Home > The Social and Psychological Foundations of Climate Change

The Social and Psychological Foundations of Climate Change

By: Andrew Hoffman, P. Devereaux Jennings

In Brief:

The debate over climate change has come largely from the physical sciences in defining the problem, and from one narrow branch of social science—neoclassical economics—in generating solutions. While this focus helps to define and address issues related to *what* is at stake and *what* to do about it, a greater and more varied voice from the social sciences (e.g., sociology, psychology, anthropology, political science) is needed to address issues related to *how* the problem is viewed by the public and *how* that public will respond to the solutions that are imposed upon it. In the eyes of the social scientist, people employ ideological filters when analyzing important issues. These filters are influenced by their identity and worldview; that is, their belief systems. Critical to the formation of such belief systems are the groups to which people belong and the biases and values of the individual. Unfortunately, these cultural and psychological dimensions are overlooked because social scientists that can identify and analyze them have been notably absent from the public debate. This omission is due both to a lack of awareness among policymakers of the valuable insights that the broader social sciences can offer and to the internal reward and incentive systems of the academy that bias social scientists away from engaging in public debates. This article discusses how the other social sciences could augment the proposed economic solutions to greenhouse mitigation with research on perception, decisions, consensus, and action across three levels of analysis: the individual, organizational, and institutional levels. It also discusses a series of proposed interventions to overcome the filters and biases that take place at these levels.

Key Concepts:

- In the eyes of the social scientist, people analyzing important issues always employ ideological filters that are influenced by their identity and worldview. At the individual level, these filters take the form of biases and rules-of-thumb that alter rational perspectives on problem recognition and solution development.
- At the organizational level, cultures become filters to the external world through which information is developed, interpreted, disseminated, and acted upon. Organizations also act as complex systems that are capable of making decisions on their own and that follow sets of rules and routines to search for, identify, and handle problems.
- At the institutional level, there are formal organizations, rules, policies, and norms that create and support the market and industry infrastructure in which firms operate.
- Techniques exist at each level to overcome culturally and psychologically imposed myopia with regard to environmental challenges.
- Unfortunately, the ability of social scientists to engage in public debates about climate change and apply such techniques is restricted by the rules and norms of the academy.

Introduction

The problem of climate change is defined predominately as a scientific issue: greenhouse gases (GHGs) are building up

in the atmosphere, generally warming the global climate and altering the statistical distribution of localized weather patterns over long periods of time.[1,2] But, while these scientific and technical components of the issue are critical, climate change is equally a *sociocultural* issue. It is an issue in which competing movements engage in discursive debates—or framing battles—over the interpretation of the problem, as reflected in a recent study that showed the gap between Democrats and Republicans who believe global warming is happening increased 30 percent between 2001 and 2010.[3]

Yet as the debate on climate change in the West has intensified, the social sciences, for the most part, have not been heard. The scholarship in this debate has come largely from the physical sciences in defining the problem,[1,4] and from one narrow branch of social science—neoclassical economics—in generating solutions.[2] Both disciplines focus heavily on the quantitative and rational treatments of the climate change issue, rather than on its more qualitative and less rational dimensions, namely human behavior and culture.[5,6]

While this focus helps to define and address issues related to *what* is at stake and *what* to do about it, a greater and more varied voice from the social sciences (e.g., sociology, psychology, anthropology, political science) is needed to address issues related to *how* the problem is accepted by the public and *how* that public will respond to the solutions that are imposed upon it. Such an expanded view will help develop a social consensus around both the reality of the problem and the effective implementation of solutions.

In the eyes of the social scientist, people analyzing important issues always employ ideological filters that are influenced by their identity and worldview; that is, their belief systems. Critical to the formation of such belief systems are the groups to which people belong and the biases and values of the individual. In the case of climate change, climate disbelievers have successfully associated acceptance of global warming science with "liberal" views.[7,8] This framing compels people to cement their connection with specific cultural groups that strengthen their definition of self.[6] Providing contrary scientific evidence to committed disbelievers can actually make them more, not less, resolute in resisting conclusions that are at variance with their cultural beliefs.[9]

Unfortunately, these cultural and psychological dimensions are overlooked because social scientists that can identify and analyze them have been notably absent from the public debate. This omission is due both to a lack of awareness among policymakers of the valuable insights that the broader social sciences can offer and to the internal reward and incentive systems of the academy that bias social scientists away from engaging in public debates. Were they included, social scientists might first point out that the generation of a *social* consensus[10] is an important follow-up to the generation of a *scientific* consensus on the debate that began to emerge in the 1990s.[11,12] Second, they would note that the social constituency relevant in this debate goes beyond scientific experts and extends to broader members of society.[13,14] Third, they would point out that the processes by which these constituencies understand and assess the science of climate change are often nontechnical. Finally, to begin building a social consensus, social scientists would say that the discussion must move away from positions—"climate change is occurring" versus "it is not"—and toward the underlying *principles* (interests and values) that are at play: the validity of the scientific process, the risk related to the likelihood and impact of action (or inaction), the economic implications of action, and the many ideological issues around personal freedom, the proper role and size of government, trust in the free market, and so on.[15,16]

Integrating this social discussion into the current climate debate will require the coordination of multiple roles within climate science. As a report by the National Research Council recently concluded, we will need:

1. Subject-matter experts to present the latest scientific findings;
2. Decision scientists who can identify the most relevant aspects of that science and summarize it concisely;
3. Social and communication scientists who can assess the public's beliefs and values, propose communicating strategies and processes, and evaluate their performance;
4. Program designers who can orchestrate the process, so that mutually respectful consultations occur, messages are properly delivered, and policymakers hear their various publics.[17]

Greater inclusion of the social sciences will help us navigate this effort and will offer critical insights into social acceptance of solutions proposed by neoclassical and behavioral economics—notably the development of carbon-pricing mechanisms.

How Social Science Could Help Transform Climate Change Solutions

Let us try to be more specific about how social science might help. One of the primary solutions to the climate change problem is using markets to establish a price for carbon, either through a carbon cap-and-trade scheme or carbon tax. While there are many nuances within these schemes, each one is based on the assumption that the quasi-rational pursuit of self-interest by individuals within a market will not only work best but will maximize net social welfare. And while it provides a promising starting point for reducing GHGs, this neoclassical economic approach places too much faith in pricing as a singular solution for altering markets to address climate change; it ignores the context in which, and by whom, pricing takes place. Other social sciences could augment this economic solution to GHG mitigation with research on perception, decisions, consensus, and action across three levels of analysis: individual, organizational, and institutional.[18,19]

The Individual Level

At the individual level of analysis, social psychology has the most to say, though the context of individual processes is framed by higher levels of analysis, as we shall see below. A fundamental premise of social psychological research on individuals is that people attempt to act rationally on their own behalf, but are bounded in their ability to achieve pure rationality.[20,21] This pairing of self-interest with bounded rationality expresses itself in several elaborate forms. For example, research has shown that individuals will dramatically discount future value.[22] Even informed, educated consumers do not take advantage of some of the simplest energy efficiency opportunities—such as energy efficient lighting—which often provide returns on investment of 30–50 percent per year.[23] Further, people tend to make self-serving, or egocentric, judgments of what is fair[24-26] and create optimistic illusions of themselves, their future, and the world as it is or will be.[27,28] People also often fail to see common ground in contested debates because they work from the unquestioned assumption that interests directly oppose each other—what is good for the environment must be bad for the economy, and vice versa. This assumption is exacerbated when the other side is viewed as the enemy, which is common in environmental contexts.

These complex, often semiconscious, forms of self-interest and self-reinforcing biases can unwittingly result in individual-focused solutions in which individuals consume at unsustainable rates in the short term. In the case of GHGs, corporate decision makers may encourage an *increase* in the usage of current, polluting equipment (vehicles, factories, etc.) in anticipation of extended carbon legislation and tightened emission regulations.[29,30] Similarly, individual consumers may use outdated equipment, like gas-guzzling vehicles, more than normal in anticipation of replacement technologies or legislation limiting use.

Fortunately, social scientists have had some success demonstrating how education, for example, can shine light on simple heuristics like steep discount rates or presumed positions, which can work at odds with better climate decisions and efficient responses to market signals.[31-33] For instance, workshops with policymakers that begin with an examination of their risk prioritization and walk through scenarios in which these risks are applied have demonstrated a shift in risk functions to something that more closely matches what policymakers espouse as ideal.[34] In turn, this affects policymakers' short- and long-term investment strategies when a fixed pool of resources must be divided across competing priorities: industrial land reclamation, additional hospital beds, and light rail lines, for example. The main point here is to recognize that people deviate from rationality in predictable ways, and that this knowledge can be used to develop targeted policies that complement simple pricing signals.

The Organizational Level

Organizations have two predominant effects on decisions related to the environment. First, they become filters to the external world through which information is developed, interpreted, disseminated, and acted upon.[35,36] As with individual biases, this filtering process alters rational expectations of and perspectives on problem recognition and solution development.[37,38] Consequently, social scientists have realized that *organization-specific* strategies are needed to overcome this problem (e.g., changes in reward systems, organizational structure, reporting routines, and governance mechanisms).[38]

Second, organizations act as complex systems that are capable of making decisions on their own and that follow sets of rules and routines to search for, identify, and handle problems.[39] One means of handling complex issues, like GHG reductions, within organizations is to break them down and separate them—that is, to create *loose coupling* between goals and routines—based on department specialties (accounting, operations, marketing, and so on). As a result, the organization is unlikely to approach important green technology or capital investment decisions with a united voice and

in one market, but instead with many voices in many markets. This loose coupling also leads to disunited actions internally. For example, capital and operating costs in universities are typically separated: one department pays for energy efficiency improvements, another pays the energy bills, and neither has an incentive to optimize energy use for the whole organization.[40]

When developing market policies to trigger organizational compliance or change, it is important to acknowledge this divergence, or heterogeneity, in organizational behaviors. This is particularly true in light of neoclassical economic assumptions that regard profit maximization as the sole purpose of firms, or see self-interest as the core motivator of individuals. Social science research has demonstrated that each individual organization bases its actions on its distinct organizational identity[41] or organizational culture.[42] In addition, organizations are known to be strongly *path dependent* in their actions (or nonactions), meaning prior choices determine future ones.[43] Thus, these multiple personalities and paths of firms must be considered when we try to tackle climate change using carbon-pricing schemes; climate change programs at the organizational level must be tailored to distinct corporate cultures and histories or to classes of firms with similar behaviors.[44]

These identity differences imply that firms in the same industry with similar economic profiles can have very different behavioral responses to the same environmental regulatory regime.[45] On the one hand, the carbon cap-and-trade market may be framed as a strategic threat by a firm (e.g., what some code as "cap-and-tax") because the scheme exposes the technology of that firm to an expensive overhaul. On the other hand, the scheme may be seen as an opportunity because the firm now has the choice to invest in new technology and receive carbon offsets in the future, or continue with its current production process but swap emissions credits with less polluting firms.[46]

To capitalize on these differences, the social sciences, particularly sociology and anthropology, highlight the importance of appealing to a firm's own framing and language.[47] For example, successful carbon reductions can be framed as "increased consumer demand," "improved operational efficiency," or "reduced, long-range cost of capital," and each framing will provoke different responses from the firm.[48] A consumer-demand framing will likely provoke a response of product redesign. Operational-efficiency framing might provoke process alterations. And cost-of-capital framing could shift internal financial pricing schemes.

Conversely, some companies are capable of modifying frames to fit their identities and thereby the firm's responsiveness to GHG issues. For example, Whirlpool Corporation, which has a long history as a strong technical competitor in household appliances, especially washing machines, avoids using the words "climate change," preferring instead to remain focused on "energy efficiency," an issue in which it has been engaged for decades.[49] In recent years, Suncor, the original innovator in the use of bitumen in the Canadian Oil Patch, increasingly emphasized that it is an energy (not simply an oil) firm, one with a broader mandate to invest and develop energy technologies and abate GHG side effects.[50] These distinctions are seen across countless companies and sectors—Proctor & Gamble is driven by consumer demand, Intel is driven by operational efficiency, 3M is driven by innovation—and should not be underestimated. By connecting climate change to dominant frames, a company will attend to solutions from strategically central departments and change agents within companies can get their organizations (even less-progressive ones) to act on environmental issues out of self-interest.

The Institutional Level

The institutional level here refers to the formal organizations, formal rules, policies, and norms that create and support the market and industry infrastructure in which firms operate. Economists increasingly acknowledge the importance of this institutional level for the efficient operation of markets.[51] In neoclassical economics, these formal institutions must provide incentives and monitoring mechanisms to align individual behavior with market activities. More recent economic work has focused on institutions and their governance as means of addressing market failures.[52]

Again, using an array of social sciences, particularly sociology and comparative political science, can provide valuable insights into the complex origins and operations of institutions.[53] With this understanding, it is possible for policymakers to consider the means and direction of institutional change.

The first step in supplementing the neoclassical, or market failure, view of institutions is to consider the variety of institutions and typify them.[54] One commonly accepted way of doing so in sociology is to consider how institutions vary on three dimensions, or pillars: the regulative, normative, and cognitive.[55] Any institutional approach to changing our current management of GHGs must try to establish congruencies across these three dimensions among institutions

underpinning GHG production.

The *regulative* dimension of institutions refers to the coercive or legal sanctions applied by institutions that organizations, to varying degrees, consider legitimate. Institutional theorists underscore the fact that most regulatory regimes have unintended effects, and thus responsive, if somewhat reactive, regulatory adjustments are essential.[56,57] For instance, the creation of long-term contracts to renewable energy producers in the Ontario market in Canada to encourage solar and wind power has led to the highest level of company starts in the industry. But the start-ups are based on substantially above-market energy rates. Subsequent policy has had to signal that such rates will ratchet down over time in order to create a more sustainable mix of renewable energy firms and to plan for the power that will eventually be linked into the Ontario grid.

The *normative* dimension of institutions refers to their moral or ethical grounding and attendant set of social obligations. These take the form of rules of thumb, standard operating procedures, occupational standards, educational curricula, membership requirements, and accepted social norms, which emerge through universities, professional training institutions, trade associations, and social engagement. To be most effective, any pricing scheme must be accompanied by a normative set of institutions that brand GHG reductions as legitimate. An interesting example involves the normative underpinnings for an apparently straightforward market price in the Irish plastax. In 2002 the Irish government imposed a 15-cent tax on plastic grocery bags and, within one year, plastic grocery bag use dropped by 94 percent. But in the United States, this plastax has failed—notably, in San Francisco. The reason that the formal regulatory framework worked in Ireland is that it fit well with its normative institutional dimensions: Ireland has no plastic bag manufacturers to mount an organized opposition. There was no problem of leakage from neighboring countries or states that did not have a similar tax. Almost all grocery markets are parts of chains that are highly computerized with cash registers that already collect a national sales tax, so adding the bag tax involved a minimum of reprogramming. The country has a young, flexible population that has proved to be a good testing ground for innovation. In fact, the country was primed for change, having just shifted from the pound to the euro. And people generally didn't mind paying the tax as the litter from the bags was seen as a common nuisance. In the end, a social norm developed to accompany the tax that framed anyone using a plastic bag as rude, with violators being treated much in the same way as someone who did not curb his dog.[58]

Finally, the *cognitive* (or *cultural*) dimension of institutions refers to the taken-for-granted beliefs to which organizations and individuals will abide without conscious thought.[59] These cognitive elements are like social scripts or mental maps, held among a large group of individuals. For example, in the U.S. gasoline price spike in the summer of 2008, the market responded efficiently with increased sales of fuel-efficient vehicles. But if that price spike had been created by a government gas tax rather than what was seen as the invisible hand of the market, the response would have been fundamentally different.[58] While some consumers and economic interests would have responded as the price signal had intended, others would have resisted through tactics of delay, lobbying, and protest. In the United States, a price signal generated by a surrounding, but invisible, set of institutions is more cognitively palpable than a tax increase enforced by the evident hand of government. Using the less visible hand is possible in other GHG-related domains. For instance, designing cities for walkability rather than vehicles is possible even in conservative environments like Houston.[60]

Unfortunately, as sociologists and political scientists point out, institutions frequently get in the way of changing environmental ideas and practices because institutional change is slower and rarer than change at the organizational or individual level.[16] Nevertheless, social and behavioral theorists have researched several mechanisms for institutional change, including the importance of catalyzing events, the role of social entrepreneurs and leaders, and the impact of social movements.[53] For example, catalyzing events like the BP oil spill in April of 2010 can act as cultural anomalies that rupture institutional acceptance of standard practices, such as BP's earlier "arms-length" use of engineering firms like Halliburton to set up and help manage core operations.[16] And though our research has shown that the BP oil spill specifically has not catalyzed dramatic change in norms of oil exploration, a plenitude of examples demonstrate the point: The chemical release and resultant fatalities from Bhopal spawned community right-to-know and corporate disclosure rules like the Toxics Release Inventory. The Exxon-Valdez spill spawned new regulations on ocean transport of oil, most notably double hulled tankers. The Love Canal disaster spawned the Superfund law and the requirement that corporations be held liable for historic disposal practices. Such large-scale and highly visible events can prove critical to nudging forward institutional change.

A Final Irony

By now it should be clear that social scientists have many concepts and models that can augment and adjust neoclassical and behavioral economic models of markets, particularly with regard to reducing GHG emissions.

Unfortunately, we social scientists are not free from the cultural constraints within our own profession that undermine our ability to make a difference outside of it. As noted recently by American Sociology Association President, Michael Burawoy, the rules of the academy (e.g., tenure and promotion) are based primarily on the publication of top-tier academic journal articles in well-established social science fields that do not include topics like climate change, environmental management, and the politics of technology adoption.[61] At the same time, publishing in practitioner journals, writing practitioner books, speaking at practitioner conferences—even serving on government panels—are discouraged as being anti-intellectual at worst, and as impractical wastes of time at best.[62]

One of the ultimate ironies in the climate change debate is that many of the social scientists who could help create truly new policy would turn down such opportunities to instead write a few more, arcane, scholarly articles and satisfy their tenure and promotion committees. For this reason, we believe the lenses of social science need to be turned not only on the climate change debate and its current solutions, as we have tried to do in this article; but also on itself in order to forge new academic institutions that will help contribute to social debate over climate change problems and solutions. Scientists, by requesting social scientist participation in research studies and policy formation on climate change, can help social scientists become less bound by their profession's strictures, and thereby further enrich the behavioral research that is so useful—necessary, in fact—to combating climate change.

Acknowledgments

References

1. Collins, W, Colman, R, Haywood, J, Manning, MR & Mote, P. Climate change: The physical science behind climate change. *Scientific American* 297, 56–73 (2008).
2. Ackerman, F et al. The economics of 350. *Solutions* 1, 5 (2010).
3. McCright, A & Dunlap, R. The politicization of climate change: Political polarization in the American public's view of global warming. *Sociological Quarterly* 52, 155–194 (2011).
4. Intergovernmental Panel on Climate Change. Climate Change 2007—*Mitigation of Climate Change: Working Group III Contribution to the Fourth Assessment Report of the IPCC* (Cambridge University Press, Cambridge, 2007).
5. Kahan, D. Fixing the communications failure. *Nature* 463, 296–297 (2010).
6. Faraganis, J. *Readings in Social Theory: The Classic Tradition to Post-Modern* (McGraw-Hill Higher Education, New York, 2004).
7. Hoffman, A. The growing climate divide. *Nature Climate Change.* 1, 195–196 (2011).
8. Hamilton, C. Why we resist the truth about climate change. Paper presented at the Climate Controversies: Science and Politics conference (Brussels, October 28, 2010). www.clivehamilton.net.au/cms/media /why_we_resist_the_truth_about_climate....
9. Feinberg, M & Willer, R. Apocalypse soon? Dire messages reduce belief in global warming by contradicting world beliefs. *Psychological Science* 22, 34–38 (2011).
10. Durkheim, É. *The Rules of Sociological Method* (Free Press, New York, [1895] 1982).
11. Doran, P & Zimmerman, M. Examining the scientific consensus on climate change. *Eos* 90, 22–23 (2009).
12. Oreskes, N. The scientific consensus on climate change. *Science* 306, 1686 (2004).
13. Pidgeon, N & Fischoff, B. The role of social and decision sciences in communicating uncertain climate risks. *Nature Climate Change* 35–41 (March 2011).
14. Hoffman, A. The culture and discourse of climate skepticism. *Strategic Organization* 9, 77–84 (2011).
15. Hulme, M. *Why We Disagree About Climate Change: Understanding Controversy, Inaction and Opportunity* (Cambridge University Press, Cambridge, 2009).
16. Hoffman, A & Jennings, PD. The BP oil spill as a cultural anomaly? Institutional context, conflict and change. *Journal of Management Inquiry* 20, 100–112 (2011).
17. National Research Council. *Limiting the Magnitude of Future Climate Change* (National Academy of Sciences, Washington DC, 2010).
18. Bazerman, M & Hoffman, A. Sources of environmentally destructive behavior: Individual, organizational and institutional perspectives. *Research in Organizational Behavior* 21, 39–79 (1999).
19. Ostrom, E. A multi-scale approach to coping with climate change and other collective action problems. *Solutions* 1, 27–36 (2010).
20. Simon, HA. *Administrative Behavior* (Colliers-MacMillan, New York, 1957).

21. March, JG & Simon, H. *Organizations* (John Wiley and Sons, New York, 1958).
22. Ruderman, H, Levine, M & McMahon, J in *Energy Efficiency: Perspectives on Individual Behavior* (Kempton, W & Neiman, M, eds) Ch. "Energy efficiency choice in the purchase of residential appliances," 41–50 (American Council for an Energy-Efficient Economy, Washington DC, 1987).
23. U.S. Environmental Protection Agency. *EPA Green Lights Program Snapshot for January* (U.S. Environmental Protection Agency, Washington, DC, 1997).
24. Messick, DM & Sentis, KP in *Equity Theory: Psychological and Sociological Perspectives* (Messick, DM & Cook, KS, eds) Ch. "Fairness, Preference, and Fairness Biases," 61-94 (Praeger, New York, 1983).
25. Bazerman, M & Neale, M (1992) *Negotiating Rationally* (New York: The Free Press).
26. Babcock, L, Loewenstein, G, Issacharoff, S & Camerer, C. Biased judgments of fairness in bargaining. *American Economic Review* 85, 1337–1343 (1995).
27. Taylor, C. *Sources of the Self: The Making of Modern Identity* (Harvard University Press, Cambridge, MA, 1989).
28. Kramer, RM. Self-enhancing cognitions and organizational conflict. Working paper, Stanford University Business School (1994).
29. Barnes, P & McKibbin, B. A simple market mechanism to clean up our economy. *Solutions* 1, 30–38 (2009).
30. Arrow, KJ. Uncertainty and the welfare economics of medical care. *American Economic Review* 53, 941–973 (1963).
31. Tversky, A. Features of similarity. *Psychological Review* 84, 327–352 (1977).
32. Nisbett, RE & Ross, L. *Human Inference: Strategies and Shortcomings of Social Judgment* (Prentice-Hall, Englewood Cliffs, NJ, 1980).
33. Bazerman, M. *Judgment in Managerial Decision Making* (John Wiley and Sons, New York, 1998).
34. McDaniels, T, Gregory, R & Fields, D. Democratizing risk management: Successful public involvement in local water management decisions. *Risk Analysis* 19, 497–510 (1999).
35. Argyris, C. Education for leading-learning. *Organizational Dynamics* 21, 5–17 (1993).
36. Stinchcombe, AL. *Information and Organizations* (University of California Press, Los Angeles, 1990).
37. Cyert, RM & March, JG. *A Behavioral Theory of the Firm* (Blackwell Publishing, Malden, MA, 1963).
38. March, JG. *A Primer on Decision Making: How Decisions Happen* (The Free Press, New York, 1994).
39. Nelson, R & Winter, S. *An Evolutionary Theory of Economic Change* (Harvard University Press, Cambridge, MA, 1982).
40. Lovins, A & Lovins, H. *Climate: Making Sense and Making Money* (Rocky Mountain Institute, Snowmass, CO, 1997).
41. Albert, S & Whetten, D. Organizational identity. *Research in Organizational Behavior* 7, 263–295 (1985).
42. Martin, J. *Organizational Culture: Mapping the Terrain* (Sage Publications, Thousand Oaks, CA, 2000).
43. Hannan, M & Freeman, J. Structural inertia and organizational change. *American Sociological Review* 49, 149–64 (1984).
44. Werbach, A. *Strategy for Sustainability: A Business Manifesto* (Harvard Business School Press, Cambridge, MA, 2009).
45. King, A & Lenox, M. Private incentives to environmental self-regulation. *Academy of Management Journal* 43, 698–716 (2002).
46. Porter, MC & Kramer, MR. Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review* 84, 78-91 (2006)
47. Lawrence, T & Suddaby, R in *Handbook of Organization Studies*, 2nd edn (Clegg, R, Hardy, C, Lawrence, TB & Nord, WR, eds), Ch. "Institutions and institutional work," 52–54 (Sage, London, 2006
48. Lounsbury, M & Glynn, M. Cultural entrepreneurship: Stories, legitimacy and the acquisition of resources. *Strategic Management Journal* 22, 545–564 (2001).
49. Hoffman, A. *Getting Ahead of the Curve: Corporate Strategies that Address Climate Change* (Pew Center on Global Climate Change, Arlington, VA, 2006).
50. Suncor Energy. Suncor Energy named as one of "10 Green Giants in Business." [Online] (2007). www.suncor.com/en/newsroom/2418.aspx?id=1088548.
51. North, DC. *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, Cambridge, 1990).
52. Williamson, OE. *The Economic Institutions of Capitalism* (The Free Press, New York, 1985).
53. Meyer, JW, Boli, J & Thomas, GM in *Institutional Structure: Constituting State, Society, and the Individual* (Thomas, GM, Meyer, JW, Ramirez, FO & Boli, J, eds), Ch. "Ontology and rationalization in western cultural account," 12-38 (Sage, Beverly Hills, CA,1987).
54. Scott, WR & Meyer, JW. *Organizational Environments: Ritual and Rationality* (Sage Publications, London, 1992).
55. Scott, WR. *Institutions and Organizations* (Sage Publications, London, 2001).
56. Oliver, C. Strategic responses to institutional processes. *Academy of Management Review* 16, 145–179 (1991).
57. Lawrence, TB in *Sage Handbook of Organizational Institutionalism* (Greenwood, R, Oliver, C, Sahlin, K & Suddaby, R, eds.), Ch. "Power, institutions and organizations," 170–197 (Sage, London, 2008).

58. Hoffman, A. The limits of carbon pricing: Can high prices alone cut emissions? *Bloomberg Businessweek* [online] (November 18, 2009) www.businessweek.com/investing/green_business/archives/2009/11/the_limit....

59. Zucker, L in *Research in the Sociology of Organizations* (Bacharach, S, ed), Ch. "Organizations as institutions," 1–47 (JAI Press, Greenwich, CT, 1983).

60. Hoffman, A & Henn, R. Overcoming the social and psychological barriers to green building. *Organization & Environment* 21, 390–419 (2008).

61. Burawoy, M. For public sociology. *American Sociological Review* 70, 4–28 (2005).

62. Hoffman, A. Reconsidering the role of the practical-theorist: On (re)connecting theory to practice in organizational theory. *Strategic Organization* 2, 213–222 (2004).

Source URL: http://www.thesolutionsjournal.com/node/1130