Establishing Accountability for Climate Change Damages:

Lessons from Tobacco Control

Summary of the Workshop on Climate Accountability, Public Opinion, and Legal Strategies

Martin Johnson House

Scripps Institution of Oceanography

La Jolla, CA, June 14–15, 2012

CLIMATE ACCOUNTABILITY INSTITUTE

Union of Concerned Scientists

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The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world. More information about UCS is available on the UCS website at *www.ucsusa.org*.

The Climate Accountability Institute engages in research and education on anthropogenic climate change, dangerous interference with the climate system, and the contribution of fossil fuel producers' carbon production to atmospheric carbon dioxide content. This encompasses the science of climate change, the civil and human rights associated with a stable climate regime not threatened by climate-destabilizing emissions of greenhouse gases, and the risks, liabilities, and disclosure requirements regarding past and future emissions of greenhouse gases attributable to primary carbon producers.

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Preface

The workshop sought to compare the evolution of public attitudes and legal strategies related to tobacco control with those related to anthropogenic climate change.

For many years after scientists first concluded that smoking causes cancer, the tobacco companies continued to win court cases by arguing, among other things, that smokers assumed the risk of smoking and that no specific cancer deaths could be attributed to smoking. At some point, however, the tobacco companies began to lose legal cases against them even though the science had not substantively changed. Juries began to find the industry liable because tobacco companies had known their products were harmful while they publicly denied the evidence, targeted youth, and manipulated nicotine levels.

To explore how this transformation happened, and to assess its implications for people working to address climate change, the Union of Concerned Scientists and the Climate Accountability Institute brought together about two dozen leading scientists, lawyers and legal scholars, historians, social scientists, and public opinion experts for a June 14–15, 2012, workshop at the Scripps Institution of Oceanography in La Jolla, CA.

Specifically, the workshop sought to compare the evolution of public attitudes and legal strategies related to tobacco control with those related to anthropogenic climate change, fostering an exploratory, open-ended dialogue about whether we might use the lessons from tobacco-related education, laws, and litigation to address climate change. The workshop explored which changes now being observed (e.g., increasing extreme heat, sea level rise) can be most compellingly attributed to human-caused climate change, both scientifically and in the public mind. Participants also considered options for communicating this scientific attribution of climate impacts in ways that would maximize public understanding and produce the most effective mitigation and adaptation strategies.

The workshop explored the degree to which the prospects for climate mitigation might improve with public acceptance (including judges and juries) of the causal relationships between fossil fuel production, carbon emissions, and climate change. Participants

debated the viability of diverse strategies, including the legal merits of targeting carbon producers (as opposed to carbon emitters) for U.S.-focused climate mitigation. And finally, the group sought to identify the most promising and mutually reinforcing intellectual, legal, and/or public strategies for moving forward. We are pleased to share the outcome of these preliminary workshop discussions. Among the many points captured in this report, we want to highlight the following:

- A key breakthrough in the public and legal case for tobacco control came when internal documents came to light showing the tobacco industry had knowingly misled the public. Similar documents may well exist in the vaults of the fossil fuel industry and their trade associations and front groups, and there are many possible approaches to unearthing them.
- Drawing upon the forthcoming "carbon majors" analysis by Richard Heede, it may be feasible and highly valuable to publicly attribute important changes in climate, such as sea level rise, to specific carbon producers. Public health advocates were effective in attributing the health impacts of smoking to major tobacco companies.
- While we currently lack a compelling public narrative about climate change in the United States, we may be close to coalescing around one. Furthermore, climate change may loom larger today in the public mind than tobacco did when public health advocates began winning policy victories. Progress toward a stronger public narrative might be aided by use of a "dialogic approach" in which climate advocates work in partnership with the public. Such a narrative must be both scientifically robust and emotionally resonant to cut through the fossil fuel industry's successful efforts to sow uncertainty and confusion.

Climate change may loom larger today in the public mind than tobacco did when public health advocates began winning policy victories.

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Climate Accountability, Public Opinion, and Legal Strategies Workshop

Martin Johnson House, Scripps Institution of Oceanography, La Jolla, CA, June 14–15, 2012

1. Introduction

Tobacco companies realized they did not need to prove their products were safe. Rather, they had only to implement a calculated strategy to foster doubt about the science.

For decades after U.S. tobacco firms first became aware of strong scientific evidence linking smoking to cancer in the mid-1950s, the industry adopted a public relations strategy that knowingly sought to confuse people about the safety of its products. As we now know, tobacco industry lawyers long advised their clients that if they admitted to selling a hazardous product they would be vulnerable to potentially crippling liability claims. So, despite the scientific evidence, the industry developed and implemented a sophisticated disinformation campaign designed to deceive the public about the hazards of smoking and forestall governmental controls on tobacco consumption.

As time went on, a scientific consensus emerged about a multitude of serious dangers from smoking. On January 11, 1964, for instance, the U.S. government released the first report by the Surgeon General's Advisory Committee on Smoking and Health, which specifically warned the public about the link between smoking and lung cancer.[1] Nonetheless, the tobacco industry's disinformation campaign continued. As internal documents have long since revealed, the tobacco companies quickly realized they did not need to prove their products were safe. Rather, they had only to implement a calculated strategy to foster doubt about the science in the minds of the public. As one infamous internal memo from the Brown & Williamson company put it: "Doubt is our product, since it is the best means of competing with the 'body of fact' that exists in the minds of the general public."[2] The industry also managed to convince juries that smoking was a voluntary act, that the public was well informed of "potential risks," and that smokers therefore only had themselves to blame for whatever harm may have occurred.

It has become increasingly clear during the past decade or more that the fossil fuel industry has adopted much the same strategy:

attempting to manufacture uncertainty about global warming even in the face of overwhelming scientific evidence that it is accelerating at an alarming rate and poses a myriad of public health and environmental dangers. Not only has the fossil fuel industry taken a page from the tobacco industry's playbook in its efforts to defeat action on climate change, it also shares with the tobacco industry a number of key players and a remarkably similar network of public relations firms and nonprofit "front groups" that have been actively sowing disinformation about global warming for years.[3]

At this pivotal moment for climate change, with international agreement all but stymied and governmental action in the United States largely stalled, the Union of Concerned Scientists and the Climate Accountability Institute sought to build a clearer understanding of the drivers of change that eventually proved effective against the tobacco industry. To be sure, lawyers played a huge role; scientific evidence played an important role as well. But notably, neither science nor legal strategies alone drove the changes in public understanding of the health dangers posed by smoking. Workshop participants were therefore asked to share their perspectives on a key question: given the power and resources of the tobacco industry, how *were* tobacco control efforts able to finally gain traction?

By gathering a distinguished and complementary group of experts, the Climate Accountability Workshop created the conditions for a well-informed discussion about the history of tobacco prevention as an example for those working on climate change: exploring how science in combination with the law, public advocacy, and possibly new technology can spur a seminal shift in public understanding and engagement on an issue of vital importance to the global community.

What follows is a summary of the workshop designed to highlight some of the major themes that emerged over the course of two days of structured dialogue. Because the discussion was often animated and wide-ranging, this report does not attempt to portray a comprehensive account of all the ideas presented, but rather the key findings that emerged.

When I talk to my students I always say, tobacco causes lung cancer, esophageal cancer, mouth cancer. . . . My question is: What is the "cancer" of climate change that we need to focus on?

—Naomi Oreskes

2. Lessons from Tobacco Control: Legal and Public Strategies

Both the tobacco industry and the fossil fuel industry have adopted a strategy of disseminating disinformation to manufacture uncertainty and forestall government action, and in so doing, have placed corporate interests above the public interest.

Workshop participants reviewed the history of tobacco control in the United States to identify lessons that might be applicable to action on global warming. The first important insight was that the history of tobacco control efforts stretches back much further than most people realize. The American Tobacco Company was broken up as a result of the Sherman Anti-Trust Act of 1890, and several U.S. states banned tobacco entirely between 1890 and 1920 in response to concerns that the powerful tobacco industry was paying off legislators. Those bans were all overturned after successful lobbying efforts by the industry, but a landmark 1900 legal case (*Austin v. Tennessee*) set an important precedent by upholding the legal right of states to ban tobacco.[4]

A second important insight was that the battle for tobacco control continues today, despite substantial gains over the past several decades. In a point made forcefully by Robert Proctor, a science historian who frequently serves as an expert witness in tobacco litigation, "Tobacco is not over." While the number of cigarettes smoked worldwide may no longer be growing, an estimated 6 trillion were still sold and smoked in 2012. More than 45 million Americans continue to smoke, some 8 million live with a serious illness caused by their smoking, and more than 400,000 die prematurely each year.[5]

A few principles emerged from the long fight for tobacco control. First, any legal strategies involving court cases require plaintiffs, a venue, and law firms willing to litigate—all of which present significant hurdles to overcome. Robert Proctor generalized about the history of tobacco-related litigation by noting that tobacco opponents typically won with simplicity but lost in the face of complexity. As he noted, it is worth remembering that, "The industry can win by making plaintiffs have to pass a thousand hurdles, any one of which can derail the whole effort." Second, public victories can occur even when the formal point is lost. In one effort that sought to stop tobacco research at Stanford University, for instance, no formal ban was enacted but the public outcry led the Philip Morris company to stop its external research programs anyway.[6]

The Importance of Documents in Tobacco Litigation

One of the most important lessons to emerge from the history of tobacco litigation is the

value of bringing internal industry documents to light. Roberta Walburn, a key litigator in the pathbreaking 1994 case *State of Minnesota and Blue Cross and Blue Shield of Minnesota v. Philip Morris et al. [C1-94-8565]*, explained that her legal team, with strong backing from Minnesota Attorney General Hubert "Skip" Humphrey, made it a goal from the start of the lawsuit to use the process of legal discovery to gain access to Philip Morris's internal documents and make them part of the public domain. Walburn noted that Humphrey was mocked and scorned by many of his colleagues for this emphasis, but it proved critical to achieving the landmark settlement.

For the previous four decades, the tobacco industry had not lost a single legal case nor been forced to release most of its internal documents. But attorneys began to see the tremendous value of the industry's memos in an individual New Jersey smoker's case in the 1980s, and when a paralegal leaked some internal documents in the early 1990s. By making such documents a key part of the Minnesota litigation, the legal discovery process ultimately brought some 35 million pages of industry documents to light.[7]

Of course, the release of so many documents also presented immense challenges, requiring the legal team to pore over them one page at a time. The industry also went to great lengths to hide documents throughout the discovery process, listing them under different corporate entities, "laundering" scientific documents by passing them through attorneys in order to claim attorney-client privilege, and playing word games in order to claim they didn't have any documents on the topics sought by the plaintiffs. During pre-trial discovery in the Minnesota litigation, Walburn noted, Philip Morris was spending some $1.2 million dollars every week in legal defense.

In the end, however, the documents proved crucial in helping to shift the focus of litigation away from a battle of the experts over the science of disease causation and toward an investigation of the industry's conduct. As Roberta Walburn explained, their legal team was able to say to the judge and jury, "You don't have to believe us or our experts; just look at the companies' own words." The strategy of prying documents from the industry also proved effective because once a lawsuit begins, litigants are required by law to retain evidence. The very first order issued by the judge in the Minnesota case was a document preservation order, which meant that the company could be held in contempt of court if it failed to comply. Companies are also required to preserve any documents they think might be pertinent to possible future litigation.

Today, the documents that have emerged from tobacco litigation have been collected in a single searchable, online repository: the so-called Legacy Tobacco Document Library (available at l*egacy.library.ucsf.edu*) currently contains a collection of some 80 million pages. Stanton Glantz, a professor of cardiology at the University of California–San Francisco who directs the project, noted the importance of the decision to create an integrated collection accessible to all. One advantage of such a collection, he said, is that it becomes a magnet for more documents from disparate sources.

Because the Legacy Collection's software and infrastructure is already in place, Glantz suggested it could be a possible home for a parallel collection of documents from the fossil fuel industry pertaining to climate change. He stressed the need to think carefully about which companies and which trade groups might have documents that could be especially useful. And he underscored the point that bringing documents to light must be

established as an objective independent of the litigation, or else the most valuable documents are not likely be made public.

Documents Helped Establish a Conspiracy

The release of documents from the tobacco industry became front-page news in the 1990s. The headlines did not tout the fact that tobacco causes lung cancer, which had already been widely reported; instead, they focused on the tobacco industry's lies to the public, its efforts to target children in its marketing campaigns, and its manipulation of the amount of nicotine in cigarettes to exploit their addictive properties.[8] Many of these facts had not come to the public's attention until the industry's internal documents came to light.

Most importantly, the release of these documents meant that charges of conspiracy or racketeering could become a crucial component of tobacco litigation. Formerly secret documents revealed that the heads of tobacco companies had colluded on a disinformation strategy as early as 1953.[9]

Sharon Eubanks noted the importance of documents in a racketeering case against the tobacco industry she prosecuted during the Clinton administration. That case, *U.S.A v. Philip Morris, Inc.*, was filed after President Clinton directed his attorney general to attempt to recover from the tobacco industry the costs of treating smokers under Medicare. The Justice Department brought the case under the Racketeer Influenced and Corrupt Organizations (RICO) statute that was originally enacted to combat organized crime.

The U.S. District Court for the District of Columbia found Philip Morris and other tobacco companies charged in the case guilty of violating RICO by fraudulently covering up the health risks associated with smoking and by marketing their products to children. The court imposed most of the requested remedies, and rejected the defendants' argument that their statements were protected by the First Amendment, holding that the amendment does not protect "knowingly fraudulent" statements. The tobacco companies appealed the ruling but a three-judge panel of the U.S. Court of Appeals for the District of Columbia unanimously upheld the decision in 2009.

Lessons for the Climate Community

One theme to emerge from this review of tobacco litigation was the similarity between the tobacco industry's disinformation campaign and the fossil fuel industry's current efforts to sow confusion about climate change. As one participant put it, "The tobacco fight is now the climate fight." Both industries have adopted a strategy of disseminating disinformation to manufacture uncertainty and forestall governmental action, and in so doing, have placed corporate interests above the public interest. Several workshop participants presented detailed evidence of the close ties between the two industries in terms of personnel, nonprofit "front groups," and funders.

Given these close connections, many participants suggested that incriminating documents may exist that demonstrate collusion among the major fossil fuel companies, trade associations, and other industry-sponsored groups. Such documents could demonstrate companies' knowledge, for instance, that the use of their products damages human health and well-being by contributing to "dangerous anthropogenic interference with the climate system."[10]

Finally, participants agreed that most questions regarding how the courts might rule on climate change cases remain unanswered. Most participants also agreed that pursuing a

legal strategy against the fossil fuel industry would present a number of different obstacles and opportunities compared with those faced by litigants in the tobacco cases. As Roberta Walburn noted, however, both efforts do share an important public interest imperative: "People have been harmed and there should be justice," she said. "If you want to right a wrong you have to be bold."

3. Climate Legal Strategies: Options and Prospects

Tobacco started with a small box of documents. We used that to wedge open a large pattern of discovery. . . . It looks like where you are with climate is as good as it was with tobacco—probably even better. I think this is a very exciting possibility.

—Stanton Glantz

A wide variety of potential legal strategies were discussed at the workshop. Participants agreed that a variety of different approaches could prove successful in spurring action and engaging the public on global warming, with suggestions ranging from lawsuits brought under public nuisance laws (the grounds for almost all current environmental statutes) to libel claims against firms and front groups that malign the reputations of climate scientists.

Several participants warned of the potential polarizing effect of lawsuits. While it is never an easy decision to bring a lawsuit, they noted, litigants must understand that if they pursue such a course they should expect a protracted and expensive fight that requires careful planning. Among the issues discussed were the importance of seeking documents in the discovery process as well as the need to choose plaintiffs, defendants, and legal remedies wisely. Another issue of concern was the potential for a polarizing lawsuit to slow the broad cultural shift in public perception (see section 5).

Strategies to Win Access to Internal Documents

Having attested to the importance of seeking internal documents in the legal discovery phase of tobacco cases, lawyers at the workshop emphasized that there are many effective avenues for gaining access to such documents.

First, lawsuits are not the only way to win the release of documents. As one participant noted, congressional hearings can yield documents. In the case of tobacco, for instance, the infamous "Doubt is our product" document came out after being subpoenaed by Congress.[11] State attorneys general can also subpoena documents, raising the possibility that a single sympathetic state attorney general might have substantial success in bringing key internal documents to light. In addition, lawyers at the workshop noted that even grand juries convened by a district attorney could result in significant document discovery.

Jasper Teulings, general counsel for Greenpeace International, emphasized that the release of incriminating internal documents

from the fossil fuel industry would not only be relevant to American policy but could have widespread international implications.

Importance of Choosing Plaintiffs, Defendants, and Legal Remedies

Matt Pawa, a leading litigator on climate-related issues, discussed his current case, *Kivalina v. ExxonMobil Corporation, et al.*, now pending on appeal. The lawsuit, brought under public nuisance law, seeks monetary damages from the energy industry for the destruction of the native village of Kivalina, AK, by coastal flooding due to anthropogenic climate change. Damages have been estimated by the U.S. Army Corps of Engineers and the U.S. Government Accountability Office between $95 million and $400 million.

The suit was dismissed by a U.S. district court in 2009 on the grounds that regulating global warming emissions is a political rather than a legal issue that needs to be resolved by Congress and the executive branch rather than the courts. An appeal was filed with the Ninth Circuit Court of Appeals in November 2009, but was rejected in September 2012. The plaintiffs have yet to determine whether to take further legal action, either by calling for an *en banc* review of the appeal verdict or by re-filing the case in state court.

Pawa noted that in representing Kivalina, he chose a plaintiff whose stake in the case is patently evident, as is the harm that has come to the village. Because those facts remain largely beyond dispute, it puts the focus of the case squarely on attributing the damage to the defendants. Pawa has used the principle of "joint and several" liability, which (in his words) holds that, "If two guys are outside a bar and the plaintiff gets beaten up and only one technically does it but both of them collude in the activity, they can both be held responsible." Because Exxon and the other corporate defendants in the Kivalina case are indisputably large emitters of heat-trapping gases, Pawa said he will argue that they "are basically like the two guys outside that bar." To help with his argument of causation, Pawa will also argue that Exxon and the other defendants distorted the truth. He said that litigation not only allows him to pursue a remedy for some of those most vulnerable to the effects of climate change, but also serves as "a potentially powerful means to change corporate behavior."

Jasper Teulings recounted the unusual and controversial case in which Greenpeace International helped representatives from Micronesia—an island nation threatened by rising sea levels—request a transboundary environmental impact assessment (TEIA) in the Czech Republic, hoping to prevent the Czech government from granting a 30-year permit extension for a coal-fired power plant. That action, he said, led to a national debate about global warming in a country led by a climate skeptic, and the Czech environment minister ultimately resigned as a result. The case also drew the attention of the international media, including the *Wall Street Journal*, *Economist*, and *Financial Times*.[12]

Participants weighed the merits of legal strategies that target major carbon *emitters*, such as utilities, versus those that target carbon *producers*, such as coal, oil, and natural gas companies. In some cases, several lawyers at the workshop noted, emitters are better targets for litigation because it is easy to establish their responsibility for adding substantial amounts of carbon to the atmosphere. In other cases, however, plaintiffs might succeed in cases against the producers who unearthed the carbon in the first place.

In lawsuits targeting carbon producers, lawyers at the workshop agreed, plaintiffs need

to make evidence of a conspiracy a prominent part of their case. Richard Ayres, an experienced environmental attorney, suggested that the RICO Act, which had been used effectively against the tobacco industry, could similarly be used to bring a lawsuit against carbon producers. As Ayres noted, the RICO statute requires that a claimant establish the existence of a "criminal enterprise," and at least two acts of racketeering (with at least one having occurred within the past four years). It is not even clear, he added, whether plaintiffs need to show they were actually harmed by the defendant's actions. As Ayres put it, "RICO is not easy. It is certainly not a sure win. But such an action would effectively change the subject to the campaign of deception practiced by the coal, gas, and oil companies."

The issue of requesting an appropriate legal remedy was also discussed. As one of the workshop's lawyers said, "As we think about litigation, we need to consider: what does our carbon system look like with climate stabilization? It has to be something positive. Only then can we figure out what strategies we need to pursue." As important as this broad vision of a legal remedy is, this participant also emphasized the advantage of asking courts to do things they are already comfortable doing, noting that, "Even if your ultimate goal might be to shut down a company, you still might be wise to start out by asking for compensation for injured parties."

Other Potential Legal Strategies

False advertising claims

Naomi Oreskes, a historian of science at the University of California–San Diego, brought up the example of the Western Fuels Association, an industry-sponsored front group that has run ads containing demonstrably false information. Oreskes noted that she has some of the public relations memos from the group and asked whether a false advertising claim could be brought in such a case. Lawyers at the workshop said that public relations documents could probably be used as evidence in such a case but they cautioned that courts view claims designed to influence consumer behavior differently than they do those designed to influence legislative policy.

Some lawyers at the workshop did note that historical false advertising claims could be deemed relevant, especially if plaintiffs can show that the conduct has continued. In tobacco litigation, for example, plaintiffs have successfully gone back as far as four decades for evidence by establishing the existence of a continuing pattern by the tobacco industry.

Joe Mendelson, director of climate policy at the National Wildlife Federation, suggested that such a strategy might be employed to take on the coal industry's advertising campaign, which has targeted swing states whose attorneys general are unlikely to call out the ads' distortions. Such a legal case, Mendelson explained, might achieve a victory in terms of public education and engagement.

Libel suits

Lawyers at the workshop noted that libel lawsuits can be an effective response to the fossil fuel industry's attempts to discredit or silence atmospheric scientists. Pennsylvania State University's Michael Mann, for instance, has worked with a lawyer to threaten libel lawsuits for some of the things written about him in the media, and has already won one such case in Canada. Matt Pawa explained that libel cases merely require the claimant to establish falsity, recklessness, and harm. "What could be more harmful than impugning the integrity of a scientist's reputation?" Pawa asked. Roberta Walburn noted that libel suits can also serve

to obtain documents that might shed light on industry tactics.

Atmospheric trust litigation

Mary Christina Wood, professor of law at the University of Oregon, discussed her involvement with so-called atmospheric trust litigation, a legal strategy she pioneered that is now unfolding in all 50 states. The goal of the litigation—to force massive reforestation and soil carbon sequestration that would return the planet to a sustainable level of atmospheric carbon dioxide (350 parts per million)—is grounded in the internationally recognized principle known as the Public Trust Doctrine, first enunciated by the Roman Emperor Justinian.

Under this doctrine, a state or third-party corporation can be held liable for stealing from or damaging a resource—in this case, the atmosphere—that is held as a public trust. The beneficiaries in the case are citizens—both current and future—who claim that the defendants (the state or federal government or third-party corporations) have a duty to protect and not damage that resource, which they oversee or for which they bear some responsibility.

Wood noted that this legal action has several promising features: it is being brought by children, can highlight local impacts of climate change because it is being brought in every state, and is flexible enough to be brought against states, tribes, the federal government, or corporations. Wood said that while the atmospheric trust lawsuits are just starting, some 22 amicus briefs (in which law professors from around the country argue that the approach is legally viable) have already been filed.

Disagreement about the Risks of Litigation

Despite widespread endorsement by workshop participants of the potential value in pursuing legal strategies against the fossil fuel industry, some of the lawyers present expressed concern about the risks entailed should these cases be lost. As one participant put it, "We have very powerful laws and we need to think strategically about them so they won't be diminished by the establishment of a legal precedent or by drawing the attention of hostile legislators who might seek to undermine them."

Others, such as Sharon Eubanks, took issue with this perspective. "If you have a statute, you should use it," she said. "We had the case where people said, 'What if you screw up RICO?' But no matter what the outcome, litigation can offer an opportunity to inform the public." Stanton Glantz concurred with this assessment. As he put it, "I can't think of any tobacco litigation that backfired; I can't think of a single case where litigation resulted in bad law being made."

4. Attribution of Impacts and Damages: Scientific and Legal Aspects

Why should taxpayers pay for adaptation to climate change? That is a sound bite that I don't hear used. Why should taxpayers bear the risk? Perhaps that question alone can help shift public perception.

—Myles Allen

Several sessions at the workshop addressed a variety of vexing issues concerning the extent to which localized environmental impacts can be accurately attributed to global warming and how, in turn, global warming impacts might be attributed to specific carbon emitters or producers. Many challenges are involved in these kinds of linkages, from getting the science right to communicating it effectively.

Myles Allen, a climate scientist at Oxford University, suggested that while it is laudable to single out the 400 Kivalina villagers, all 7 billion inhabitants of the planet are victims of climate change. He noted, for instance, that while the United Nations Framework Convention on Climate Change makes an inventory of global warming emissions, it does not issue an inventory of who is being affected. As he put it, "Why should taxpayers pay for adaptation to climate change? That is a sound bite that I don't hear used. Why should taxpayers bear the risk? Perhaps that question alone can help shift public perception."

Allen also noted that the scientific community has frequently been guilty of talking about the climate of the twenty-second century rather than what's happening now. As a result, he said, people too often tend to perceive climate change as a problem for our grandchildren.

Challenges of Attributing Environmental Effects to Anthropogenic Climate Change

Several of the climate scientists at the meeting addressed the scientific challenges involved in attributing specific environmental effects to anthropogenic climate change. For example, global warming, natural variability, population exposure, and population vulnerability are all factors in the disasters that make headlines. Myles Allen noted that while scientists can accurately speak about increases in average global temperature, such large-scale temperature measurements are difficult to link to specific individuals.

Claudia Tebaldi, a climate scientist at Climate Central, emphasized the problem of confounding factors: "If you want to have statistically significant results about what has already happened [on the health impacts of climate change]," she said, "we are far from being able to say anything definitive because the signal is so often overwhelmed by noise."

Given that nearly all consequences have multiple causes, Tebaldi reviewed the difficulties entailed in efforts at so-called *single-step attribution* (in which a single variable is added or removed from a model), *multi-step attribution* (in which two or more attribution linkages are drawn), and *associative patterns of attribution* (in which linkages are mapped over time in order to detect possible patterns). She noted that the authors of the 2007 Intergovernmental Panel on Climate Change report were relatively comfortable attributing certain environmental phenomena to climate change: changes in snow/ice/frozen ground; increased runoff and anticipated snowmelt in spring; warmer water temperatures and changes in salinity, oxygen levels, and ocean acidification. But she added that it is still hard to say anything statistically significant about some key areas of concern.

Climate scientist Mike MacCracken expressed more optimism about the ability of scientists to identify patterns of changes. The traditional view, he explained, is that one cannot attribute a single weather event to human-induced climate change, but climate change reflects a difference in the frequency and intensity of weather events from the past—that is how the term is defined. So, as the distribution of weather events changes, we are seeing an increasing likelihood of what were once very rare events, but are likely to become much more frequent.

Myles Allen agreed that scientists could be far more confident about a group of events rather than a single event, but noted, "Then you are talking again about climate [as opposed to weather]. We can say with confidence how the risks are changing. Absolutely. And some harms can be caused by change in risk. But we are still talking about probabilities." As an example, Allen cited work by Stefan Rahmstorf and Dim Coumou, who found an 80 percent probability that the July 2010 heat record would not have occurred without global warming.[13]

Absolutely crucial is real progress on regional and local consequences of climate change. We have general notions that the Southwest will be drier. But once the science is able to say with confidence what will happen in the states of Colorado and Arizona, then the people who live there will want to pressure their representatives to fix their problem. Then political people will be much more responsive to the issue. That will be real progress in the next few years.

—Lew Branscomb

Others agreed that many different types of aggregate findings can be useful. Paul Slovic, for instance, cited the example of the book *At War with the Weather* by Howard Kunreuther. In studying economic losses from natural disasters, Kunreuther found an exponential increase in losses incurred over the last 10 or 20 years.[14] Again, multiple factors need to be teased apart, such as the growth in population exposed to natural disasters, increased infrastructure replacement costs, natural variability, and the influence of climate change.[15]

Mike MacCracken suggested that issues related to the science itself are distinct from how findings should be communicated to the public. "The challenge," he said, "is finding an effective lexicon that scientists are comfortable with." Along these lines, one participant suggested that it could be helpful to communicate findings framed as a discussion. For example, a farmer could ask a question

saying, "I'm concerned because I'm seeing *this* [particular local weather]." The scientist can comfortably respond: "You're right to be concerned because we are seeing *this*, *this*, and *this* [aggregate effect or strong probability of anthropogenic warming]."

Lew Branscomb, a physicist, governmental policy expert, and one of the meeting's organizers, suggested that the evolution of climate science is an important issue. As he put it, "Absolutely crucial is real progress on regional and local consequences of climate change. We have general notions that the Southwest will be drier. But once the science is able to say with confidence what will happen in the states of Colorado and Arizona, then the people who live there will want to pressure their representatives to fix their problem. Then political people will be much more responsive to the issue. That will be real progress in the next few years."

Determining Appropriate Standards of Evidence

A discussion arose at the workshop about the appropriate standard of evidence required when attributing specific environmental phenomena to global warming and establishing the culpability of carbon emitters and producers. Naomi Oreskes noted the important differences among standards of evidence in science, in law, and in public perception.

As she explained, "When we take these things to the public, I think we often make a category error. We take a standard of evidence applied internally to science and use it externally. That's part of why it is so hard to communicate to the public." Oreskes pointed out that the "95 percent proof rule" widely accepted among scientists might not be appropriate in this application. That standard of proof, she said, "is not the Eleventh Commandment. There is nothing in nature that taught us that 95 percent is needed. That is a social convention. Statistics are often used when we don't understand the mechanisms of causation. But what if we do know what the mechanisms are? For instance, if we know how a bullet kills a human, we don't need statistics to prove that bullets can kill."

Oreskes went on to note that scientific knowledge in the field of climate science is very robust—more robust than in many other fields such as plate tectonics or relativity. This observation led her to wonder why climate scientists have been so reticent about communicating their results, and to postulate that in accepting such a high standard of proof, "The scientific community has been influenced by push-back from industry."

Stanton Glantz drew a comparison to his work with the Centers for Disease Control establishing a link between smoking and breast cancer. "I fought CDC on the links between smoking and breast cancer," he recalled. "There were 17 studies. How could you make a statement that there was no link? The epidemiologists focus on statistics but we already knew about the biology of breast cancer and damage to DNA and links to tobacco. My argument was that you needed to look at a whole body of evidence. . . . We compared the breast cancer evidence, which is stronger than the original lung cancer evidence, and that got accepted and became the default position. But the fact is, not everyone who smokes gets cancer."

For climate change, Glantz said, all the pieces fit together and they represent a consistent body of evidence. He added that criminal trials use the standard of "beyond a reasonable doubt." But as he put it, "Scientists have been making the 'reasonable doubt' standard higher and higher."

Some of the scientists at the workshop, however, took issue with the idea that they

ought to apply different standards of proof to their work. Claudia Tebaldi, for instance, responded, "As a scientist I need to have two different standards? I don't see that. I am not convinced that I should lower my standards of skepticism when I talk to the public. As a scientist I give you the probability. It is not my job to change my paper if the consequences are so bad. That is the job of a policy maker working with my results."

Mary Christina Wood reminded the group that the medical profession is adept at juggling two very different standards: the standard of proof and the standard of care, and suggested that climate scientists might be able to do something similar. Dick Ayres agreed, emphasizing that, "Too high a standard of proof increases the burden on those who seek to protect public health."

Myles Allen noted that a key problem always comes back to the issue of doubt. "If you grab a scientist off the street and ask whether we *could* have had this weather event without global warming, they will likely say yes, it could have been possible. So the reality is that there will always be a scientist available to fill that role in the court of law." The vexing thing, Allen said, is "trying to make clear to the public that there are two uncertainties. We can be very certain about what is happening and yet very uncertain about what is going to happen tomorrow or next year."

Attributing Environmental Damage to Carbon Producers

Richard Heede, co-founder and director of the Climate Accountability Institute, presented a preview of a research project several years in the making, in which he has been quantifying the annual and cumulative global warming emissions attributable to each of the world's major carbon producers. By closely reviewing annual reports and other public sources of information from the energy sector, Heede is working to derive the proportion of the planet's atmospheric carbon load that is traceable to the fossil fuels produced and marketed by each of these companies annually from 1864 to 2010. The work deducts for carbon sequestered in non-energy products such as petrochemicals, lubricants, and road oil, and quantifies annual and cumulative emissions to the atmosphere attributable to each company. The research is still awaiting peer review before it can be finalized and publicized.

Most of the workshop's participants responded positively to Heede's research. Matt Pawa thought the information could prove quite useful in helping to establish joint and several liability in tort cases, but he cautioned that, in practice, a judge would likely hesitate to exert joint and several liability against a carbon-producing company if the lion's share of carbon dioxide in the atmosphere could *not* be attributed to that company specifically. Nevertheless, he said this kind of accounting would no doubt inspire more litigation that could have a powerful effect in beginning to change corporate behavior.

Other participants reacted positively to other aspects of Heede's research. Angela Anderson, director of the climate and energy program at the Union of Concerned Scientists, noted for instance that it could potentially be useful as part of a coordinated campaign to identify key climate "wrongdoers." Mary Christina Wood agreed, saying the preliminary data resonated strongly with her, making her feel like "Polluters did this and they need to clean this up." Other participants noted that it could be helpful in the international realm by changing the narrative that currently holds nations solely responsible for the carbon emitted by parties within their own borders. Finding

the specific companies responsible for emissions, they said, cuts a notably different way.

One concern raised was that some in the "American middle" might perceive it as unfair to go after a company that didn't know carbon dioxide was harmful for much of the extended period Heede reviewed. To get a sense of this, some suggested reaching out to someone like public opinion specialist Tony Leiserowitz who could undertake polling to see how such research might be received by different segments of the public.

Robert Proctor suggested that the most effective public communication about the research would use the simplest formulation possible. One effective strategy in the fight against tobacco, he observed, was equating a year's production of cigarettes in a particular factory to a number of deaths. Anti-tobacco activists determined that there was one smoking-related death for every one million cigarettes produced. As Proctor explained, given that the industry made roughly one cent in profit per cigarette, that meant a company such as Philip Morris made $10,000 in profit for every death its products caused. Proctor suggested a similar strategy could be adapted to link the largest corporate carbon producers to specific climate impacts. If numbers could be generated for how many deaths per year were caused by each degree rise in global temperature, for instance, a similar case could be made against a particular company that produced or emitted a known percentage of the carbon load contributing to global warming.

Picking up on this notion, Naomi Oreskes suggested that some portion of sea level rise could be attributed to the emissions caused by a single carbon-producing company. In essence, she suggested, "You might be able to say, 'Here's Exxon's contribution to what's happening to Key West or Venice.'" Myles Allen agreed in principle but said the calculations required, while not complicated, were easy to get wrong.

Whether or not the attribution would hold up in court, Stanton Glantz expressed some enthusiasm about such a strategy, based on his experience with tobacco litigation. As he put it, "I would be surprised if the industry chose to attack the calculation that one foot of flooding in Key West could be attributed to ExxonMobil. They will not want to argue that you are wrong and they are really only responsible for one half-foot. That is not an argument they want to have." For similar reasons, he said, tobacco companies have never challenged death estimates, noting, "Their PR people tell them not to do that, focusing instead on more general denial and other tactics."

Evidence of Collusion and Prospects for Constructive Engagement

Participants at the workshop also discussed one other aspect of attribution: the close connections among climate change deniers, the fossil fuel industry, and even the tobacco companies. John Mashey, a computer scientist and entrepreneur who has meticulously analyzed climate change deniers, presented a brief overview of some of his research, which traces funding, personnel, and messaging connections between roughly 600 individuals and 100 organizations in the climate change denial camp.[16] Mashey noted that looking closely at the relationships between these parties—via documents, meetings, e-mails, and other sources—can help clarify the extent of collusion involved in sowing confusion on the issue. Mashey cited, for instance, memos that have surfaced from a 1998 "climate denial" plan involving most of the major oil companies (under the auspices of the American Petroleum Institute) that set the

stage for much of the disinformation of the past 10 years.[17]

A number of participants ultimately agreed that the various linkages and attribution data could help build a broad public narrative along the following lines:

- We have a serious problem (as shown by the science)
- We know the people responsible are the same ones responsible for a campaign of confusion
- There are solutions, but we can't get to them because of the confusion these companies have funded

Finally, there was some fundamental disagreement over the potential for engagement with the fossil fuel industry. Richard Heede expressed optimism, saying, "I would love to envision constructive engagement with industry. That would mean convincing them to participate in a plan that 'could make life worth living for future generations.'"

Some veterans of the tobacco control campaign voiced skepticism, however. Stanton Glantz recalled two instances in which activists sought engagement with the industry. In one, the National Cancer Institute met with tobacco companies to try to persuade them to make less dangerous cigarettes. "The tobacco companies used it as an opportunity to undertake intelligence gathering about health groups and it was a disaster," he recalled. Glantz did note a fundamental difference between tobacco and climate change, however: while tobacco companies offer no useful product, he explained, "The fact is we do need some form of energy. Unless other alternative energy firms replace the current carbon producers, which seems unlikely, at some point there will likely have to be some kind of positive engagement. Less clear, however, is how best to create a political environment for that engagement to work."

5. Public Opinion and Climate Accountability

The watershed moment was the congressional hearing when the tobacco companies lied and the public knew it. If that had occurred earlier, the public might not have so clearly recognized that the executives were lying. My question is: What do we know about how public opinion changed over time?

—Peter Frumhoff

Throughout several sessions, workshop participants discussed and debated the role of public opinion in both tobacco and climate accountability. It was widely agreed that, in the case of tobacco control, a turning point in public perception came at the 1994 "Waxman hearings" on the regulation of tobacco products.[18] On this highly publicized occasion, a broad swath of the populace became aware that the heads of the major tobacco companies had lied to Congress and the American public. Naomi Oreskes said tobacco litigation helped make this public narrative possible.

Participants grappled with the question of how climate advocates might create a similar narrative for global warming. While there was a good deal of debate about exactly what such a narrative should be, there was widespread agreement that the public is unlikely to be spurred into action to combat global warming on the basis of scientific evidence alone. Furthermore, climate change science is so complex that skeptics within the scientific community can create doubts in the public mind without any assistance from the fossil fuel industry or other climate change deniers.

The Importance of Creating a Public Narrative

Jim Hoggan, a public relations expert and co-founder of DeSmogBlog.com, explained the problem this way: "The public debate about climate change is choked with a smog of misinformation. Denial and bitter adversarial rhetoric are turning the public away from the issue. Communicating into such high levels of public mistrust and disinterest is tricky. We need to do some research into a new narrative." Hoggan emphasized the importance of linking the industry's "unjust misinformation" back to an overall narrative about sustainability, rather than getting mired in issues of whose fault climate change is and who should do what to ameliorate the situation. Noting the fact that there is broad and deep support for clean energy, Hoggan suggested the following narrative: "Coal, oil, and gas companies are engaging in a fraudulent attempt to stop the development of clean energy."

Many participants agreed about the importance of framing a compelling public narrative. Dick Ayres added that the simple act of naming an issue or campaign can be important as well. After acid rain legislation passed in 1990, he recalled, an industry lobbyist told him, "You won this fight 10 years ago when you chose to use the words 'acid rain.'"

Paul Slovic, a psychologist and expert on risk perception, cited his colleague Daniel Kahneman's book *Thinking, Fast and Slow*, which has shown that people often tend to make snap judgments rather than stopping to analyze.[19] Though a degree of slow thinking is necessary to comprehend climate change, he said, people instead tend to go with their quick first impressions.

Having reviewed two boxes of documents obtained from tobacco marketers by the Justice Department for its RICO case against the tobacco companies, Slovic became convinced that the industry was decades ahead of academic psychologists in understanding the interplay of emotion and reason in decision making. The sophistication of the cigarette makers' approach showed, he said, in the effectiveness with which they used images of beautiful people doing exciting things, or words like "natural" and "light" that conveyed health (in response to mounting evidence of smoking's link to lung cancer).

Slovic emphasized that there are huge differences between tobacco and climate risks. "Every hazard is unique, with its own personality, so to speak," he said. "Does it pose a risk to future generations? Does it evoke feelings of dread? Those differences can make an impact on strategy." The feeling of dread, specifically, was an important feature in people's perception of tobacco risks, since they equated smoking with lung cancer.

Here is one possibility for a public narrative: "Coal, oil, and gas companies are engaging in a fraudulent attempt to stop the development of clean energy."

—Jim Hoggan

This differs from "doom-and-gloom" discussions about climate change, which can tend to turn people off rather than instilling dread. The difference is that climate change risks seem diffuse—distant in both time and location. The situation is even more complicated, Slovic added, by the fact that when people receive a benefit from an activity, they are more inclined to think the risk that activity carries is low. If they receive little benefit, they tend to think the risk is higher. As he explained, "The activities that contribute to climate change are highly beneficial to us. We love them; we are addicted to them." That, he said, makes the problem of communicating the dangers of climate change all the more difficult.

Reaching People "Where They Live"

Several participants emphasized the phenomenon of cultural cognition, including work on the subject by Dan Kahan at Yale Law School.[20] Cultural cognition research suggests that we all carry around with us a vision of a just social order for the world in which we live. Kahan's work identifies a major division between those who tend toward a worldview based on structure and hierarchy, and those who tend toward a worldview based on egalitarianism. Another axis is individualism versus communitarianism (i.e., whether a higher value is placed on the welfare of the individual or the group). In Kahan's conception, all of us have a blend of such attributes.

Attitudes on climate change are highly correlated with these views. As a result, it is difficult to change people's views on the issue because, when they receive information, they tend to spin it to reflect their favored worldview. In light of this research, several participants expressed concern that a revelation about documents from oil companies might not work to change many minds, given the power of such pre-existing worldviews.

Brenda Ekwurzel, a climate scientist at the Union of Concerned Scientists (UCS), recounted her organization's experience with this variable, explaining that UCS, as a science-based organization, contends with an "information fire hose" when it comes to climate change. As she put it, "We love data. We scientists tend to focus on the frontal lobe and we need communications folks to remind us that there are other parts of our brain too." She said she always wants to begin a discussion by saying, "Let's talk about climate change." But that, it turns out, is not necessarily the best starting point—she has learned that it's better to start with: "Let's talk about what you care about most." The answer is likely to be family, friends, livelihood, health, and recreation.

Ekwurzel highlighted polling data that have shown some 77 percent of people in Kahan's egalitarian/communitarian sector believe experts agree about climate change, while 80 percent of those in the hierarchical/individualist camp believe experts disagree about climate change. To overcome that barrier, UCS staff responsible for communicating about climate change began experimenting, in one case addressing an issue of great concern to a very specific constituency: the correlation between August high school football practices in Texas and an increase in heat stroke among the student athletes.

This effort, launched to coincide with the first week of football practice in Texas and Oklahoma, proved remarkably successful, Ekwurzel said, drawing local media attention in a region the organization rarely reached. It also encouraged commentary from a different set of voices than those who normally talk about global-warming-related issues, such as medical professionals. It may have been a coincidence, Ekwurzel admitted, but within six weeks of this campaign the state of Texas decided to scale back high school football practices in the summer—and the message about the consequences of warmer summers in the region reached a largely untapped audience for UCS.[21]

> **Every hazard is unique, with its own personality, so to speak. Does it pose a risk to future generations? Does it evoke feelings of dread? Those differences can make an impact on strategy.**
>
> *—Paul Slovic*

Identifying Wrongdoers

Participants at the workshop also discussed the benefits and risks associated with identifying wrongdoers as part of a public narrative. Some participants, such as Paul Slovic, argued that this could prove an effective strategy. Slovic cited research by Roy Baumeister and Brad Bushman suggesting that, when it comes to messages, "bad is stronger than good"—a finding that helps explain the tendency toward negative advertising in political campaigning.[22] Claudia Tebaldi said she believed "there is a big difference between convincing people there is a problem and mobilizing them. To mobilize, people often need to be outraged."

On the other hand, several of the public opinion experts cautioned that "argument tends to trigger counter-argument." By contrast, they pointed out, emotional messages don't tend to trigger counter-emotions. "Abuse breeds abuse," explained Dan Yankelovich, co-founder of Public Agenda, a nonpartisan group devoted to public opinion research and citizen education. "In this case, you have industry being abusive. But you do not want to demonize the industry. The objective ought to be to have the public take this issue so seriously that people change their behavior and pressure industry to alter their current practices. In the end, we want industry to be more receptive to this pressure, not less."

For this reason and others, several participants expressed reservations about implementing an overly litigious strategy at this political moment. Perhaps the strongest proponent of this view was Yankelovich, who explained, "I am concerned about so much emphasis on legal strategies. The point of departure is a confused, conflicted, inattentive public. Are legal strategies the most effective strategies? I believe they are important after the public agrees how to feel about an issue. Then you can sew it up legally." In the face of a confused, conflicted, and inattentive public, legal strategies can be a double-edged sword, he continued: "The more adversarial the discourse, the more minds are going to be closed." In response to a comment by Richard Ayres, however, Yankelovich agreed that a legal strategy focused on the industry's disinformation campaign could help advance public opinion on global warming, as it did in the case of tobacco.

Jim Hoggan advised, "It's like that old adage that says, 'Never get into a fight with a pig in public. The pig likes it. You both get dirty. And, after a while, people can't tell the difference.'"

I am concerned about so much emphasis on legal strategies. The point of departure is a confused, conflicted, inattentive public. Are legal strategies the most effective strategies? I believe they are important after the public agrees how to feel about an issue. Then you can sew it up legally. Legal strategies themselves are a double-edged sword. The more adversarial the discourse, the more minds are going to be closed.

—Daniel Yankelovich

Dan Yankelovich also described his theory of the "public learning curve," which holds that public opinion moves through three recognizable phases on issues like smoking or climate change. The first is the "consciousness-raising" phase, during which the media can help dramatically to draw attention to an issue. This is followed by the "working-through" phase, during which things bog down as the public struggles over how to adapt to painful, difficult change. Yankelovich noted a paucity of institutions that can help the public work through this phase, which is frequently marked by the kind of denial and wishful thinking recognizable today in public opinion about climate change. He argued that only when the public begins to move into the third phase of "thoughtful public judgment" can legal strategies prove most effective and ultimately produce laws and regulations.

As he explained, "My sense is we are not there yet on climate change. The media has not been a help. The opposition has been successful in throwing sand in the works. People are just beginning to enter the open-minded stage. We are not decades away but I don't have enough empirical data. My sense is that it may take about three to five more years."

The Prospects for a "Dialogic" Approach and Positive Vision

Given the fact that the climate advocacy community has not yet coalesced around a compelling public narrative, Dan Yankelovich suggested that the topic could be a good candidate for engaging in a relatively new public opinion technique known as the "dialogic method," in which representative groups holding different views on a subject meet over the course of a day or more to develop a narrative in an iterative fashion. The benefit of this method, he said, is that climate advocates could essentially work in partnership with the public "by having them help shape a narrative that is compelling."

Yankelovich argued that the narrative must convey deep emotion to cut through the apathy and uncertainty prevalent in public opinion on the issue today, which has made it easier for the fossil fuel industry to sow confusion. In considering these emotional components of the narrative, he noted that anger is likely to be one of the major candidates but there may be others as well, adding that, "The notion of a custodial responsibility and concern also has deep resonance." Finding the right public narrative, Yankelovich suggested, could help accelerate public opinion through the second phase of the curve within the next five years.

In one interesting example of mobilizing public opinion on an issue, Mary Christina Wood drew the group's attention to the "victory speakers" campaign in World War II. When the U.S. government was contemplating entering the war, the threat of Nazi Germany seemed too far away to many Americans, who were reluctant to change their lives to mobilize for war. In response, the government orchestrated a campaign in which some 100,000 speakers, including Wood's mother and grandmother, made five speeches each day about the need for U.S. involvement.[23] Wood suggested that the campaign helped mobilize the American people remarkably quickly.

Finally, several participants voiced strong support for the need to create a positive vision as part of the public narrative about climate change. As Naomi Oreskes put it, citing Ted Nordhaus and Michael Schellenberger's article "The Death of Environmentalism,"[24] "Martin Luther King did not say, 'I have a nightmare'! King looked at a nightmare but he painted a positive vision. Abolitionists did not say, 'We have to collapse the economy of the South,' even if that is what happened. No one wants to hear you are a bad person or that the way you live is bad." Lew Branscomb concurred, noting that, "There has got to be a future people think is worth struggling for."

6. Conclusion

There was widespread agreement among workshop participants that multiple, complementary strategies will be needed moving forward.

Workshop participants unanimously agreed that the sessions yielded a productive and well-timed interdisciplinary dialogue. Participants from the scientific and legal communities seemed especially appreciative for the opportunity to engage so intensively with experts outside their usual professional circles. The only potential gaps identified by attendees were a lack of participants from the insurance industry and a lack of emphasis on the biotic effects of climate change.

Participants made commitments to continue the discussion and collaborate on a number of the efforts discussed at the meeting. In particular, several participants agreed to work together on some of the attribution work already under way, including efforts to help publicize attribution findings in a way that will be easy for the general public to understand, and build an advocacy component around those findings. Others proposed an informal subgroup to pursue Dan Yankelovich's suggestion of using the dialogic method in conjunction with public relations specialists to help develop an effective public narrative.

Participants also made commitments to try to coordinate future efforts, continue discussing strategies for gaining access to internal documents from the fossil fuel industry and its affiliated climate denial network, and to help build an accessible repository for those documents that are obtained.

Points of Agreement

There was widespread agreement among workshop participants that multiple, complementary strategies will be needed moving forward. For instance, in terms of what the "cancer" analog for global warming might be, participants generally accepted the proposition put forth by Angela Anderson that the answer might differ by region, with sea level rise instilling the most concern on the coasts, and extreme heat proving most compelling in the Midwest. Participants also agreed that it is better to focus on consequences of climate change happening now rather than on those projected for the distant future. Brenda Ekwurzel's anecdote about the public's engagement on the issue of high school football was offered as an example of the power that highlighting such immediate consequences can have.

Equally important was the nearly unanimous agreement on the importance of legal actions, both in wresting potentially useful internal documents from the fossil fuel industry and, more broadly, in maintaining pressure on the industry that could eventually lead to its support for legislative and regulatory responses to global warming. Some participants stated that pressure from the courts offers the best

current hope for gaining the energy industry's cooperation in converting to renewable energy.

Dan Yankelovich expressed a widely held sentiment when he noted what he called "a process of convergence" over the course of the workshop, in which participants with different expertise gradually incorporated broader perspectives on the problem at hand. "I know I found the tobacco example and the range of possible legal strategies very instructive," he said.

Unresolved Issues

Perhaps the largest unresolved issues from the workshop were some disagreement over how adversarial in tone efforts targeting the fossil fuel industry should be, and the extent to which outrage can mobilize the public.

On the latter point, one participant noted, "Outrage is hugely important to generate. Language that holds carbon producers accountable should be an important part of the narrative we create." But a number of participants expressed reservations about any plans that "demonized" the fossil fuel industry.

Myles Allen, for instance, worried that too adversarial a tone "could hand a victory to the 'merchants of doubt.'" He explained that because the fossil fuel industry's disinformation has effectively muted a large portion of the electorate, "Our focus ought to be to bring as many of these people back to the table and motivate them to act. We need to somehow promote a debate among different parts of the legislature to get this happening."

Lew Branscomb agreed that efforts should not seek to demonize the fossil fuel industry, noting that, "There are a lot of companies in the oil and auto business, and some of the companies will come forward on the good side. We all need their cooperation. My notion is to try to find people in the industry producing carbon who will come around." To accomplish this, he suggested a strategy that emphasizes facts and doesn't impugn motives.

It is possible to see glimmers of an emerging consensus on a strategy that incorporates legal action with a narrative that creates public outrage.

Brenda Ekwurzel lent some historical support to such a view by citing Adam Hochschild's book *Bury the Chains*, about the long campaign to end slavery. Hochschild noted, she said, that one of the most influential pamphlets published in the abolitionists' fight offered a dispassionate accounting of facts and details about the slave trade gathered from witnesses who had participated in it. This publication had no trace of the moral finger-wagging that had marked virtually all prior pamphlets. Instead, the facts—especially a famous diagram of a slave ship—carried the day and became widely accepted. Women in the United Kingdom, for instance, soon started serving tea using only sugar that had been certified as not having come from the slave trade.[25] "Maybe," Ekwurzel suggested, "we need an analogous effort to offer certified energy sources from suppliers who do not spread disinformation."

Mike MacCracken supported the need to "win the middle." As he noted, "We have had an international consensus of scientists agreeing to key facts since 1990."

Angela Anderson said she hoped UCS could contribute meaningfully to the public's "working-through" stage of the process outlined by Dan Yankelovich. She noted that local climate adaptation stories offer a way to sidestep the controversy, but acknowledged that it is still an open question whether this

strategy helps people work through the issue and ultimately accept climate science as fact. "This is our theory," she said, "But we don't have the research yet to prove this." Anderson added that many people expect UCS, as a science-based organization, to correct misinformation about climate science. "I don't want to abdicate that responsibility," she said, "and I wrestle with this, wondering what is the most effective order in which to do things and the right tone?"

While many questions like these remain unresolved, the workshop made an important contribution to the quest for answers. And it is possible to see glimmers of an emerging consensus on a strategy that incorporates legal action (for document procurement and accountability) with a narrative that creates public outrage—not to demonize industry, but to illuminate the collusion and fraudulent activities that prevent us from building the sustainable future we need and our children deserve.

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Appendix A: Workshop Agenda

Climate Accountability, Public Opinion, and Legal Strategies

Martin Johnson House, Scripps Institution of Oceanography, La Jolla, CA
June 14–15, 2012

Workshop Goals

- Compare the evolution of public attitudes and legal strategies for tobacco control and anthropogenic climate change. Can we use the lessons from tobacco education, laws, and litigation to address climate change?
- Explore which impacts can be most compellingly attributed to climate change, both scientifically and in the public mind, and consider options for communicating the scientific understanding of attribution in ways most useful to inform both public understanding and mitigation strategies.
- Explore the degree to which public (including judge and jury) acceptance of the causal relationships of climate impacts to fossil fuel production and/or emissions would increase the prospects for an effective strategy for U.S.-focused climate mitigation.
- Consider the viability of diverse strategies, including the legal merits of targeting carbon producers—as opposed to carbon emitters—for U.S.-focused climate mitigation.
- Identify promising legal and other options and scope out the development of mutually reinforcing intellectual, legal, and/or public strategies to further them.

June 14, 2012

7:45 a.m. Meet in La Jolla Shores Hotel lobby for shuttle to workshop venue

8:00 a.m. Coffee, light breakfast

8:30 a.m. Welcome and charge to participants

9:00 a.m. **Session 1. The Lay of the Land: Key Issues and Concepts**

Five presentations @ five minutes each, with limit of one image/visual aid; followed by moderated discussion

Proctor: A brief history of the tobacco wars: epidemiology, "doubt is our product," litigation and other strategies

Allen: Climate science and attribution

Heede: Attribution of emissions to carbon producers

Pawa: The legal landscape: fundamentals of law, climate change, damages, plaintiffs, and defendants

Slovic: Public opinion and risk perception on tobacco and climate

10:30 a.m. Break

11:00 a.m. **Session 2. Lessons From Tobacco Control: Legal and Public Strategies**

Three presentations @ seven minutes each, with limit of one image/visual aid; followed by moderated discussion

Sharon Eubanks, Stanton Glantz, Robert Proctor, Roberta Walburn: Litigation, media strategies, coordination with grassroots efforts, etc.

Key issue: What lessons can we draw from the history of public and legal strategies for controlling tobacco that might be applicable to address climate change?

12:30 p.m. Lunch

1:30 p.m. **Session 3. Attribution of Impacts and Associated Damages to Carbon and Climate Change: State of the Science and Expert Judgment**

Two presentations @ less than 10 minutes each; followed by moderated discussion

On science: Myles Allen and Claudia Tebaldi

Lead discussant: Mike MacCracken

Key issue: What impacts can be most compellingly attributed to carbon and climate change?

3:00 p.m. Break

3:15 p.m. **Session 4. Climate Legal Strategies: Options and Prospects**

Three presentations @ seven minutes each; followed by moderated discussion

Presenters: Matt Pawa, Mims Wood, Richard Ayres

Key issues: What potential options for U.S.-focused climate litigation appear most promising? To what extent would greater public (including judge and jury) acceptance of the causal relationships of climate impacts to fossil fuel production and/or emissions enhance the prospects for success?

5:00 p.m. Wrap up

Shuttle service will be provided for the return trip to the hotel

6:30 p.m. Drinks and dinner at the home of Lew and Connie Branscomb

Shuttle will be provided from La Jolla Shores Hotel

June 15, 2012

7:45 a.m. Meet in La Jolla Shores Hotel lobby for shuttle to workshop venue

8:00 a.m. Coffee, light breakfast

8:30 a.m. **Session 5. Attribution of Emissions to Carbon Producers**

Presentation @ 10 minutes; followed by moderated discussion

Heede: Carbon majors analysis

Lead discussant: Matt Pawa

Key issue: Can new analyses increase the prospect for holding major carbon producers legally and publicly accountable?

9:30 a.m. **Session 6. Innovative Strategies for Climate Accountability**

One to two presentations @ seven minutes each; followed by moderated discussion

Jim Hoggan, John Mashey

Key issues: What potential options for U.S.-focused climate litigation appear most promising? To what extent would greater public (including judge and jury) acceptance of the causal relationships of climate impacts to fossil fuel production and/or emissions enhance the prospects for success? What types of non-litigation public pressure might enhance their prospects for success?

11:00 a.m. Break

11:15 a.m. **Session 7. Public Opinion and Climate Accountability**

Moderated discussion drawing from key perspectives in public opinion

Speakers: Dan Yankelovich, Paul Slovic, Brenda Ekwurzel

Key issues: What is the role of public opinion in climate accountability?

12:45 p.m. Lunch

2:00 p.m. **Session 8. Discussion, outcomes, next steps**

4:00 p.m. Wrap up

Shuttle service will be provided for the return trip to the hotel

7:30 p.m. Drinks and dinner at La Jolla Shores Hotel restaurant

Appendix B: Participants

Climate Accountability, Public Opinion, and Legal Strategies Workshop

June 14–15, 2012

Workshop Organizers

Naomi Oreskes
Professor of History and Science Studies, University of California–San Diego
Adjunct Professor of Geosciences, Scripps Institution of Oceanography

Peter C. Frumhoff
Director of Science and Policy, Union of Concerned Scientists
Cambridge, MA

Richard (Rick) Heede
Principal, Climate Mitigation Services
Co-Founder and Director, Climate Accountability Institute
Snowmass, CO

Lewis M. Branscomb
Aetna Professor of Public Policy and Corporate Management (emeritus), John F. Kennedy School of Government, Harvard University

Angela Ledford Anderson
Director, Climate and Energy Program, Union of Concerned Scientists
Washington, DC

Workshop Participants

Myles Allen
Professor of Geosystem Science, School of Geography & the Environment, University of Oxford
Environmental Change Institute, Oxford University Centre for the Environment

Richard (Dick) E. Ayres
Attorney, The Ayres Law Group
Washington, DC

Brenda Ekwurzel
Climate Scientist and Assistant Director of Climate Research and Analysis, Union of Concerned Scientists
Washington, DC

Sharon Y. Eubanks
Advocates for Justice, Chartered PC
Senior Counsel, Sanford Wittels & Heisler, LLP
Washington, DC

Stanton A. Glantz
Professor of Medicine, University of California–San Francisco
University of California Center for Tobacco Control Research & Education

James (Jim) Hoggan
President, Hoggan & Associates
Vancouver, BC

Michael (Mike) MacCracken
Chief Scientist for Climate Change Programs, Climate Institute
Washington, DC

John Mashey
Techviser
Portola Valley, CA

Joseph (Joe) Mendelson III
Director of Policy, Climate and Energy Program, National Wildlife Federation
Washington, DC

Matt Pawa
President, Pawa Law Group, PC
Founder, The Global Warming Legal Action Project
Newton Centre, MA

Robert N. Proctor
Professor of the History of Science, Stanford University

Paul Slovic
Founder and President, Decision Research
Eugene, OR

Claudia Tebaldi
Research Scientist, Climate Central
Boulder, CO

Jasper Teulings
General Counsel/Advocaat, Greenpeace International
Amsterdam

Roberta Walburn
Attorney
Minneapolis, MN

Mary Christina Wood
Philip H. Knight Professor and Faculty Director, Environmental and Natural Resources Law Program, University of Oregon School of Law

Daniel (Dan) Yankelovich
Chair and Co-Founder, Public Agenda
San Diego, CA

Rapporteur

Seth Shulman
Senior Staff Writer, Union of Concerned Scientists
Cambridge, MA

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Pictured (L to R): Stanton Glantz, Richard Heede, Roberta Walburn (obscured), James Hoggan, Sharon Eubanks, Peter Frumhoff, Richard Ayres (obscured), Angela Anderson, Mary Christina Wood, Lewis Branscomb, Claudia Tebaldi, Brenda Ekwurzel, Naomi Oreskes, Robert Proctor (obscured), Joseph Mendelson, Seth Shulman, John Mashey (obscured), Myles Allen, Alison Kruger, Michael MacCracken. Not pictured: Matt Pawa, Paul Slovic, Jasper Teulings, Daniel Yankelovich.

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