 S. CAL. L. REV. 905, 934 (2008).

67. Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 53.

68. *Id.*

69. See Dietz et al., *supra* note 42, at 18452.

70. See generally Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1 (detailed discussion of these household actions).

71. *Id.* at 53, n.248.

average that they should idle their cars for over four minutes if they want to save gas and reduce vehicle wear and tear.<sup>72</sup> The accurate period if the goal is to save money is between ten and thirty seconds, and this idling myth accounts for roughly 15 million metric tons of emissions every year, an amount larger than the emissions from three of the largest U.S. industrial sectors.<sup>73</sup> Similarly, most people also believe incorrectly that the use of hot water reduces germs when washing hands, and this hand washing myth accounts for roughly a million tons of emissions per year.<sup>74</sup>

Major emissions reductions also can be achieved through other uses of information. For instance, the disclosure of energy efficiency information for existing homes is only beginning to be possible in multiple listing services. State legislatures are reluctant to act, but private initiatives that provide energy information in listings for new and existing homes could drive builders to build more efficient homes and encourage homeowners to invest in efficiency measures before putting homes on the market. Similarly, immediate energy feedback devices in homes are inexpensive and have yielded substantial emissions reductions, but under current government-set rate structures most electric utilities do not have incentives to reduce net demand for electricity. Not surprisingly, very few homes have these devices, but private initiatives could fill the gap.

Another promising initiative involves both households and corporations. Many corporations, including Kimberly-Clark, Sony Pictures, and others, are beginning to offer programs to induce employees to reduce their energy use and carbon emissions not only at work, but at home as well.<sup>75</sup> The corporate motivations for these programs are unclear at this point, but the programs are becoming more common. If successful, they offer another means of achieving emissions reductions from the household and corporate sectors on a large scale.

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72. *Id.* at 56.

73. *Id.* at 57.

74. *Id.*

75. Vandenberg & Gilligan, *Beyond Gridlock*, *supra* note 1, at 63.

### 3. Cross-Cutting Initiatives

In addition to initiatives that target corporate and household behavior, cross-cutting private initiatives can address beliefs and motivations across many sectors. For example, much of the rejection of climate science arises from solution aversion and deep distrust of government.<sup>76</sup> Not surprisingly, even as government climate science studies report increasing scientific certainty about anthropogenic climate change, conservatives are becoming less certain. Private governance offers a response that relies on private actors and actions, and may be more credible to conservative audiences. In short, private organizations may be able to establish a climate prediction market that would enable buyers and sellers to trade predictions about the global average temperature in 2020 or 2030, with the price of the prediction in the interim signaling the market's assessment of the accuracy of the climate science. By enabling a private actor to assess and communicate the implications of the climate science, it may be possible to bypass barriers erected by the worldview of a large segment of the population.

Similarly, as I mentioned at the outset, one of the greatest challenges to climate mitigation is the intergenerational collective action problem: The current generation must bear much of the cost of climate mitigation, but most of the benefits will accrue to future generations.<sup>77</sup> Deep skepticism exists about the extent to which individuals care about their legacy, and this skepticism is reflected in political debates, which often struggle to focus beyond the next month or the next year, much less the next century or millennium. Our research suggests, however, that individuals do value their reputations after they die. When asked, individuals report on average that if they were allowed to spend \$100 on enhancing their reputation, they would allocate almost \$40 to

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76. See Vandenberg et al., *A Climate Prediction Market*, *supra* note 22, at 1979. The market we propose differs from other proposed climate markets in that it would be a private market, rather than one that would be established by government. See Shi-Ling Hsu, *A Prediction Market for Climate Outcomes*, 83 U. COLO. L. REV. 179, 212 (2011); Nate Silver, *Best Idea of the Day: Climate Change Futures Markets*, FIVETHIRTYEIGHT.COM (Nov. 23, 2009, 11:57 PM), <http://fivethirtyeight.com/features/best-idea-of-day-climate-change-futures/>, archived at <http://perma.cc/US4X-FVAX>.

77. See Vandenberg & Raimi, *Leveraging Legacy*, *supra* note 6, at 139-45 (discussing intergenerational issues).



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their reputation after they die, and \$60 to their reputation while they are alive.<sup>78</sup>

Although legacy appears to have some effect on politicians (e.g., President Obama's 2013 Georgetown climate speech focused largely on legacy issues), governments are unlikely to harness the public's legacy concerns in a systematic way. A private organization, however, could form a climate legacy registry, and the registry could enable the general public, politicians, and corporations to record the actions they are taking today, knowing that the information will be available to the public for many generations.<sup>79</sup> A private climate legacy registry will not transform the climate policy landscape, but the registry is yet another example of how it may be possible to shift beliefs, motivations and behavior if we abandon the conceptual blinders created by a government-centric view of environmental governance.

### III. CONCLUSION

Private governance is not a substitute for public governance, but it offers an approach that reflects the challenge posed by climate change, the limited policy plasticity faced by governments in the modern era, and the availability of new institutional tools. Private environmental governance also provides a window into the future of environmental law. Increasingly, environmental lawyers will be called on to look beyond the traditional tools and targets of environmental law to find solutions to environmental problems. To do so, they will need to have open minds and to draw on experts from many fields. The legislative panaceas of the past may be right around the corner, but it is a risky strategy to assume that other options should not be pursued in the interim. It is also a mistake to assume that pursuing other approaches will reduce the likelihood of more effective public governance. In fact, the spillover effects of private and public governance are not well known, and spillover effects are just one of many new areas of inquiry that emerge when we reject the notion that the conceptual frameworks of the past are the only, or even the best, ways to think about the future.

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78. *Id.* at 19.

79. *Id.* at 1.

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