

# CREATING A CLIMATE FOR CHANGE

Communicating Climate Change and  
Facilitating Social Change

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## Dealing with climate change contrarians

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### Introduction

Industrial societies have developed through the extraction and consumption of fossil fuels. Many of the most powerful industries in the United States, both historically and at present, depend upon the use of fossil fuels. Also, the fortunes of many of the wealthiest and most powerful families in the United States are founded within the fossil fuels industry. Further, a very large proportion of the manufacturing jobs in the United States are connected with the use of these fuels. Thus it is not surprising that proposals to substantially reduce their use, or even just to reduce emissions of heat-trapping gases from their use, to mitigate the effects of climate change encounter stunning obstacles and are seen as deeply threatening by powerful economic and political actors.

A coordinated anti-environmental countermovement (see, e.g., Austin, 2002; Beder, 1997; Helvarg, 1994; Switzer, 1997) has mobilized in the United States since the late 1980s to challenge the legitimacy of climate change as a problem on which society should act. This response includes both massive lobbying efforts by the American fossil fuels industry<sup>1</sup> (e.g., Gelbspan, 1997; Levy and Egan, 1998; Newell, 2000) and concerted efforts by American conservative think tanks to question the necessity of dealing with climate change (e.g., Luke, 2000; McCright and Dunlap, 2000, 2003). Integral to these efforts has been the promotion of approximately a dozen scientists collectively known as climate change “contrarians”<sup>2</sup> (or sometimes “skeptics”). Climate change contrarians publicly challenge what they perceive as the false consensus of “mainstream” climate science – the reality of anthropogenic

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climate change. They proclaim their strong and vocal dissent from this growing consensus by criticizing mainstream climate science in general and pre-eminent climate scientists more specifically, often with considerable financial support from American fossil fuels industry organizations and conservative think tanks.

The contrarians' activities pose a significant barrier to substantive communication among the scientific community, policy-makers, and the general public (see, e.g., Brown, 1997; Gelbspan, 1997; McCright and Dunlap, 2003; Ozone Action, 1996a,b,c). Indeed, a major role of the contrarians has been to distort communication efforts of the scientific community with policy-makers and the general public regarding climate change. This chapter will first summarize existing research on the claims, organizational affiliations, tactics, and effectiveness of the contrarians in the American national policy context, and then identify several interrelated strategies for dealing with contrarians – to protect the integrity of the open communication necessary between the scientific community and public policy-makers.

### **Climate change contrarians: tactics and effectiveness<sup>3</sup>**

Institutional inertia, the entrenchment of vested interests, and the relative disempowerment, disengagement, and apathy of many members of the general public all conspire against solving most social problems. Yet, many Western intellectuals in the Enlightenment tradition believe that open communication will force us to seriously confront problems as the weight of mounting scientific evidence and appeals to justice and fairness become overwhelming (e.g., Habermas, 1984, 1987). But this is a slow and difficult process, and substantial effort is needed to bring a social problem to the public agenda, identify politically acceptable but effective solutions, and implement them. For those concerned with climate change, the problem of dealing with such social inertia is compounded by the efforts of the American anti-environmental countermovement.

This countermovement has mounted a sustained assault on scientific communication – attempting to confuse both policy-makers and the general public about climate change. Conventional scientists try to validate new knowledge claims about complex climate phenomena, which challenge the dominant social paradigm about how humans interact with the environment (Dunlap, 2002). On the other hand, the fossil fuels industry, conservative think tanks, and the contrarians they promote advance their objective of maintaining the status quo merely by obstructing communication of these

new knowledge claims. Only a minimal amount of confusion about climate change may be necessary to reinforce the social inertia that perpetuates the status quo, even in the face of considerable scientific evidence otherwise. Thus the goals of the contrarians are achieved more easily than are the goals of conventional climate scientists.

Some of the contrarians publish in the peer-reviewed climate science literature, where they oversimplify and even misinterpret existing research while selectively presenting data supporting their own counterclaims (see, e.g., Soon and Baliunas, 2003). Of greater significance, most contrarians challenge climate change knowledge claims largely through activities outside of the scientific community. For presenting their most dubious assertions, they have chosen venues that are free from the constraints of traditional scientific standards. This withdrawal from the institutions and processes that define modern science provides the contrarians with great latitude in making their arguments. For instance, most contrarians present claims that consistently exceed the content of their peer-reviewed work in publications, public appearances, and websites supported by fossil fuels organizations and conservative think tanks. And the contrarians make their assertions to lay audiences who may not detect the technical flaws in their arguments (for a discussion of related vulnerabilities to which lay audiences can fall prey, see Dunwoody, Chapter 5, this volume; Moser and Dilling, 2004). Since their credentials inspire perceptions of expertise and trustworthiness among non-experts, the lack of accountability outside the scientific community makes the contrarians especially dangerous to scientific communication efforts. They can present assertions that do not withstand scientific peer review to an audience that often assumes, because of the contrarians' credentials, that those arguments are sound and constitute scientific evidence.

Not only do most contrarians operate largely outside of the scientific community, but most also benefit substantially from affiliations with fossil fuels industry associations and conservative think tanks. Their relationships with the latter arguably are more crucial since conservative think tanks can enter the public discussion about climate change with a patina of intellectual legitimacy and credibility that fossil fuels industry organizations cannot claim. Furthermore, conservative think tanks have made such efficient use of money, ideas, personnel, and the media that they comprise the most successful policy-planning network in the United States since the mid-1970s.<sup>4</sup>

Several contrarians joined influential conservative think tanks during the 1990s. The think tanks utilized these credentialed scientists to provide scientific legitimacy to their counterclaims about climate change.<sup>5</sup> The contrarians wrote many brief documents (e.g., policy briefs and backgrounders)

on climate change for the think tanks, served as expert sources regularly cited in dozens of other think-tank documents, made public appearances at press conferences sponsored by the think tanks, and represented conservative think tanks on radio and television programs to further challenge mainstream scientific knowledge claims about climate change. During this regular interaction with policy-makers and the general public, the contrarians forcefully dismissed the results of hundreds of scientific publications by making overly simplistic and dubious counterclaims – which were frequently embedded within a broader anti-environmental and anti-regulatory discourse (see McCright and Dunlap, 2000, 2003). These activities violate basic ethical norms established to protect the integrity of science.

The anti-environmental countermovement benefited from the shift in control of Congress during the 1990s. The contrarians took advantage of the Republican majority in Congress since the mid-term elections in 1994, after which they achieved a much enhanced visibility in Congressional hearings on climate change. The conservative Congress tended to minimize discussion of climate change overall. For instance, there were more Congressional hearings on climate change in 1992 alone than there were between the 1994 Republican takeover and the December 1997 Kyoto Conference. In the hearings that did take place during this time period, five contrarians testified approximately as often as did thousands of mainstream climate scientists publishing in the scientific literature. The testimony of the contrarians provided ranking Republican politicians with the arguments that allowed them to shift the nature of the debate in Congress away from the question of “What do we need to do to address global warming?” toward the more preliminary question of “Is global warming really a problem?” (McCright and Dunlap, 2003).

Finally, contrarians were able to translate this heightened visibility into increased media presence by successfully exploiting the media’s balancing norm – which equates “objectivity” with presenting “both sides of the story” (see Boykoff and Boykoff, 2004). For example, between 1994 and 1997, five contrarians were cited as often in the nation’s seven largest circulating newspapers as were the most respected climate scientists of the time (McCright and Dunlap, 2003). By publicly challenging the claims of the mainstream scientific community, contrarians created a sustained drama that journalists have been socialized to consider newsworthy and integral to a “good story.” Such a contrived storyline breeds confusion within the general public regarding what is widely accepted knowledge and what is a highly speculative claim. This kind of coverage also confuses the distinction between what are scientific judgments and what are value judgments

(Sarewitz, 2004). This confusion facilitates political inaction and policy gridlock – disproportionately favoring the efforts of the anti-environmental countermovement to challenge the legitimacy of climate change.

The anti-environmental countermovement has successfully distorted climate change communication between the scientific community on the one hand and policy-makers and the general public on the other. Climate change contrarians have been major figures in the creation of our current situation of public confusion about climate change and a climate policy based largely on voluntary action and more research. Since the mid-1990s those conservative policy-makers attempting to prevent the creation and implementation of any substantial climate policy have been able to utilize the counterclaims of contrarians to legitimize their inaction (Brown, 1997; McCright and Dunlap, 2003). They regularly have argued that the science is too uncertain to justify the social change that would come with effective climate change policy. Indeed, the George W. Bush Administration represents the institutionalization of the anti-environmental countermovement, since contrarians' counterclaims have figured prominently in several White House documents about climate change (e.g., United States White House, 2002a,b).

### **Countering climate change contrarians**

Given that climate change may be the most complex scientific problem faced by modern society, it is crucial for policy-makers to have a basic understanding of the best scientific evidence available. Also, the successful implementation of any climate policy may depend upon its public legitimacy, which is facilitated when citizens have a basic understanding of elementary climate science principles or at least a healthy trust in the scientific community. Thus, it is essential to neutralize or contain the activities of the contrarians and their allies in the anti-environmental countermovement who attempt to use non-scientific forums to make ideological claims shrouded in scientific discourse. Since this may be controversial, some clarification is necessary.

The contrarians clearly have had a level of political access and influence that far exceeds what would be expected given the veracity and significance of their scientific contribution. Thus, the issue is *not* how to silence the contrarians but rather how to deal with this demonstrable imbalance of power in a way that upholds the norms and protects the integrity of the scientific enterprise. Certainly, all scientists have the right to voice their personal views as American citizens. Yet membership in a scientific

profession tempers this right. That is, when a scientist speaks *as a scientist in the name of science*, he or she becomes a spokesperson for a community of professionals (see also the chapters by Warner, and Cole with Watrous, Chapters 10 and 11, this volume). As such, this scientist has a responsibility to obey the norms of the scientific community while clearly and effectively communicating the state of scientific knowledge on the issue at hand.<sup>6</sup> It is because the few contrarians have violated these expectations that their activities should be marginalized. Minimizing their contribution will allow the consensus position about climate change to be transmitted more clearly among the scientific community, policy-makers, and the general public.

Several factors would enhance such effective communication:

1. greater scientific literacy among policy-makers and the general public, especially how science works as a social process (e.g., the role of peer review as an underpinning for scientific claims, the importance of scientific consensus even in the face of a few dissenters);
2. greater transparency in science-related policy-making processes;
3. better funding for communication efforts by governmental agencies and research organizations;
4. more appropriate norms within journalism for scientific reporting; and
5. better training for environmental scientists in how to communicate effectively with policy-makers and the general public.

The combination of low levels of scientific literacy, opaque policy-making, limited resources earmarked for scientific communication, and the existing norms within scientific journalism will continue to pose a substantial challenge to effective climate science communication for years to come. Nevertheless, in the face of these enduring barriers to effective communication, several suggestions may be made that speak to the challenges contrarians pose. These suggestions, which reinforce those ideas advanced by Moser and Dilling (2004), are directed not only to members of the climate science community, but also to concerned citizens, social justice advocacy organizations, ecological sustainability organizations, and progressive business organizations.

First, *scientists and communicators would benefit greatly from a deeper and more comprehensive awareness and understanding of climate change contrarians as individual actors*. Since the early 1990s, contrarians have taken the initiative in defining the terms of the public discussion of climate change. Thus, an obvious first step is to identify the primary contrarians and better anticipate their counterclaims, rhetorical techniques, and public activities discussed above. The Union of Concerned Scientists has worked on this for nearly a decade through its Sound Science Initiative (see Cole with Watrous,

Chapter 11, this volume). Ultimately, we must come to terms with the motivations and intentions of contrarians. While genuine criticism of various climate science knowledge claims is a valid and common process to advance the science, contrarians demonstrate ulterior questionable motives when they ally themselves consistently with fossil fuels organizations and conservative think tanks to convey their counterclaims outside of the scientific community's normal outlets.

Even further, *scientists and communicators would gain strategic advantage if they fully recognized the long-term involvement of contrarians within the anti-environmental countermovement.* Contrarians perform a key role for this countermovement by lending pseudo-scientific legitimacy to attempts at obfuscating scientific communication for the narrow material and ideological interests of fossil fuels organizations and conservative think tanks. Indeed, employing sympathetic scientists to debunk scientific claims that challenge vested interests has been an enduring pattern within the anti-environmental countermovement over the past decade and beyond on other environmental and public health and safety issues. For instance, anti-environmental operatives, such as the attorney Michael Fumento, JunkScience.com founder Steven Milloy, and the political scientist Michael Sanera, regularly attempt to debunk the knowledge claims of the peer-reviewed scientific community on such issues as pesticide exposure, environmental carcinogens, and ozone depletion. These anti-environmental scientists routinely deny the evidence of environmental problems by exploiting scientific uncertainties, misinterpreting peer-reviewed research, and selectively presenting data that support their own counterclaims (Fumento, 1996; Milloy, 1995; Sanera, 1999).

Third, *scientists and other communicators would provide a valuable service to policy-makers and the general public if they exposed the tactics and goals of contrarians and their relationships with the anti-environmental movement.* In other words, the credentials, expertise, funding, and tactics of contrarians must become problematized within public discourse. The general public should know more about: (1) the marginalized status of contrarians within the scientific community (because they operate largely outside mainstream scientific institutions); (2) the routine violations of scientific standards by contrarians (i.e., misinterpretation of peer-reviewed research, use of suspect methods, selective presentation of those results that support their counterclaims); (3) the enduring conflicts of interests routinely ignored when contrarians accept money from fossil fuels organizations to make negative pronouncements about climate science; and (4) the pseudo-scientific legitimacy contrarians provide to assist the anti-environmental countermovement in preventing new environmental regulations and weakening existing



environmental regulations. In essence, we should cultivate in the general public a healthy skepticism of contrarians' credibility, motives, and tactics.

Taking the previous suggestion even further, *scientists and communicators could help move the debate forward if they publicly acknowledged that the crux of the climate change debate at this time is not conflict over science but over very different values.*<sup>7</sup> Clearly, there will always be more to know, and there are legitimate scientific issues that need to be resolved. Scientists would do themselves and the public a great service if they made this point about the nature of science, and that of the scientific debates explicitly. To allow contrarians to abuse science to carry out value debates undermines the scientific enterprise in general and the legitimacy of the climate change problem in particular.

While members of the anti-environmental countermovement promote economic growth and business dominance above most other values, members of the scientific community value open inquiry, rigorous and systematic analyses, and peer review, and members of the environmental community (e.g., the environmental movement and pro-environmental policy-makers) prioritize values of ecological sustainability and social justice. By putting the conflicting values directly in the public eye, we are able to have more honest discussions about the larger political, cultural, social, and economic context of climate change (see also Regan, Chapter 13, this volume). Also, by making the value conflicts more obvious, value-driven motives may be less likely to covertly lay waste to science and the scientific process of working through uncertainties. This entails maintaining vigilance in the face of veiled attempts by anti-environmental groups to continually assert their values to distort the public understanding of climate science. The most frequently recurring example is the use of the terms "sound science" and "junk science" by anti-environmental actors. Past research (e.g., Herrick and Jamieson, 2001) and common sense reveal that these terms are merely rhetorical tools, devoid of any substantive meaning. Yet these buzzwords continue to confuse policy-makers and the general public in discussions about varied scientific matters.

Fifth, *scientists and communicators can help proactively frame the public discussion about climate change rather than only respond to how contrarians frame the debate.* This will help to further marginalize the contrarians, who have been fairly successful at portraying themselves as an oppressed minority of "round-earthers" in the midst of the "flat-earth" climate science establishment. Claiming the disenfranchised underdog role has gained contrarians access to an arsenal of provocative imagery within American culture. However, this is not a very accurate description of reality. Thus,

we would do well to convey to policy-makers and the general public a sense of the sheer amount of empirical research and theoretical modeling, years of person-hours, and number of climate scientists that have led to our current understanding of climate processes. So, scientists and communicators can do more to convey this perception of events to non-scientists and shift the burden of proof to contrarians. We may accomplish this effectively by making sure that key dialogue with policy-makers and the general public is guided by established risk communication principles (National Research Council, 1989).

Also, we should promote an internally reinforcing package of basic climate change knowledge claims to policy-makers and the general public. This package would help the public understand the causal link between everyday activities, emissions, climate change, potential impacts, and solutions (see also Bostrom and Lashof, Chapter 1, this volume). It should also present some of the most consensual claims of recent publications from the most prestigious “arbiters” of scientific evidence – the Intergovernmental Panel on Climate Change (2001; and the forthcoming *Fourth Assessment Report* in 2007) and the National Academy of Sciences (National Research Council, 2001) – and other ongoing research. These should be conveyed effectively in language and – whenever possible – with graphics that lay citizens can understand. In essence, these basic claims should seem obvious and straightforward to non-scientists. This is achieved partly through the use of repetition in all possible venues, including some (e.g., editorials in major newspapers) favored by contrarians.

Finally, *these basic knowledge claims should be embedded within a broader discourse that simultaneously is cautious and optimistic – drawing upon ideas having great resonance with central elements in American culture* (see the chapters by Bostrom and Lashof; and Ungar, Chapters 1 and 4, this volume). For instance, preparing for the future is embedded deeply within American culture. Parents attempt to plan a better future for their children, varied organizations create long-term plans, millions of people purchase all varieties of insurance, and even the Boy Scouts tell children to “be prepared.” Moreover, the “preponderance of evidence” is a widely known standard of proof from the US civil court system, and it is used often in our personal lives with matters of great concern. We do not wait for knowledge beyond a reasonable doubt before getting treatment on potential diseases and illnesses. If the weight of evidence reaches some compelling threshold, then we take action.

Most of the anti-environmental countermovement has criticized climate science for promoting gloom-and-doom scenarios (e.g., Baden, 1994;

Bailey, 1993). Climate change knowledge easily can provoke pessimism and anxiety, and this just points to the necessity for framing present and future options in ways that encourage action and not paralysis (see Moser, Chapter 3, this volume). We may utilize ideas about the preponderance of evidence and future preparation to reframe climate change in terms of problem-solving, entrepreneurial opportunities, and jobs – each of which is a central aspect of the American identity. For example, a long-term, wholesale conversion from fossil fuels to renewable energy sources provides many opportunities for the development of innovative technologies, the emergence of a new generation of entrepreneurs, and the creation of a significant amount of jobs (see also Young, Chapter 24, this volume). Indeed, it provides us with a chance to create the world anew (see Jamieson, Chapter 30, this volume). Even more generally, we can convey the idea that we are threatened on our current trajectory of almost insatiable dependence on fossil fuels. By contrast, our country's sovereignty and future may be "saved" by renewable energies and other environmentally friendly technologies.

### Coda

In a deep sense, more is at stake here than *just* climate change. Climate change represents a case that stirs deeply in issues of scientific literacy, public understanding of science, public trust in science, and the politicization of science. The suggestions offered for dealing with contrarians may indirectly help protect the integrity and relative autonomy of the institution of science. What is ultimately at stake here is the future relevance of science vis-à-vis public policy. This chapter discusses some challenges that climate science encounters when attempting to inform public policy. Policy-making on science-related issues is lacking at best or seriously flawed at worst when productive input from the scientific community is distorted or rejected on the basis of economic or ideological interests. Thus, we must learn to effectively counter contrarians in many areas of science if we are to have the potential to realize the mandate of the National Academies – that our public policies on serious problems of the day are to be guided by the best technical knowledge and scientific advice available.

### Notes

1. However, since the December 1997 Kyoto Conference, a significant part of the multinational business community has publicly acknowledged the reality of climate change and has begun to take the lead toward greater energy efficiency and renewable energy (see, e.g., Carpenter, 2001; Levy and Egan, 1998; Newell, 2000; see also the

- chapters by James, Smith, and Doppelt; and Arroyo and Preston, Chapters 20 and 21, this volume).
2. The following are the most active and outspoken of the American climate change contrarians (listed alphabetically with primary professional affiliation): Bruce Ames, Professor of Biochemistry and Molecular Biology at the University of California, Berkeley; Sallie Baliunas, Staff Astrophysicist at the Harvard–Smithsonian Astrophysical Observatory; Robert Balling, Jr., Associate Professor of Geography and Director of the Office of Climatology at Arizona State University; John Christy, Professor and Director of the Atmospheric Science Department at the University of Alabama at Huntsville; Hugh Ellsaesser, retired meteorologist from Lawrence Livermore National Laboratory; Sherwood Idso, President of the Center for the Study of Carbon Dioxide and Global Change; David R. Legates, Associate Professor of Geography at the University of Delaware; Richard Lindzen, Professor of Meteorology at the Massachusetts Institute of Technology; Patrick Michaels, Research Professor of Environmental Sciences at the University of Virginia; Frederick Seitz, Chairman of the Science and Environmental Policy Project; S. Fred Singer, President of the Science and Environmental Policy Project; and Willie Soon, Research Physicist at the Harvard Smithsonian Center for Astrophysics.
  3. This section draws largely upon earlier research (McCright and Dunlap, 2003) on a sample of five of the best-known American contrarians: Sallie Baliunas; Robert Balling; Richard Lindzen; Patrick Michaels; and Fred Singer.
  4. Key works that document the enduring influence of conservative think tanks within the United States are: Allen (1992); Blumenthal (1986); Burch (1997a,b); Clawson and Clawson (1987); Diamond (1995); Himmelstein (1990); Jenkins and Eckert (1989); National Committee for Responsive Philanthropy (1997); People for the American Way (1997); Ricci (1993); Saloma (1984); Stefancic and Delgado (1996).
  5. McCright and Dunlap (2003) systematically analyzed the content of approximately 224 documents produced and distributed by some of the more influential American conservative think tanks. They identified three interrelated counterclaims about global warming promoted by many influential conservative think tanks. First, the conservative movement claimed that the evidentiary basis of global warming is weak, if not wrong. Second, conservatives argued that the net effect of global warming would be beneficial should it occur. Third, conservatives argued that the policies proposed to ameliorate the alleged problem of global warming would do more harm than good. These three counterclaims comprised the conservative movement's response to the environmental community's call for ameliorative action on global warming.
  6. An illustration might be warranted. An epidemiologist called to Congress to testify about AIDS would be expected to competently discuss what passes as widely accepted knowledge within the scientific community. If that epidemiologist were to use this venue as an opportunity to promote an ideological position – while distorting scientific knowledge – *and* if like-minded members of Congress were to use this to establish policy (or, more to the point, a policy of no action), then a serious public health problem may ensue that puts Americans at greater risk than before.
  7. Indeed, this is a common theme in the literature on scientific controversies (see, e.g., Mazur, 1981; Nelkin, 1984).

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