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Behavioral Regulation of Individual GHG Emissions: Reconceiving the Internal/Social Divide in Norm Theory

Alex Geisinger, *Drexel University*

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Alex Geisinger[*]

Abstract

The demand for smarter regulation with low enforcement costs, coupled with the compelling argument that individual behavior must be regulated in any comprehensive response to climate change, has increased the desire for new forms of behavioral regulation. One of these new behavioral tools is normative regulation. Normative regulation harnesses the internal and social enforcement mechanisms of community norms as a means of changing individual behavior. Normative regulation holds significant promise for influencing many different types of behaviors—including energy conservation. However, the use of normative regulation is hampered by a well-entrenched belief in legal scholarship that social enforcement is available only in small, closely-knit communities and is ineffective in the case of large group cooperation problems such as energy conservation.

This article seeks to reconsider this notion. It shows that powerful social influences can be harnessed even when the need to cooperate is spread over a large, loosely-knit group. Specifically, the social force can be harnessed in large group games by regulatory structures that overcome transaction costs and the dilution of interdependence that exists within large groups. A carbon registry is an example of just such a response. Carbon registries can overcome both the problem of dilution and transaction costs while providing strong behavioral prompts to aid in conservation.

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[*]Professor of Law, Thomas R. Kline School of Law, Drexel University. The author would like to thank Michael Pappas, John Echeverria, Richard McAdams, Michael Vandenbergh, Richard Frankel, Deborah Gordon, Beth Haas, Pammela Quinn Saunders and Roger Dennis for their thoughtful comments. The article greatly benefitted from the input of participants at the Vermont Law School Fifth Annual Colloquium on Environmental Scholarship. Valuable research support was provided by Mica Iddings and Patrick Woolford.

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PART I. INTRODUCTION

When it comes to climate change, controlling individual behavior matters. While individual households are often wholly or partially excluded from the application of major environmental laws,[1] it has been estimated that individuals are responsible for between 32% and 40% of all greenhouse gas (GHG) emissions.[2] Given that any meaningful response to climate change

[1] *See, e.g.*, 40 C.F.R. § 261.4(b)(1) (2014) (providing a general exemption from hazardous waste status for household waste).

[2] *See* Michael P. Vandenbergh & Anne C. Steinemann, *The Carbon-Neutral Individual*, 82 N.Y.U. L. REV. 1673, 1688 (2007) [hereinafter Vandenbergh, *Carbon-Neutral*]. *See also*, Amy Sinden, *Revenue Neutral Cap and Trade*, 39 Envtl. L. Rep. (Envtl. Law Inst.) 10944, 10944 (2009).

will require substantial cuts in GHGs, these numbers simply don't allow for the individual to be ignored as a regulatory target. As Amy Sinden notes: "Even if tomorrow, we get all the electric utilities to cut their greenhouse gas emissions in half, if we as individuals keep leaving our computers on all night and buying bigger and better plasma TV screens, we're not going to solve the problem."[3] Put another way, "if emissions from individuals could be decreased by just one percent, that would represent a reduction of 1 billion pounds of carbon dioxide.[4]

Of course regulating individual behavior is not the same as regulating institutional behavior. In addition to concerns about the public/private distinction, the sheer number of sources that need to be regulated creates both significant administrative and enforcement costs for traditional regulatory tools. Even the use of a carbon tax may encounter significant limitations due to elasticity of demand for such things as gasoline[5] and a general political unwillingness to pay new taxes.[6] Regulators and scholars are thus considering new mechanisms for addressing the problem of individual GHG emissions. In particular, regulators have turned to the behavioral sciences for new ideas about how to control individual polluting behavior. Governments in a number of countries, including the U.S., have now developed behavioral regulation departments for this purpose and a substantial scholarly literature on the topic in both law and the social sciences is developing.[7]

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[3] Sinden, *supra* note 2, at 10945.

[4] Albert C. Lin, *Evangelizing Climate Change*, 17 N.Y.U. ENVTL. L.J. 1135, 1146 (2009) (citing Vandenbergh, *Carbon-Neutral*, *supra* note 2).

[5] Although there is some evidence that elasticity of demand has waned over time. *See* Jonathan E. Hughes, Christopher R. Knittel & Daniel Sperling, *Evidence of a Shift in the Short-Run Price Elasticity of Gasoline Demand*, 29 ENERGY J. 1, (2008).

[6] Devil Duncan & John Graham, *Road User Fees Instead of Fuel Taxes: The Quest for Political Acceptability*, 73 PUB. ADMIN. REV. 415, 423-26 (2013).

[7] For a general discussion, see Brian Galle, *Tax, Command . . . or Nudge?: Evaluating the New Regulation*, 92 TEX. L. REV. 837 (2014); Cass R. Sunstein & Lucia A. Reisch, *Automatically Green: Behavioral Economics and Environmental Protection*, 38 HARV. ENVTL. L. REV. 127 (2014).

One of these behavioral tools is peer pressure. Expressive (or "normative") regulation[8] works by changing community norms or informing the community of existing norms and capitalizing on social enforcement of the norm as the means for changing behavior. Normative regulation has been used to "chang[e] socially significant behaviors, such as alcohol consumption, drug use, disordered eating, gambling, littering … recycling"[9] and has even lowered the number of individuals who don't pay their taxes.[10]

Many scholars find great promise in normative regulation as a means to control individual GHG emissions.[11] A legion of experiments have

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See also Wendy Mariner, *Paternalism, Public Health, and Behavioral Economics: A Problematic Combination*, 46 CONN. L. REV. 1817, 1822 (2014); Thomas S. Ulen, *A Behavioral View of Investor Protection*, 44 LOY. U. CHI. L.J. 1357, 1370 (2013).

[8] For an introduction to the concepts of expressive and normative regulation see *infra* section II.A.

[9] Robert B. Cialdini et al., *Managing Social Norms for Persuasive Impact*, 1 SOC. INFLUENCE 3, 5 (2006) [hereinafter Cialdini et al., *Managing Social Norms*], *available at* http://www.fs.fed.us/psw/publications/winter/psw_2006_winter001.cialdini.pdf; Noah J. Goldstein, Robert B. Cialdini & Vladas Griskevicius, *A Room with a Viewpoint: Using Social Norms to Motivate Environmental Conservation in Hotels*, 35 J. CONSUMER RES. 472, 472-4 (2008) [hereinafter Goldstein, Cialdini & Griskevicius, *Viewpoint*], *available at* http://www.carlsonschool.umn.edu/assets/118359.pdf.

[10] Courtney Subramanian, *'Nudge' Back in Fashion at White House*, TIME.COM (Aug. 9, 2013), http://swampland.time.com/2013/08/09/nudge-back-in-fashion-at-white-house/.

[11] Hope M. Babcock, *Assuming Personal Responsibility for Improving the Environment: Moving Toward a New Environmental Norm*, 33 HARV. ENVTL. L. REV 117 (2009); Jed S. Ela, *Law and Norms in Collective Action: Maximizing Social Influence to Minimize Carbon Emissions*, 27 UCLA J. ENVTL. L. & POL'Y 93 (2009); Andrew Green, *You Can't Pay Them Enough: Subsidies, Environmental Law, and Social Norms*, 30 HARV. ENVTL. L. REV. 407 (2006); Katrina Fischer Kuh, *Capturing Individual Harms*, 35 HARV. ENVTL. L. REV. 155 (2011) [hereinafter Kuh, *Individual Harms*]; Katrina Fischer Kuh, *Personal Environmental Information: The Promise and Perils of the Emerging Capacity to Identify Individual Environmental Harms*, 65 VAND. L. REV. 1565 (2012) [hereinafter Kuh, *Promise and Perils*]; Douglas A. Kysar & Michael P. Vandenbergh, *Introduction: Climate Change and Consumption*, 38 Envtl. L. Rep. (Envtl. Law Inst.) 10825, 10832 (2008); Sinden, *supra* note 2; Sunstein, *supra* note 7; Vandenbergh, *Carbon-Neutral*, *supra* note 2; Michael P. Vandenbergh, *Order Without Social Norms: How Personal Norm Activation Can Protect the Environment*, 99 NW. U. L. REV. 1101 (2005) [hereinafter Vandenbergh, *Order Without Social Norms*].

recently been done to test how information on the behavior of others affects one's own behavior.[12] This research demonstrates the cost-effectiveness of

[12] *See* Hunt Allcott, *Consumers' Perceptions and Misperceptions of Energy Costs*, 101 AM. ECON. REV. 98 (2011) [hereinafter Allcott, *Consumers' Perceptions*], *available at* https://files.nyu.edu/ha32/public/research/Allcott%202011%20AERPP%20-%20Consumers%27%20Perceptions%20and%20Misperceptions%20of%20Energy%20Costs.pdf; Hunt Allcott, *Social Norms and Energy Conservation*, 95 J. PUB. ECON. 1082 (2011) [hereinafter Allcott, *Social Norms*]; Hunt Allcott & Todd Rogers, *The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation*, (Nat'l Bureau of Econ. Research, Working Paper No. 18492, 2012); David Card & Laura Giuliano, *Peer Effects and Multiple Equilibria in the Risky Behavior of Friends*, 95 REV. ECON. & STAT. 1130 (2013); Robert B. Cialdini, Raymond R. Reno & Carl A. Kallgren, *A Focus Theory of Normative Conduct: Recycling the Concept of Norms to Reduce Littering in Public Places*, 58 J. PERSONALITY & SOC. PSYCHOL. 1015 (1990), *available at* http://media.cbsm.com/uploads/1/AFocusTheoryofNormativeConduct.pdf; Cialdini et al., *Managing Social Norms*, *supra* note 9; Timothy G. Conley & Christopher R. Udry, *Learning About a New Technology: Pineapple in Ghana*, 100 AM. ECON. REV. 35 (2010); Dora L. Costa & Matthew E. Kahn, *Energy Conservation "Nudges" and Environmentalist Ideology: Evidence from a Randomized Residential Electricity Field Experiment*, 11 J. EUR. ECON. ASS'N 680 (2013); Esther Duflo & Emmanuel Saez, *The Role of Information and Social Interactions in Retirement Plan Decisions: Evidence from a Randomized Experiment*, 118 Q.J. ECON. 815 (2003); Andrew D. Foster & Mark R. Rosenzweig, *Learning by Doing and Learning from Others: Human Capital and Technical Change in Agriculture*, 103 J. POL. ECON. 1176 (1995), *available at* http://econ.lse.ac.uk/courses/ec307/L/rosenzweigfoster.pdf; Goldstein, Cialdini & Griskevicius, *Viewpoint*, *supra* note 9; Vladas Griskevicius, Robert B. Cialdini & Noah J. Goldstein, *Social Norms: An Underestimated and Underemployed Lever for Managing Climate Change*, 3 INT'L J. SUSTAINABILITY COMM. 5 (2008) [hereinafter Griskevicius, Cialdini & Goldstein, *Underestimated and Underemployed*], *available at* http://195.37.26.249/ijsc/docs/artikel/03/3_03_IJSC_Research_Griskevicius.pdf; David Hirshleifer, *The Blind Leading the Blind: Social Influence, Fads, and Informational Cascades*, *in* THE NEW ECONOMICS OF HUMAN BEHAVIOR 188 (Mariano Tommasi & Kathryn Ierulli eds., 1995), *available at* http://escholarship.org/uc/item/8wz980p5; Matthew E. Kahn, *Do Greens Drive Hummers or Hybrids? Environmental Ideology as a Determinant of Consumer Choice*, 54 J. ENVTL. ECON. & MGMT. 129 (2007), *available at* http://www.environment.ucla.edu/media/files/greens.pdf; Markus M. Mobius, Paul Niehaus & Tanya S. Rosenblat, *Social Learning and Consumer Demand* 1-28 (Dec. 17, 2005) (unpublished manuscript) (on file with author); Kaivan Munshi, *Social Learning in a Heterogeneous Population: Technology Diffusion in the Indian Green Revolution*, 73 J. DEV. ECON. 185 (2004), *available at* http://www.econ.brown.edu/fac/kaivan_munshi/jde.pdf; Jessica M. Nolan et al., *Normative Social Influence Is Underdetected*, 34 PERSONALITY & SOC. PSYCHOL. BULL. 913 (2008), *available at* http://www.greenudge.no/uploads/Personality_and_Social_Psychology_Bulletin.pdf; Matthew J. Salganik, Peter Sheridan Dodds & Duncan J. Watts, *Experimental Study of*

such information as a tool of regulation. Indeed, providing information on the behavior of others has proven more influential than providing information on the cost savings of energy conservation or that conservation is good for the environment.[13] More recently, a private company called Opower has teamed up with public utilities to use a similar strategy to decrease energy usage.[14] Opower provides utility customers with a summary sheet indicating their usage of energy, their use relative to the use of their neighbors and describing cost-effective means of decreasing one's power use.[15] Empirical research suggests that these relatively low-cost mailers have an impact on conservation similar to the effect of a 20% increase in price.[16]

In addition to their cost-effectiveness, norms are an attractive mechanism for regulating household GHG emissions. Normative campaigns are cheap to create[17] and enforcement, which happens through social observation and sanctioning or internalized guilt, is free. Moreover, because they do not require government oversight and enforcement, normative regulations are not considered as intrusive into the "private" sphere as some

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Inequality and Unpredictability in an Artificial Cultural Market, 311 SCIENCE 854 (2006), *available at* https://www.princeton.edu/~mjs3/salganik_dodds_watts06_full.pdf; P. Wesley Schultz et al., *The Constructive, Destructive, and Reconstructive Power of Social Norms*, 18 PSYCHOL. SCI. 429 (2007), *available at* https://www.jsmf.org/meetings/2008/july/social%20norms%20Cialdini.pdf.

[13] Nolan et al., *supra* note 12, at 913-916. Specifically, the researchers asked individuals: "'In deciding to conserve energy, how important is it to you …' (a) that using less energy saves money, (b) that it protects the environment, (c) that it benefits society, and (d) that a lot of other people are trying to conserve energy." *Id.* They found that information on the behavior of others spurred more conservation than any other piece of information. *Id.*

[14] The legal basis for the requirement that utilities decrease conservation is state law. *See generally* U.S. DEP'T OF ENERGY, STATE AND REGIONAL POLICIES THAT PROMOTE ENERGY EFFICIENCY PROGRAMS CARRIED OUT BY ELECTRIC AND GAS UTILITIES: A REPORT TO THE UNITED STATES CONGRESS PURSUANT TO SECTION 139 OF THE ENERGY POLICY ACT OF 2005 (2007) , *available at* http://www.energy.gov/sites/prod/files/oeprod/DocumentsandMedia/DOE_EPAct_Sec_139_Rpt_to_CongressFINAL_PUBLIC_RELEASE_VERSION.pdf.

[15] Allcott, *Consumers' Perceptions*, *supra* note 12; Allcott, *Social Norms*, *supra* note 12.

[16] Allcott, *Social Norms*, *supra* note 12, at 1090.

[17] *Id.*

other forms of regulation.[18]

Norms are also "Nudges." Nudges are regulations that change an individual's choice architecture but that do not dictate a particular behavior through traditional command and control mechanisms.[19] In the case of norms, nudging occurs through "peer pressure". Choice, in turn, is preserved because individuals who don't want to go along with the crowd can still choose to act on their own preferences. As nudges, norms are thus likely to be more politically acceptable than traditional forms of regulation that mandate certain behaviors. Given the general limits on individual regulation, it is no surprise that regulators have begun to consider these types of alternative regulatory tools.

Yet for all its potential, the ability to use normative regulation is still impeded by a lack of understanding. The primary model of norms in the legal literature is based in game theory and describes norms as artifacts of cooperation among individuals in groups. This relatively parsimonious model provides a starting point for analysis of normative regulation but is far from complete.[20] Another main distinction in the existing literature is the difference in effectiveness of social norms in large, loose-knit groups and small, close-knit groups. While the internal sanctioning process can work in both large and small groups, a core concept—perhaps *the* core concept-- in existing norms literature is that social forces can work only in small, close-knit groups. Because energy conservation is a large group cooperation problem, current efforts at normative regulation of GHG emissions have been focused on the internal enforcement mechanism.

This article seeks to reconsider the current thinking regarding the limits of the social force in large group games. Rather, the article suggests, certain forms of regulation can overcome traditional limits to social sanctioning by decreasing the transaction costs of norm enforcement and by using large-scale information reporting to trigger social enforcement in

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[18] RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS 24-27 (2008).

[19] *Id.*

[20] *See, e.g.*, Steven Hetcher, *Non-Utilitarian Negligence Norms and the Reasonable Person Standard*, 54 VAND. L. REV. 863 (2001); Lior Jacob Strahilevitz, *Social Norms from Close-Knit Groups to Loose-Knit Groups*, 70 U. CHI. L. REV. 359, 359-60 (2003).

smaller, closely-knit groups. To demonstrate the potential for social enforcement in large group games, the article turns to the notion of an individual carbon registry. The idea of a carbon registry was first propounded by Professor Micheal Vandenbergh and Anne Steineman in their watershed article on regulating individual sources of carbon emissions.[21] Since the publication of that article many articles considering how to adapt social normative forces to decreasing individual GHG emissions have been written.[22] Due to the well-entrenched belief that social enforcement cannot be used in large group games, virtually all these articles take for granted the fact that internal enforcement of norms is the primary mechanism through which normative forces will work. This article suggests that this "blindered" approach to normative regulation limits our understanding of carbon registries and also leads to seriously underestimating their potential behavioral effect.

The article proceeds as follows: In Section II the article will provide a general overview of norm formation and describe the distinction between social and internal enforcement. In Section III the article will discuss the implementation of normative regulation to control individual GHG emissions. Ultimately, the article suggests that internalized enforcement is a cost-effective regulatory option but can only play a limited role in the battle to regulate climate change. Internal norm regulation, the article notes, also fails to promote the creation of new technology and entrenches the status quo, thus anchoring individual GHG emissions to current levels. The next section of the article will consider social enforcement and argues that concerns about the ineffectiveness of social enforcement are misplaced. Instead, it suggests that the obstacles to social enforcement in large group games can be overcome by certain forms of regulation such as a nationwide carbon registry. The article then considers some of the limitations on the use of a nationwide registry as a response to climate change.

II. SEPARATING THE SOCIAL AND INTERNAL ENFORCEMENT MECHANISMS.

To better understand the viability and limitations of norm-based regulation it is necessary to disentangle the effects of social enforcement

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[21] Vandenbergh, *Carbon-Neutral*, *supra* note 2.

[22] *See* sources cited *supra* note 11.

from internalization. By identifying the ways in which both of these forces actually change behavior, insights into normative regulatory schemes can be gleaned. This section will describe the internal and social enforcement mechanisms with a goal of explaining how they work to decrease GHG emissions. The section starts with a brief introduction to the concept of norms and introduces the reader to the way in which norms have been studied in the legal literature to date. It then turns to a basic account of the game-theoretic model of norms that dominates legal scholarship. After establishing this groundwork, the section will then turn to a discussion of the differences between social and internal enforcement and the role played by small and large groups in norm enforcement.

A. A Brief Introduction to Norms

A large number of law and economics scholars have become dissatisfied with the traditional behavioral model.[23] The vast majority of scholars have challenged the model's rationality assumption,[24] while other critics argue that the model is ignorant of the process of socialization and the human desire for status, as well as the process by which law may affect preferences for certain behaviors over others.[25] This latter group is

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[23] *See generally* Russell Korobkin, *What Comes After Victory for Behavioral Law and Economics?*, 2011 U. ILL. L. REV. 1653 (describing how behavioral law and economics has emerged as the dominant theory of the last decade). There is a long history of legal scholarship critical of the rational actor model. *See, e.g.*, Mark Kelman, *Consumption Theory, Production Theory, and Ideology in the Coase Theorem*, 52 S. CAL. L. REV. 669 (1979); Duncan Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 STAN. L. REV. 387 (1981); Arthur Allen Leff, *Economic Analysis of Law: Some Realism About Nominalism*, 60 VA. L. REV. 451 (1974). However, for those scholars sympathetic to the law and economics tradition, such questioning is of more recent vintage. *See, e.g.*, Robert C. Ellickson, *Law and Economics Discovers Social Norms*, 27 J. LEGAL STUD. 537 (1998) [hereinafter Ellickson, *Law and Economics*]; Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471 (1998); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051 (2000).

[24] *See* DANIEL KAHNEMAN, THINKING, FAST AND SLOW (2011); Ellickson, *Law and Economics*, *supra* note 23; Jolls, Sunstein & Thaler, *supra* note 23 (describing and applying, among other things, a concept of bounded rationality); Korobkin & Ulen, *supra* note 23 (describing and critiquing the different versions of rational choice theory).

[25] *See generally* GEOFFREY BRENNAN & PHILIP PETTIT, THE ECONOMY OF ESTEEM: AN ESSAY ON CIVIL AND POLITICAL SOCIETY (2004); John Bronsteen, Christopher Buccafusco & Jonathan S. Masur, *Welfare as Happiness*, 98 GEO. L.J. 1583 (2010); John

particularly interested in the ability of social norms to control or affect behavior and the ability of law to affect social norms and preferences.[26]

The concept "norm" is subject to a variety of definitions.[27] For purposes of this article it is enough to define a norm as a behavioral rule supported by a pattern of informal sanctions.[28] The sanctions can be based on shame or some other type of social ostracism,[29] or on guilt.[30] Thus, a rule against smoking in public places can affect behavior not just through the civil penalty that accompanies it, that is, its sanction, but also by increasing the willingness of individuals to shame or otherwise socially ostracize those

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Bronsteen, Christopher Buccafusco & Jonathan S. Masur, *Happiness and Punishment*, 76 U. CHI. L. REV. 1037 (2009); John Bronsteen, Christopher Buccafusco & Jonathan S. Masur, *Well-Being Analysis vs. Cost-Benefit Analysis*, 62 DUKE L.J. 1603 (2013); Kenneth G. Dau-Schmidt, *An Economic Analysis of the Criminal Law as a Preference-Shaping Policy*, 1990 DUKE L.J. 1 (arguing that criminal law can better be understood in terms of preference shaping than opportunity shaping); Ellickson, *Law and Economics, supra* note 23 (identifying a number of lacunae in classical law and economics and arguing that these lacunae are major); Daniel A. Farber, *Toward A New Legal Realism*, 68 U. CHI. L. REV. 279, 288 (2001) (reviewing BEHAVIORAL LAW AND ECONOMICS (Cass Sunstein ed., 2000)).

[26] The literature is voluminous. A Westlaw search of the term "social norms" returns 10,000 documents. Some examples of recent work that consider social norms in law include: Rachel Brewster, *Pricing Compliance: When Formal Remedies Displace Reputational Sanctions*, 54 HARV. INT'L L.J. 259 (2013) (international environmental law); Stefan Larsson, *Karl Renner and (Intellectual) Property—How Cognitive Theory Can Enrich a Sociolegal Analysis of Contemporary Copyright*, 48 LAW & SOC'Y REV. 3 (2014) (intellectual property); Sarah B. Lawsky, *How Tax Models Work*, 53 B.C. L. REV. 1657 (2012) (tax law); Michael L. Rich, *Should We Make Crime Impossible?*, 36 HARV. J.L. & PUB. POL'Y 795 (2013) (Criminal law); Tom R. Tyler, *Reducing Corporate Criminality: The Role of Values*, 51 AM. CRIM. L. REV. 267 (2014) (corporate law). The seminal work on law and norms is undoubtedly ROBERT C. ELLICKSON, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES (1991).

[27] Robert Ellickson, for example, defines a norm as a rule supported by a pattern of informal sanctions. *See* Ellickson, *Law and Economics, supra* note 23, at 549. Similarly, Eric Posner defines a norm as a rule of behavior enforced by private third parties. *See* Eric A. Posner, *Law, Economics and Inefficient Norms*, 144 U. PA. L. REV. 1697, 1699 (1996). Robert Cooter, on the other hand, defines a norm in the traditional philosophical sense as an obligation. *See* Robert Cooter, *Normative Failure Theory of Law*, 82 CORNELL L. REV. 947, 954 (1997).

[28] *See* Ellickson, *Law and Economics, supra* note 23, at 549 n.58.

[29] Hereinafter sometimes called a "second order" sanction.

[30] Hereinafter sometimes called "third order" sanctions.

who violate its prohibition. Moreover, to the extent that such a rule results in the "internalization" of the prohibition, individuals will be deterred from such activity because of the prospect of guilt regardless of the possibility of sanction.[31] The effect of norms on behavior has been considered in a wide variety of contexts.[32]

Normative regulation, in turn, is focused on utilizing the social and internal sanctioning process to change behavior. Such regulation can be either direct or indirect. Most scholarship to date has considered indirect normative effects of law; focusing on the way in which passage of laws affects the "social meaning" of regulated behavior.[33] Scholars have, for example, discussed how anti-smoking laws have changed the social meaning of smoking from "cool" to "dirty" with a resulting change in the social feedback received by smokers.[34] A variety of laws and their influence on the social meaning of behavior have been catalogued.[35]

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[31] Vandenbergh, *Carbon-Neutral*, *supra* note 2. *See also* Robert E. Scott, *The Limits of Behavioral Theories of Law and Social Norms*, 86 VA. L. REV. 1603, 1604 (2000).

[32] Professor Eric Posner identifies a number of these applications and adds to the list by considering how norms influence tax compliance. *See* Eric A. Posner, *Law and Social Norms: The Case of Tax Compliance*, 86 VA. L. REV. 1781, 1781 n.2 (2000).

[33] Lawrence Lessig, *The Regulation of Social Meaning*, 62 U. CHI. L. REV. 943 (1995) [hereinafter Lessig, *Regulation*]; Richard H. McAdams, *A Focal Point Theory of Expressive Law*, 86 VA. L. REV. 1649, 1650-51 (2000) ("The thesis is that the law influences behavior independent of the sanctions it threatens to impose, that law works by what it says in addition to what it does."). *See, e.g.*, Lawrence Lessig, *The New Chicago School*, 27 J. LEGAL STUD. 661, 680 (1998) (noting that expressive law scholars recognize that the expressive function of law works not through something physical but through a function that is interpretive). In a different article, Lessig, for example, argues that a law prohibiting duelers from holding public office worked better than a law that simply outlawed dueling because it ambiguated the objective meaning of choosing not to duel. Lessig, *Regulation*, *supra*, at 971. Under the new law, dueling was no longer simply a breach of honor that could not be constrained by mere punishment; rather, it was a choice to maintain honor by undertaking one's duty to do civic work. *Id.* Similarly, Cass Sunstein suggests that laws against public smoking may have significantly decreased the amount of young black Americans who smoke by changing the social meaning of smoking from attractive rebelliousness to dirtiness and a willingness to be duped. Cass R. Sunstein, *On the Expressive Function of Law*, 144 U. PA. L. REV. 2021, 2034 (1996).

[34] Sunstein, *supra* note 33.

[35] *See, e.g.*, Danielle Keats Citron, *Law's Expressive Value in Combating Cyber Gender Harassment*, 108 MICH. L. REV. 373, 407 (2009). For foundational scholarship, see Robert Cooter, *Do Good Laws Make Good Citizens? An Economic Analysis of Internalized*

Direct social normative regulation has been much less studied by legal scholars.[36] Direct normative regulation is specifically directed toward activating norms in order to change behaviors. In some cases public information campaigns attempt to redefine the social meaning of behavior. Campaigns, such as "Don't Mess with Texas,"[37] and the iconic Iron Eyes Cody (also known as its tag line "People Start Pollution. People Can Stop It")[38] embody this idea. Efforts such as Opower's are even more direct and even more clearly focused on social norms as the mechanism by which behavior is affected. These efforts work primarily by telling the population what others in the community do, directly carrying information on norms to the intended audience.

A number of scholars have advocated for the use of norms for purposes of addressing individual behavior change and, in particular, climate change.[39] The approaches to norm use in the legal scholarship varies. As relates to large group games such as conservation, a number of scholars have suggested the use of internalized norm activation due to the general belief that social sanctions are less effective in large groups.[40] Others have

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Norms, 86 VA. L. REV. 1577, 1593-94 (2000) [hereinafter Cooter, *Economic Analysis*]; Robert Cooter, *Expressive Law and Economics*, 27 J. LEGAL STUD. 585, 653 (1998); Dan M. Kahan, *What Do Alternative Sanctions Mean?*, 63 U. CHI. L. REV. 591, 597 (1996); Lessig, *Regulation*, *supra* note 33; Jason Mazzone, *When Courts Speak: Social Capital and Law's Expressive Function*, 49 SYRACUSE L. REV. 1039 (1999); Richard H. Pildes, *Why Rights Are Not Trumps: Social Meanings, Expressive Harms, and Constitutionalism*, 27 J. LEGAL STUD. 725, 725-26 (1998); Paul H. Robinson & John M. Darley, *The Utility of Desert*, 91 NW. U. L. REV. 453, 471-73 (1997); Sunstein, *supra* note 33.

[36] *See* Vandenbergh, *Carbon-Neutral*, *supra* note 2.

[37] *See The Campaign – Ads*, DON'T MESS WITH TEXAS, http://www.dontmesswithtexas.org/about/the-campaign/ads.php (last visited Feb. 19, 2015) (describing the history of the campaign and its successes).

[38] The Iron Eyes Cody spot begins with a shot of a stately, buckskin-clad Native American chief paddling his canoe up a river that carries various forms of industrial and individual pollution. After coming ashore near the littered side of a highway, Iron Eyes Cody watches as a bag of garbage is thrown from the window of a passing car. From the refuse to his feet, the camera pans up slowly to his face, where a tear is shown tracking down his cheek. *See* Griskevicius, Cialdini & Goldstein, *Underestimated and Underemployed*, *supra* note 12, at 2.

[39] *See* sources cited *supra* note 11.

[40] Vandenbergh, *Carbon-Neutral*, *supra* note 2.

addressed the level at which government use of normative regulation should be used; advocating, in particular for normative regulation at the local level as a means of turning large group games into smaller group games.[41]

B. Norm Formation

Legal scholarship on social norms is dominated by a particular vision of norms based in economics and, in particular, game theory. Foundational norms scholarship has been particularly intrigued by the effectiveness of normative enforcement in small, close-knit communities. Elinor Ostrom's analysis of how small communities can efficiently manage common resources,[42] Robert Ellickson's study of how Ranchers in Shasta County California opt out of formal law and choose to follow a set of behavioral rules that they, themselves, have established,[43] the informal controls used by the lobster gangs of Maine and Lisa Bernstein's studies of behavior in the diamond industry,[44] all suggest that norms function efficiently to control behavior in small groups of individuals who interact regularly toward the achievement of a common goal. Social enforcement in large, loosely-knit groups, on the other hand, is generally considered to be ineffective.

These conclusions are derived from a particular vision of norm formation. Many scholars[45] conceive of norms as arising from cooperation problems that confront rational individuals acting in their own self-interest.[46]

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[41] Kuh, *Individual Harms*, supra note 11. Note that, in many ways this argument reflects the notion that small groups are better-equipped to regulate normatively that pervades the literature. *See infra* Section II.

[42] *See infra* section III.A..

[43] *See infra* section III.A.

[44] *See infra* section III.A..

[45] Richard H. McAdams, *Signaling Discount Rates: Law, Norms, and Economic Methodology*, 110 YALE L.J. 625, 625-26 (2001) (reviewing ERIC A. POSNER, LAW AND SOCIAL NORMS (2000)) (identifying two groups, those who think of norms in terms of rational choice and those who do not, and recognizing that economists tend to fall into the former camp).

[46] *See infra* Section II. (discussing foundational work on norms and its reliance on game theory). *See also* Thomas F. Cotter, *Legal Pragmatism and the Law and Economics Movement*, 84 GEO. L.J. 2071, 2126 n.235 (1996); Steven Hetcher, *Creating Safe Social Norms in a Dangerous World*, 73 S. CAL. L. REV. 1, 7-8 (1999); Steven A. Hetcher, *Norm Proselytizers Create a Privacy Entitlement in Cyberspace*, 16 BERKELEY TECH. L.J. 877, 902-03 (2001); Eric A. Posner, *Symbols, Signals, and Social Norms in Politics and the Law*,

The prisoner's dilemma is often the starting point for this analysis.[47] The prisoner's dilemma posits two rational, self-interested individuals who must choose between alternate strategies.[48] Under the circumstances of the game, rational decisions lead to inefficient outcomes.[49]

Take, for example, the following scenario between players Row and Column, who have been placed in separate cells at the police station and are being questioned.[50] If one player tells on the other player, the other player will get a sentence of three years, while the tattler will be let off for cooperation. If neither tells they will both be found guilty of a lesser offense (one year in jail each). If both tell, they will both be convicted of a more significant offense (two years each).

		Column	
		Cooperate	Defect
Row	Cooperate	1/1	3/0
	Defect	0/3	2/2[51]

Under these circumstances, Row will always tell. Assume first that Column will tell. If Row does not tell he will get three years in jail, but if he does tell, he will only get a two-year sentence. If Column does not tell, Row will get no time in jail if he does tell and one year in jail if he does not tell. Under these circumstances, it is better for the self-interested Row to tell no matter what Column does. The dominant strategy for both players will thus be to tell. As a result, both will receive two years in prison, whereas if they had stayed silent, they would each only get one year in jail. Pursuit of individual self-interest leads to worse results than if they had cooperated and both withheld information.

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27 J. LEGAL STUD. 765, 797 n.52 (1998); Elmer J. Schaefer, *Predicting Defection*, 36 U. RICH. L. REV. 443, 462 (2002).

[47] ERIC A. POSNER, LAW AND SOCIAL NORMS 13-18 (2000).

[48] *Id.* at 13-15.

[49] *Id.* at 14.

[50] *Id.* at 13-14 (illustrating this example).

[51] *Id.*

While defection is the dominant strategy in a one-time play of the prisoner's dilemma, cooperation is a natural result of such a problem in situations where the parties will play the game a substantial number of times (an "iterated" game).[52] Assume, for example that Column and Row are a wholesaler and retailer of goods. They desire to create a relationship where Column will supply the goods at a certain cost. If Column delivers the quality of goods agreed upon, both parties will make two. If Column cheats and sends goods of lesser quality, he will make three and Row will make zero but Row will defect and Column will have to look for other cooperative partners. A similar result would occur if Row cheats by, for example, challenging the quality of the goods and withholding full payment. Assuming a desire to play for a number of times, it is better for the parties to cooperate than defect because making $2 regularly is better than making $3 a few times but developing a reputation for being untrustworthy and thus losing cooperative opportunities in the future.[53] As Eric Posner says, "logic shows that the optimal move is always to cooperate."[54]

Social norms within this framework are simply artifacts of the cooperation between rationally self-interested group members. Put simply, when the game is played many times between the same group members particular norms that reflect the preferences of the majority of group members will develop. Prisoners will likely develop a preference for "not snitching"[55] while retailers will prefer "good faith and fair dealing."[56] Norms are thus a reflection of the aggregate preferences of the individuals that comprise the group when the group members regularly cooperate.

Normative pressure, in turn, is based on the mutual attraction that arises between people who are interdependent. The attraction is rooted in "the operation of a need-satisfaction or 'reinforcement' principle: mutual

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[52] *Id.* at 15-18.

[53] *Id.* at 16.

[54] *Id.* Posner also suggests that the logic of cooperation extends to games involving more than two players by assuming that everyone has sufficient information about other people's past activities. *Id.* Thus defection from one pairwise transaction will not lead to a "clean slate" in the next pairwise transaction. *See id.*

[55] For a discussion of the anti-snitching norm see, Bret Asbury, *Anti-Snitching Norms and Community Loyalty*, 89 OR. L. REV. 1257 (2011).

[56] Lisa Bernstein, *Merchant Law in a Merchant Court: Rethinking the Code's Search for Immanent Norms*, 144 U. PA. L. REV. 1765, 1777 (1996).

liking between group members reflects the extent to which positive, gratifying, or rewarding outcomes are associated directly or indirectly with being in each other's company."[57] Economists often model this as a preference for esteem from other group members.[58] Normative pressure is thus an external force that affects individual behavior only to the extent one is concerned about others to whom he or she is attracted. Put simply, if an individual wants to do something she perceives is not condoned by other group members, and there is a sense of mutual liking or attraction between the individual and the other group members, then the individual risks disapproval from others who she likes when they observe her behavior.

C. Distinguishing Between Internal and Social Enforcement

While many energy conserving behaviors, such as the type of car one drives, are open to social observation, others, such as how high one sets his or her thermostat, are less open to inspection. Norms are likely to influence behavior differently in each of these two scenarios. The social enforcement model of norms is well developed in legal scholarship. As we have just discussed, social enforcement is rooted in the "liking" that develops between individuals engaged in mutually beneficial activities; often described as a desire for esteem from other group members.[59] When an individual desires esteem from others in the group, he or she attempts to determine the preferences of others and to act in accordance with them. Conversely, failure to act in accordance with group norms, when discovered by group members, will result in social sanctioning.

Internalized enforcement of norms occurs when, instead of concern for esteem, an individual feels guilt for failure to act in a way that he or she believes to be right. As will be discussed shortly, the mechanism of internal norm change has not been nearly as well developed in the legal literature. Scholars, however, have recognized the importance of internal enforcement

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[57] John C. Turner, *Social Categorization and the Self-Concept: A Social-cognitive Theory of Group Behavior*, *in* 2 ADVANCES IN GROUP PROCESSES 77, 88-90 (Edward J. Lawler ed., 1985).

[58] Ela, *supra* note 11; Ellickson, *supra* note 26 at 159-162.

[59] For a general discussion see Alex Geisinger & Michael Ashley Stein, *Rational Choice, Reputation, and Human Rights Treaties*, 106 MICH. L. REV. 1129 (2008) (reviewing ANDREW T. GUZMAN, HOW INTERNATIONAL LAW WORKS: A RATIONAL CHOICE THEORY (2007)).

in a number of instances. A simple example will demonstrate the differences between the two mechanisms. Consider the normative sanctions that would accompany a parent's decision to not use a car seat. If the parent doesn't use a car seat and is observed to be doing so by neighbors, he may feel that his neighbors will sanction him socially by withholding esteem. On the other hand, even if neighbors are not around, he may feel guilty not using a car seat because he believes it is the right thing to do.

III. SOCIAL AND INTERNAL ENFORCEMENT MODELS

A. Social Enforcement

An important distinction in the social norm enforcement model is that between large and small groups. Small groups are generally considered capable of establishing and enforcing efficient normative behavioral controls while large groups are generally conceived of as unable to use norms effectively. This is of particular concern in the area of energy conservation, which is a large-group game. This subsection will describe how small and large group distinctions arise in norms scholarship.

Any study of large versus small groups and formation of social norms must begin with the influential work of Elinor Ostrom. Ostrom dedicated a good portion of her nobel-prize-winning career to analyzing how groups of individuals can solve commons problems without legal intervention. Ostrom's work specifically engages Mancur Olson and others who assume that the collective action problem created by common ownership cannot be solved without outside intervention.[60] Ostrom found that norms do arise spontaneously to solve cooperation problems under certain conditions. Among the conditions she identified for norms to spontaneously arise are small group size and similarities of interests among group members.[61] As these conditions suggest, normative solutions to cooperation problems can only arise in small groups whose members share a compelling mutual need to benefit from the proper management of a

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[60] *See* ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 1-5 (1990) (describing the tragedy of the commons, the prisoner's dilemma game and the logic of collective action). *See* also POSNER, *supra* note 47, at 8 (discussing the need for traditional regulation to solve collective action problems).

[61] OSTROM, *supra* note 60, at 188.

common resource. These findings, of course, raise significant concerns regarding the ability of norms to function efficiently in large, heterogeneous groups.[62]

Another source of skepticism regarding the effectiveness of social enforcement of norms in large groups is Robert Ellickson's influential study on normative control of behavior among ranchers in Shasta County, California.[63] In Order Without Law, Ellickson describes how normative controls led ranchers to use their pastureland efficiently, avoiding the traditional "problem of the commons".[64] Ellickson's seminal study, similar to Ostrom's, suggests that self-governing norms may arise in what he describes as "small, close-knit communities."[65] The influence of Ellickson and Ostrom on legal norms scholarship cannot be overstated. In particular, the legal literature has almost universally adopted the thesis that efficient norms will develop in small, close-knit groups and has relied on that concept as a structural component of thinking about norms.[66]

Of course, both Ostrom's and Ellickson's work provide only one

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[62] Vandenbergh, *Order Without Social Norms*, *supra* note 11, at 1112 (noting a profoundly pessimistic conclusion lies at the core of recent environmental scholarship regarding behavior change in these negative-payoff, loose-knit group situations). When the desired behavior requires sustained or substantial effort, studies of responses to recycling norm campaigns suggest that they have limited effects unless they are of the expensive, face-to-face variety, or the government invests in financial incentives or the infrastructure necessary to make the behavior convenient. *Id.* Studies of product labeling have reached similar conclusions. *Id. See also* OSTROM, *supra* note 60, at 189 (questioning the policy implications that arise from knowing that the group size increases the difficulty of organizing collective action and asking whether it should be assumed that small groups will take care of themselves while external authorities will manage larger groups).

[63] ELLICKSON, *supra* note 26.

[64] *Id.*

[65] *Id.*

[66] A Westlaw search of "Ellickson, Order Without Law" returns over 1400 citations in total and over 700 citations in the last decade. A similar search of "Elinor Ostrom and close-knit" returns over 700 citations from the legal literature. For samples of articles reliant on the vision of small, close knit groups, see Dotan Oliar & Christopher Sprigman, *There's No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-Up Comedy*, 94 VA. L. REV. 1787 (2008); Pammela Quinn Saunders, *A Sea of Change off the Coast of Maine: Common Pool Resources as Cultural Property*, 60 EMORY L.J. 1323 (2011); and Christopher S. Yoo, *Beyond Coase: Emerging Technologies and Property Theory*, 160 U. PA. L. REV. 2189 (2012).

part of the story of norm compliance. In particular, neither's studies specifically consider the way in which *regulatory interventions into groups could influence normative pressure* and change the behavior of group members.[67] Their work, instead, focuses on the "spontaneous" development of stable normative regimes among small groups of individuals who share a common resource absent government intervention. Direct regulation of normative regulation in large groups, however, has been studied in the legal literature. Perhaps the most influential article in this regard is Anne Carlson's watershed study of programs directed at increasing recycling.[68]

Like Ostrom and Ellickson, Carlson starts with the basic collective action problem of recycling. In the case of recycling, however, the problem is not one that extends to a small number of closely interconnected group members. Rather, it is one of large groups that need to act collectively for mutual benefit. Carlson places recycling into the now-familiar game theoretic construct by expressly recruiting Mancur Olson's discussion of the problem of collective action:

> Olson argued that groups frequently fail to work in their collective interest to achieve group benefits because individual self-interests get in the way …. A rational individual reasons that if others engage in the behavior necessary to achieve the collective good, she can free ride on their efforts and still gain the benefits of their behavior. The inverse can also be true: a rational individual reasons that if she behaves in a manner consistent with the collective good, her behavior will be meaningless unless other members of the group also participate. The size of the group is often related to the depth of the collective action problem; the greater the numbers, the more difficult it is likely to solve the problem, particularly given that "if one member does or does not help provide the collective good, no other one member will be significantly affected and therefore no one has any reason to react." Recycling provides an excellent example. To achieve

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[67] While Ostrom's work was focused primarily on the development of normative communities and not on the use of regulation to spur norm compliance, she did provide some insight into the way in which normative communities must be designed to succeed. *See* OSTROM, *supra* note 60, at 88-127.

[68] Ann E. Carlson, *Recycling Norms*, 89 CALIF. L. REV. 1231 (2001).

> the widespread benefits of recycling, a significant portion of the population must participate. Yet each individual knows that her individual behavior, standing alone makes little difference; if I throw my junk mail into the trash can rather than taking it out to the recycling bin, I can easily rationalize such behavior by questioning whether, in the scheme of things, my contribution to the overuse of landfills is really worth the effort to recycle.[69]

Having described recycling as a large number game, Carlson also explains how it is also a "small-payoff" problem by referring to the low direct benefit received by any player. She describes the benefits of recycling—such things as decreased landfill use, fewer emissions from incinerators and less use of virgin resources—as "generalized" benefits to the collective "not typically viewed as producing any substantial, immediate benefit at an individual level."[70] While Carlson does specifically recognize that energy conservation, like recycling, is a large-number, small-payoff game, she recognizes that conservation may be more susceptible to financial incentives because wasteful energy consumption costs money.[71]

Because of the small payoff structure of the problem, Carlson concludes that normative regulation plays, at best, a minor role in increasing recycling. For example, she notes that programs designed to lower the costs of recycling by allowing recyclables to be mixed in one bin rather than separated into many bins are much more effective at increasing recycling rates than programs that use social influence.[72] The limitations on normative regulation in large-groups, Carlson suggests, arise from "the same characteristics that make a large-number small-payoff problem difficult to resolve … large numbers of people, little economic incentive to act, and

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[69] *Id.* at 1243.

[70] *Id.* at 1242. Throughout the article, Carlson does note that there are some direct monetary benefits of recycling such as receiving a deposit back in states that have bottle bills. Ultimately, she argues that such small payments affect behavior much less than other factors such as making recycling more convenient. *Id.*

[71] *Id.* at 1297-8. She further theorizes that small differences may ultimately have significant effects on the power of normative remedies. *Id.*

[72] *Id.* at 1235.

lack of homogeneity."[73]

This observation is starkly supported by Richard McAdam's observation that enforcement of social norms in large groups creates its own second-order cooperation problem:

> If one takes for granted that individuals enforce norms, it is easy to see why they persist. A norm exists as long as the sanctions imposed on violators create an expected cost for noncompliance that exceeds the expected cost of compliance. But if sanctioning is costly, as most analyses assume, the puzzle is to explain why individuals will ever begin to sanction violators or why threats of sanctions are ever credible. It is not sufficient to answer that individuals enforce the norm because they perceive that it benefits the group. Even when the norm benefits the group, a second-order collective action problem remains: if others enforce the norm, the individual can gain the norm's benefits without bearing enforcement costs; if others do not enforce the norm, the individual's solo enforcement efforts are wasted. The individual gains only in the rare case where her contribution to enforcement by itself will "make or break" the norm. Otherwise, the individual is better off not bearing enforcement costs.[74]

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[73] *Id. See also* Stephanie Stern, *Encouraging Conservation on Private Lands: A Behavioral Analysis of Financial Incentives*, 48 ARIZ. L. REV. 541, 556 (2006) (noting that homes and similarly exclusive private spaces limit both the social reinforcement of pro-environmental behavior and derision and shaming responses to anti-environmental actions).

[74] Richard H. McAdams, *The Origin, Development and Regulation of Norms*, 96 MICH. L. REV. 338, 352 (1997) [hereinafter McAdams, *Origin*] (internal citations omitted). *See also* Taisu Zhang, *Social Hierarchies and the Formation of Customary Property Law in Pre-Industrial China and England*, 62 AM. J. COMP. L. 171, 177 n.24 (2014). Zhang writes:

> Rational choice theories struggle, in particular, to explain how rational individuals desist from free-riding on norm enforcement and adherence. Although certain evolutionary game theory models claim to explain social cooperation under fixed conditions, e.g., Jonathan Bendor

In agreement with McAdams, Carlson concludes that normative programs on their own are not powerful enough to shape behavior meaningfully. She notes that "as Mancur Olson, Elinor Ostrom, and others have theorized, large-number, small-payoff problems are unlikely to be resolved without external intervention. Moreover, these problems are unlikely to be resolved even if governments can shape and strengthen social norms in favor of resolution of the problem absent additional regulatory mechanisms."[75]

While recognizing the problems of cooperation in large groups Carlson also draws some conclusions on how normative interventions may be structured to be effective. Carlson suggests that the most effective normative regimes will use "strategies that intensify human contact and communication among potential cooperators [to] achieve the sustained behavioral change necessary to resolve collective action problems."[76] Such an observation, of course, reflects the general rational choice vision of groups and norms. In essence, Carlson suggests strategies that turn larger groups into smaller ones. Thus, under the rational choice view, the existence of large groups such as those engaged in energy conservation and the need to cooperate create not just problems for the spontaneous creation of norms, but for direct normative regulation as well.

B. The Internal Enforcement Mechanism.

One can understand why individuals such as Carlson, Ellickson and Ostrom are skeptical of large group norms as a means of promoting cooperation. Norm surveillance and enforcement in such situations is difficult. Moreover, the larger the group, the more diffuse the interests and

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& Piotr Swistak, *The Evolution of Norms*, 106 AM. J. SOCIOL. [sic] 1493 (2001), those conditions often seem unrealistic: for example, that players interact one-on-one even in an n-person game and possess perfect information…. Some have attempted to bypass these difficulties by suggesting that withholding or conferring esteem is "costless."

Id. (internal citations omitted).

[75] Carlson, *supra* note 68, at 1299.

[76] *Id.* at 1251.

the less the reliance of group members on one another for mutual benefit. In short, while members of small groups interact regularly and have relatively homogenous preferences regarding the specific goals of their cooperation, members of large groups rarely interact, have heterogeneous preferences and do not rely on each other for cooperative benefits.

Set against this general skepticism, however, are the results of Opower and other programs, as well as a large and compelling body of empirical evidence[77] that suggests normative efforts can work even in large group games. If, as the theoretical literature suggests, the social enforcement mechanism is not an effective tool in large games, then internal enforcement is likely the mechanism by which efforts such as Opower's work.

The mechanism of internalization however is not nearly as well-studied by legal scholars as the social sanctioning mechanism. While the traditional game-theoretic model predicts that social enforcement of norms will not be a successful strategy in large-group games, it says little about internal enforcement. Game-theorists have recognized the influence of internalization of norms on behavior but have chosen in great part to ignore that mechanism because of its complexity and uncertain theoretical foundation.[78]

Compared to the model of external enforcement described above, the internalization process has been discussed much less completely. As Professor Michael Vandenbergh notes:

> The norms literature provides only limited insights for the resolution of negative-payoff, loose-knit group situations. Recent studies of two types of efforts that rely on norms to influence environmental behaviors, recycling norm campaigns and labeling programs, demonstrate the difficulty of changing behavior in these situations. In addition, the more general legal literature on norms is extensive, but the bulk of the scholarship has focused on the role of externally-enforced social norms, which have limited influence in loose-knit group situations. Several scholars have emphasized the importance of personal norms and have argued that personal norms do influence behavior in

[77] *See supra* note 12.

[78] Vandenbergh, *Order Without Social Norms*, *supra* note 11, at 1111.

> some types of loose-knit group situations. Yet the identification of the most influential norms for particular behaviors, the means by which personal norms become influential, and the ways in which legal interventions can affect this process have received only limited attention.[79]

Although there has been little work on norm internalization generally in the legal literature, one theory of internalization, in particular, has been advanced by Professor Vandenbergh. He adapts from the social sciences a model of internalization defined as Values-Beliefs-Norms ("VBN") theory to develop a model of "personal norm activation." The VBN theory incorporates findings of empirical studies indicating that most individuals hold at least four value clusters, each of which includes more specific values.[80] A new belief that a value is threatened and that the individual can act to reduce the threat tends to activate norms and induce action.[81] Vandenbergh explains the relationship between generalized abstract norms and concrete norms of environmental protection. He notes that information that the concrete behavior of conservation is good for the environment activates the general norm of environmental protection. This induces behavior change by connecting the act of conservation to a broadly held belief of what is socially acceptable.[82]

Other theories of norm internalization do exist. For example, a number of scholars have suggested that internalization is nothing more than determining that a new behavior is actually preferred over another.[83] For example, determining that wearing a seatbelt is preferable to not wearing one.[84] Others have suggested that external norms become internal ones through an iterative process where continuous adherence to the norm in the presence of others leads an individual to begin to believe the norm is the

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[79] *Id.* at 1116.

[80] *Id.* at 1112.

[81] *Id.* at 1113.

[82] *Id.*

[83] Scott, *supra* note 31, at 1611.

[84] Geisinger, *A Belief Change Theory of Expressive Law*, 88 IOWA L. REV. 35 (2002).

"correct" behavior and suffer guilt when failing to act in accordance to it.[85]

The social sciences literature does support personal norm activation to some degree. However, the literature suggests a different mechanism for successful personal norm activation in large groups; simply providing information on the behavior of others can have a significant impact on behavior.[86] In particular, social scientists have identified different ways in which information about others influences behavior other than through social normative effects or personal norm activation. "True" social learning may occur as a result of observing the behavior of others. This is considered "true" learning because it relates to changes in internal preferences and not just a willingness to act publicly in accordance with the norm. Pursuant to this literature, one need not consider complex personal norm activation messages such as those suggested by VBN theory. Rather, simply communicating to individuals what others are doing can lead to significant behavioral change. This is not to suggest that VBN theory has no place in the design of social norm campaigns. Rather, VBN and social learning should be considered as complimentary mechanisms of norm activation and each tool should be used when it will be most effective.

IV. Energy Conservation: Applying the Social and Internal Enforcement Models to Regulation of Large, Loose-knit Groups.

Legal scholarship has more than adequately demonstrated the effectiveness of social sanctioning in the small, close-knit group environment. Conservation, however, is a large, loose-knit group problem where social sanctioning is likely to be a less powerful influence on behavior.[87] In the case of GHG conservation, regulators are thus left with two potential means for using normative tools to regulate energy conservation. First, regulators could make efforts to overcome the obstacles

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[85] Alex Geisinger & Michael Ashley Stein, *A Theory of Expressive International Law*, 60 VAND. L. REV. 77, 116-118 (2007); Harold Hongju Koh, *Why Do Nations Obey International Law?*, 106 YALE L.J. 2599, 2646 (book review).

[86] Cialdini et al., *Managing Social Norms*, *supra* note 9; Goldstein, Cialdini & Griskevicius, *Viewpoint*, *supra* note 9; Griskevicius, Cialdini & Goldstein, *Underestimated and Underemployed*, *supra* note 12; Kahn, *supra* note 12.

[87] *See infra* section IV.B. for a complete discussion.

to social enforcement that are created in large groups and second, regulators could turn to the internal enforcement mechanism. This Section will describe the different responses.

A. Considering Internalized Enforcement Regimes: The Opower Example

While it is not yet clear whether social enforcement of norms in large-group games can be effective, empirical evidence shows that internal enforcement will work in such games. Opower, for example, successfully uses normative influence to change behavior by sending mailers to individual households containing information on their neighbors' energy use.

There are a number of potential limitations to the use of internal enforcement campaigns and regardless of the way in which internal norms are activated, internal processes are likely to not have a significant behavioral effect in the area of energy conservation. Both VBN and social learning require relatively strong generalized norms for environmental protection to be successful. Focus on strong environmental meta-preferences, however, fails to consider competition from other meta-norms. Personal norm activation for environmental protection seems to be quite effective when considered in a vacuum, without any competition from other norms. Yet, when considered in competition with other meta-norms, personal norm activation as a means of behavior change becomes less compelling. Indeed, at one point in his article, Professor Vandenbergh himself indirectly recognizes this possibility. As he notes, norm change in loose-knit groups is not likely to occur if norms of convenience have also been activated.[88] Others too have consistently noted that normative effects in loose-knit groups are less likely to work when the behavior change requires individual effort.[89] All this points to the fact that the meta-norm of environmental protection is simply not as strongly held a "value" as other meta-norms such as making money or even convenience.[90]

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[88] Vandenbergh, *Order Without Social Norms*, *supra* note 11, at 1132.

[89] *See*, *e.g.*, Carlson, *supra* note 68.

[90] *See* Stephanie M. Stern, *Smart-Grid: Technology and the Psychology of Environmental Behavior Change*, 86 CHI.-KENT L. REV. 139, (2011) ("It may be the case that people feel particularly at liberty to satisfy their individual desires and convenience, rather than their environmental responsibilities, within the four walls of the home.").

Given the relative weakness of preferences for environmental protection one would also not expect social learning to greatly increase conservation. Consider the impacts of Opower's program on conservation. Opower mailers' primary focus is to communicate to individuals what others are doing. The Opower mailer contains other information such as cost-effective ways of decreasing energy use. Empirical literature, however, demonstrates that it is the social comparison mechanism that does the heavy lifting.[91] While Opower has had an effect on conservation, the effect has been limited. Studies show that Opower mailers have decreased energy use by about 2%. This is a valuable decrease given the low cost of Opower mailers[92] but it will not achieve anything near to the decrease in GHG emissions from residential use that regulators will need to achieve.

Moreover, the process used by Opower may also have some negative influences on efforts to further decrease GHG emissions. Given the strong force asserted by social norms, it is likely that the Opower message will actually stagnate conservation, without creating any incentives to decrease emissions further or to force the creation of new technologies that will make conservation more cost effective. This problem has two dimensions. First, is the fact that normative influence can create incentives for the most significant conservers to actually decrease their conservation. Empirical research based on Opower's own data has suggested this to be the case and Opower has responded to the problem by adding a prescriptive command to the information already provided.[93] Second, and relatedly, is the fact that normative influence serves to anchor behavior to the level of the energy use in a community. The same pressure that leads individuals who over-conserve to return to the norm will also keep people from wanting to either go above the norm or below it once they have conserved in accordance with the community norm. This "group anchoring" effect suggests that internalized norm campaigns are only as good as other

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[91] Cialdini, et al., *Managing Social Norms*, *supra* note 9 (noting the powerful effect of the social force on behavior); Goldstein, Cialdini & Griskevicius, *Viewpoint*, *supra* note 9.

[92] It is estimated that the price of energy would have to go up approximately 20% to have the same effect. Thus, Opower mailers are certainly a cost effective means for increasing conservation. Allcott & Rogers, *supra* note 12, at 4.

[93] *See* Goldstein, Cialdini & Griskevicius, *Viewpoint*, *supra* note 9. The potential power of prescriptive norms to cancel out decreases in conservation has not been considered in the context of increasing conservation from those who conserve the least.

components of a regulatory regime. If exogenous factors such as a tax increase the amount individuals conserve, and thus change the norm, efforts such a Opower's can continue to be effective. Without other forms of individual regulation, however, internalized norm enforcement will stagnate. Thus, the power of internal enforcement on its own to accomplish behavioral change is relatively weak.

Finally, one other concern attenuates the effectiveness of efforts such as Opower's. Normative information only becomes powerful if an individual identifies with the group whose information is provided. Studies demonstrate that messages from outgroups have little impact on individual beliefs, while messages from "in groups"—that is, groups with which an individual identifies—do have significant influence on behavior.[94] Two different dimensions of identity have been shown to be a salient influence on behavior. First, shared social characteristics have been shown to trigger group identity. Studies, for example, have shown that providing information about what individuals who share one's age, race, gender or attitudes do can change behavior.[95] Secondly, being in a similar situation to others also plays a significant role in normative behavior.[96] For example, in one experiment, hotel guests were given information on the likelihood of citizens of the state, hotel guests and other people who had used their room to reuse their towels. Although seemingly irrational, the most specific prompt—regarding what other people who had used the room did—was the most influential.[97] In all these cases, "an important variable affecting the likelihood of norm adherence is the level of perceived similarity among others and a given individual."[98] That is, the closer one identifies with a reference group, the more likely he or she is to be influenced by information about the group norm.

Opower mailers use the word "neighbors" to define the comparison

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[94] Mark R. Forehand & Rohit Deshpandé, *What We See Makes Us Who We Are: Priming Ethnic Self-Awareness and Advertising Response*, 38 J. MARKETING RES. 336 (2001); Michael A. Hogg, Deborah J. Terry & Katherine M. White, *A Tale of Two Theories: A Critical Comparison of Identity Theory with Social Identity Theory*, 58 SOC. PSYCHOL. Q. 255, 262 (1995).

[95] Goldstein, Cialdini & Griskevicius, *Viewpoint*, *supra* note 9, at 475.

[96] *Id.*

[97] *Id.*

[98] *Id.* (internal citations omitted).

group. Of course, different individuals will identify with their neighbors in varying amounts. Indeed, many individuals may see themselves as outliers in their community. Information regarding the energy use of one's neighbors will have little effect on these people, thus attenuating the effectiveness of the normative message.

In sum, internal norm activation campaigns such as Opower's are cost-effective incentives for individuals to decrease energy use. However, given relatively broad but also relatively weakly held preferences for environmental protection, internalized norm enforcement campaigns can only change behavior slightly. Moreover, in some cases, such campaigns may stagnate progress while providing little incentive for the creation of new technology.

B. External Enforcement of Norms in Large Groups: the Carbon Registry Example

As the theory of social norm enforcement suggests, impediments to the use of powerful social normative forces to decrease individual GHG emissions exist. The theory shows that the large and loose-knit aspects of groups make norm surveillance more difficult. Further, the power of social sanctioning is diluted when one is not bound to the group for cooperative benefit in other endeavors. It may be possible to overcome the surveillance and dilution problems by making information regarding an individual's behavior available to other members of her group. A simple example of this would be publication of information on the energy footprint of a particular household or individual.[99]

Professors Vandenbergh and Seidenman first outlined the potential for such a regulatory mechanism in their article on the Carbon Neutral individual.[100] In that article, they make a strong case for the use of an

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[99] A large number of institutions already use carbon calculators to inform individuals of their household energy use. However, the carbon footprint is only provided to the individual household and not released for public perusal. *See, e.g.*, *Free Carbon Footprint Calculator*, NATURE CONSERVANCY, http://www.nature.org/greenliving/carboncalculator/ (last visited Feb. 20, 2015); *Household Carbon Footprint Calculator*, U.S. ENVTL. PROTECTION AGENCY, http://www.epa.gov/climatechange/ghgemissions/ind-calculator.html (last visited Feb. 26, 2014); *CoolClimate Carbon Footprint Calculator*, COOLCLIMATE NETWORK RES. CONSORTIUM, http://coolclimate.berkeley.edu/carboncalculator (last visited Feb. 20, 2015).

[100] Vandenbergh, *Carbon-Neutral*, *supra* note 2.

Individual Carbon Release Inventory"[101] grounded almost completely in the theory of norm internalization; particularly Vandenbergh's VBN theory.[102] They first consider the way in which information on individual carbon emissions could be used to both inform individuals through news and other media, of the importance of carbon-neutrality. As they note, disclosure of information "could activate the carbon-neutrality norm by changing beliefs about the harms caused by individual carbon emissions."[103] This, of course resonates directly with norm internalization theory, which suggests changes in beliefs result in internal sanctioning.[104]

The authors then provide additional support for the use of an Individual Carbon-Release Inventory by turning to another aspect of VBN theory—the connection of specific behaviors to larger meta-norms. They start by reiterating their assertion that "the personal responsibility norm may be more widely held than the environmental protection norm,"[105] and that "[i]ndividuals are more likely to be motivated by information that indicates that their behavior will cause economic or physical harm to other people than by information about harms caused to the environment."[106] As a result, the authors conclude, providing information on "potential human health and economic harms of climate change may activate carbon-neutrality norms among those who feel strongly about personal responsibility but do not ascribe to the environmental protection norm."[107]

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[101] *Id.* at 1729. For a discussion of the relationship between the Individual Carbon Release Inventory and the Toxics Release Inventory ("TRI"), see *id.* The TRI has been enormously successful. Madhu Khanna, Wilma Quimio & Dora Bojilova, *Toxics Release Information: A Policy Tool for Environmental Protection*, 36 J. ENVTL. ECON. & MGMT. 243 (1998). Indeed, the TRI has been described by the EPA as "one of the most powerful tools in this country for environmental protection" and "one of the most successful policy instruments ever created for improving environmental performance." OFFICE OF POLLUTION PREVENTION AND TOXICS, U.S. ENVTL. PROT. AGENCY, EPA 745-F-95-001, EXPANDING COMMUNITY RIGHT-TO-KNOW: RECENT CHANGES IN THE TOXICS RELEASE INVENTORY (1995).

[102] *See* Vandenbergh, *Carbon-Neutral*, *supra* note 2.

[103] *Id.* at 1730.

[104] *See supra* section III.b

[105] Vandenbergh, *Carbon-Neutral*, *supra* note 2, at 1732.

[106] *Id.*

[107] *Id.*

Similar arguments can be found in the wealth of articles that have taken up the charge of regulating individual GHG emissions. Hope Babcock, for example, argues further for the importance of the personal responsibility meta-norm.[108] Separately, Katrina Fischer Kuh argues that norm activation is best achieved by delegating normative regulation to the local level.[109] The argument for local regulation can be understood through the lens of the internal/social dichotomy. According to Kuh delegation to the smallest level of government will ensure that the proper motivational meta-norms of any small community can be triggered. In other words, in those communities that value environmental protection, local normative campaigns can resonate in those values. While in other communities that value personal responsibility different normative campaigns can be formed that will appeal to that particular meta-norm.[110] It bears further noting that a scheme which delegates to local regulators also reflects the general understanding that social enforcement is more likely to work within smaller, more closely-knit groups.[111]

While the notion that a carbon registry may trigger internal norm enforcement is well-founded, this article suggests that internal enforcement will not be the only—or even primary—mechanism by which a carbon registry will function. Rather, the article argues, a carbon registry has the ability to overcome the primary limitations to social enforcement in large group games. Specifically, carbon registries can overcome both the dilution and surveillance limitations on social enforcement.

To being with, let's consider the effects of a carbon registry on dilution. At the heart of the theoretical limitations of normative intervention into large group problems is the conception of the game itself. That conception starts and ends with the notion that the group to be analyzed is defined by the cooperative endeavor. Conservation is generally conceived as a large group problem because a large number of individuals all need to conserve in order to meet carbon emissions targets.[112] Of course, there are

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[108] Babcock, *supra* note 11.

[109] Kuh, *Individual Harms*, *supra* note 11.

[110] *Id.*

[111] *See* Carlson, *supra* note 68.

[112] *See* Carlson, *supra* note 68. *See also supra* section III.A for a discussion of the problems of large group cooperation problems.

significant impediments to the use of norms as a means of ensuring cooperation in these large groups.[113] However, scholars who are skeptical of the use of social sanctioning in large group miss the fact that individuals in large games are also members of a number of small, close-knit communities and by making information available to other community members, the possibility of social sanction increases.

Norms simply reflect aggregate group preferences.[114] One implication of this understanding is that normative forces can extend beyond the boundaries of any particular cooperation problem. In other words, if the members of a small, closely-knit group have a known preference for conservation, the traditional forms of attraction between members of such a group will lead another group member to care about the publication of her energy use. Most people are members of smaller, closer-knit groups upon whom they rely for substantial material gain and preference satisfaction. Consider, for example, the group of friends one has while a student, or at work or social friends later in life. One is reliant on these friends for study or work help, entertainment, general counsel or support and many other things. The fact that the group satisfies these basic needs reinforces an individual's liking of group members. If an individual group member thinks that others in the group prefer energy conservation, release of information through a carbon registry would pressure that person to meet the group's normative mandate. In this sense the use of a carbon registry may well take advantage of the social pressures exerted by small groups, thus skirting the dilution problem of large group games.

Carbon registries, if properly designed, can also overcome many of the surveillance problems created by large group games. The types of activities considered by a carbon registry will depend on such factors as the availability of public information, the cost of obtaining information and the amount of GHG emissions that result from an activity as well as how the data is reported.[115] By packaging the gathered information in a simple and understandable format[116] a registry will make it easy to find out about the

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[113] *See supra* section III.A.

[114] *Supra* notes 55-57 and related text.

[115] For a general set of factors to be considered in design, see Vandenbergh, *Carbon-Neutral*, *supra* note 2, at 1734-40.

[116] *Id.* at 1731.

carbon emissions of group members.

Of course, some of the information to be used by a registry could be characterized as "private," creating a potential political impediment to the data-gathering process.[117] Vandenbergh and Sidenman respond to this concern by noting that: "[a]lthough many past informational efforts have been ineffective, in prior times of crisis—such as the scrap drives of World War II—government has engaged in successful efforts to persuade individuals to act by providing information about the effects of behavior."[118]

Katrina Fischer Kuh has recently considered the privacy issue (or the "intrusion objection") as it relates to behavioral mandates in environmental law.[119] She notes that the intrusion objection hypothesizes fatal resistance to mandates imposed in the context of environmentally significant behaviors and then suggests that such a monolithic objection cannot stand.[120] Such a hypothesis does not comport with the reality that individuals accept direct intrusions in order to protect the environment regularly.[121] On the other hand, after reviewing a significant literature on privacy and due process, Kuh concludes "to the extent that the enforcement of direct mandates more frequently requires the collection of information about individuals, mandates may more frequently occasion informational privacy objections than may indirect regulation."[122] It thus remains to be seen whether an individual carbon registry, which indirectly enforces through social pressure but gathers a small amount of information usually deemed to be private, would survive informational privacy objections.

In addition to dealing with privacy issues, registry design should

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[117] Given the success of the TRI and the availability of data on industrial production of carbon, there is little reason to doubt the effectiveness of a mandatory carbon registry for industry.

[118] Vandenbergh, *Carbon-Neutral*, *supra* note 2, at 1728.

[119] Katrina Fischer Kuh, *When Government Intrudes: Regulating Individual Behaviors That Harm the Environment*, 61 Duke L.J. 1111 (2012) [hereinafter Kuh, *When Government Intrudes*]. *See also* Kuh, *Promise and Perils*, *supra* note 11.

[120] Kuh, *When Government Intrudes*, *supra* note 119, at 1161.

[121] *See generally id.* at 1132-47. *See also id.* at 1148 ("[D]irect regulation of at least some environmentally significant individual behaviors is relatively common and is generally accepted, primarily at the local level. This acceptance is present even when enforcement, or at least the threat of enforcement is arguably quite intrusive…").

[122] *Id.* at 1181.

also consider other implications of social enforcement. In particular, the fact that national information provision may resonate in small, close-knit groups is a sword that cuts two ways. A registry might actually increase some socially destructive behavior while also increasing conservation. The goal for registry architects would be to maximize benefits while limiting costs.

The power of social enforcement will depend on what an individual group member believes others in the group prefer, how many people indicate the preference and the degree in which they value the particular behavior.[123] For example, if everyone in the group has a strong preference for doing tequila shots while out at a bar, another group member will feel significant normative pressure to conform. On the other hand, if only a small number of group members are doing tequila shots and the majority of the group seems indifferent to the behavior, a group member will feel less pressure to conform. Thus, it is likely that different groups will enforce a conservation norm in different amounts based on the depth of preferences held by group members.

These different groups are important to our understanding of the effects of social sanctioning through the use of a registry because individuals in some of these groups may compete inefficiently for esteem in certain circumstances. As noted previously,[124] competitions for esteem can result in inefficient personal allocations of resources in some circumstances. Consider, for example, the members of a group that highly esteems conservation. With publication of an individual's carbon footprint, each individual group member is likely to increase his or her conservation. For example, she may lower her thermostat more in winter and install LED light bulbs. However, as each individual group member invests in decreasing her carbon footprint, this raises the cost of getting esteem from other group members because the group average has been raised.[125] An individual who desires group esteem will thus have to spend even more on conservation in order to differentiate his or her behavior from others'.[126] Thus, competition for esteem may lead some group members to buy a hybrid car or invest in solar panels. Of course, as group members continue to compete for the

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[123] *See* Geisinger, *supra* note 84, at 64-67.

[124] *See supra* section III.A.

[125] *See supra* section III.A..

[126] McAdams, *Origin*, *supra* note 74, at 352.

esteem of others, the bar defining what amount of conservation is "group normal" will rise, and meeting or exceeding the bar again becomes more costly.[127]

The same phenomenon will occur for groups that esteem consumptive rather than conserving behaviors. While the preference for environmental protection is thought to be widespread, [128] there are likely to be groups comprised of individuals with anti-environmental preferences. In the current political landscape, many groups spurn environmental protection as too much governmental intervention and a limitation on individual choice and freedom.[129] Additional groups may be comprised of individuals who deny the existence of climate change or at least that humans can affect temperature change on the planet.[130] It may well be that in many groups that

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[127] The race does lead to excessive individual investment in conservation among group members but does not go on forever. As Richard McAdams notes, at some point a new equilibrium will be reached:

> The feedback effect is that one person's new norm compliance raises the average and lowers everyone else's relative position. One individual's contribution thus provides an incentive for others to contribute. Obviously, the contributions do not rise infinitely, but they stop only when no one can gain by additional contributions, when the opportunity costs of one's time or money exceed any esteem return.

Id. at *366.*

[128] While of relatively low order, a majority of individuals do indicate that they have a preference for environmental protection. *See, e.g.*, YALE PROJECT ON CLIMATE CHANGE COMMC'N & GEORGE MASON UNIV. CTR. FOR CLIMATE CHANGE COMMC'N, PUBLIC SUPPORT FOR CLIMATE AND ENERGY POLICIES IN APRIL 2013 (2013), *available at* http://environment.yale.edu/climate-communication/files/Climate-Policy-Report-April-2013-Revised.pdf.

[129] *See, e.g.*, *Tea Party Movement Platform*, TEA PARTY PLATFORM, http://www.teaparty-platform.com/ (last visited Feb. 20, 2015) (protecting free markets from government interference). *See also About Cato*, CATO INST., http://www.cato.org/about (last visited Feb. 20, 2015) (identifying the Cato Institute as "dedicated to the principles of individual liberty, limited government, free markets and peace" and noting that the Institute is primarily supported by individual donors).

[130] *See* Riley E. Dunlap & Aaron M. McCright, *Climate Change Denial: Sources, Actors, and Strategies, in* ROUTLEDGE HANDBOOK OF CLIMATE CHANGE AND SOCIETY 240 (Constance Lever-Tracy ed., 2010).

libertarian beliefs and climate change denial may co-exist.[131]

Individuals in these groups are likely to esteem behavior that reflects the group's high-order preference for freedom from government interference and its beliefs that responding to climate change is unwarranted. Members of these groups are thus likely to get esteem for behavior that increases GHG emissions—for example buying a car or truck with low gas mileage—rather than behavior that decreases GHG emissions. There is, of course, a constraint on competition for esteem within libertarian groups. Consumption of energy costs money and thus failure to buy a fuel efficient vehicle or to insulate one's house will incur additional energy costs. These additional costs will curtail the willingness to race for esteem by group members in these groups.

The potential small increase in GHG emissions from deniers and libertarians will likely offset some of the decrease in emissions from those who highly esteem conservation. The net result of such groups responding to normative nudges will thus be an overspending of resources relevant to the decrease in GHG emissions achieved. Consider an individual who, without competition for esteem would invest according to her preferences a small amount in decreasing energy use. Assuming that individuals rationally choose the most cost-effective strategies first, perhaps she will change to LED lightbulbs and install a smart thermostat. Perception of a strong pro-conservation norm within her group, however, may lead the individual to invest significantly more in conservation, perhaps by installing new attic insulation and a more efficient furnace and air conditioner. Put simply, the individual will overspend relative to her preferences for conservation.[132]

It might be said that overspending relative to preferences is the

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[131] *See* Noah M. Sachs, *Can We Regulate Our Way to Energy Efficiency? Product Standards as Climate Policy*, 65 VAND. L. REV. 1631 (2012) (noting that: Given widespread denial of climate change on the right, it will be difficult for any Republican politician to justify efficiency standards on environmental grounds. Even if standards are justified purely as cost-saving measures, rather than as climate change strategy, the cost-saving arguments may be trumped in the future by concerns over intrusive government.).

[132] It might be argued that the decrease in utility from overspending on conservation is offset by the increase in utility that occurs from getting esteem. Such an argument misses the fact that the level of esteem does not necessarily rise while parties are racing for esteem. Rather, parties could continue to receive the same amount of esteem for a lesser investment that reflects their preferences absent esteem competitions.

precise goal of a carbon registry. That is, carbon registries create powerful social incentives for individuals to spend money on energy conservation, regardless of their preferences for conservation absent normative influence. While this may be the ultimate goal of a registry, the inefficient investments of groups on both ends of the conservation spectrum must be considered in registry design. A simple way to respond to this concern would be to cap reported emissions at the extremes. If one has already met the maximum decrease in GHG emissions counted by a registry, for example, extra efforts at conservation will have no effect on esteem because it will not change the way in which her emissions are reported.

In sum, a carbon registry for industry or for individuals is likely to create significant decreases in the amount of carbon produced by both groups as a result of social enforcement. Yet, concerns regarding privacy, efficiency and the distribution of compliance costs exist must be considered in registry design.

V. CONCLUSION

The demand for smarter regulation with low enforcement costs, coupled with the compelling argument that individual behavior must be regulated by any comprehensive response to climate change, has increased the desire for new forms of behavioral regulation. Normative regulation holds significant promise for influencing many different types of behaviors—including energy conservation. However, traditional views of norms suggest that the force of social enforcement is lost in large group games. This article suggests something different. It shows that powerful social influences can be harnessed even when the need to cooperate is spread over a large, loosely-knit group. Specifically, the social force can be harnessed in large group games by regulatory structures that overcome transaction costs and the dilution of interdependence that exists within large groups. A carbon registry is an example of just such a response. Carbon registries can overcome both the problem of dilution and transaction costs while providing strong behavioral prompts to aid in conservation.

Of course, registries are not a panacea. Many issues, including concerns over privacy, the cost of data-gathering and how to deal with the distribution of compliance costs must be considered in registry design. The crisis of climate change, of course, requires many different regulatory responses, of which a carbon registry is just one. However, given the potential low cost of both creation and enforcement and the potential for

social enforcement to significantly decrease GHG emissions, normative regulation should not be overlooked.