Inside Climate News

Exxon Sowed Doubt About Climate Science for Decades by Stressing Uncertainty

Collaborating with the Bush-Cheney White House, Exxon turned ordinary scientific uncertainties into weapons of mass confusion.

By David Hasemyer and John H. Cushman Jr.
October 22, 2015

As he wrapped up nine years as the federal government's chief scientist for global warming research, Michael MacCracken lashed out at ExxonMobil for opposing the advance of climate science.

His own great-grandfather, he told the Exxon board, had been John D. Rockefeller's legal counsel a century earlier. "What I rather imagine he would say is that you are on the wrong side of history, and you need to find a way to change your position," he wrote.

Addressed to chairman Lee Raymond on the letterhead of the United States Global Change Research Program, his September 2002 letter was not just forceful, but unusually personal.

No wonder: in the opening days of the oil-friendly Bush-Cheney administration, Exxon's chief lobbyist had written the new head of the White House environmental council demanding that MacCracken be fired for "political and scientific bias."

Exxon was also attacking other officials in the U.S. government and at the UN's Intergovernmental Panel on Climate Change (IPCC), MacCracken wrote, interfering with their work behind the scenes and distorting it in public.

Exxon wanted scientists who disputed the mainstream science on climate change to oversee Washington's work with the IPCC, the authoritative body that defines the scientific consensus on global warming, documents written by an Exxon lobbyist and one of its scientists show. The company persuaded the White House to block the reappointment of the IPCC chairman, a World Bank scientist. Exxon's top climate researcher, Brian Flannery, was pushing the White House for a wholesale revision of federal climate science. The company wanted a new strategy to focus on the uncertainties.

"To call ExxonMobil's position out of the mainstream is thus a gross understatement," MacCracken wrote. "To be in opposition to the key scientific findings is rather appalling for such an established and scientific organization."

MacCracken had a long history of collaboration with Exxon researchers. He knew that during the 1970s and 1980s, well before the general public understood the risks of global warming, the company's researchers had worked at the cutting edge of climate change science. He had edited and even co-authored some of their reports. So he found it galling that Exxon was now leading a concerted effort to sow confusion about fossil fuels, carbon dioxide and the greenhouse effect.

Exxon had turned a colleague into its enemy.

It was a vivid example of Exxon's undermining of mainstream science and embrace of denial and misinformation, which became most pronounced after President George W. Bush took office. The campaign climaxed when Bush pulled out of the Kyoto Protocol in 2001. Taking the U.S. out of the international climate change treaty was Exxon's key goal, and the reason for its persistent emphasis on the uncertainty of climate science.

This in-depth series by InsideClimate News has explored Exxon's early engagement with climate research more than 35 years ago – and its subsequent use of scientific uncertainty as a shield against forceful action on global warming. The series is based on Exxon documents, interviews, and other evidence from an eight-month investigation.

"What happened was an incredible disconnect in people trained in physical science and engineering," recalled Martin Hoffert, a New York University professor who collaborated with Exxon's team as its early computer modeling confirmed the emerging scientific consensus on global warming. "It's an untold story of how we got to the point where climate change has become a threat to the world."

The Uncertainty Agenda

As the Bush-Cheney administration arrived in the White House in 2001, ExxonMobil (NYSE: XOM) now had partners for a climate uncertainty strategy.

Just weeks after Bush was sworn in, Exxon's top lobbyist Randy Randol sent the White House a memo complaining that "Clinton/Gore carry-overs with aggressive agendas" were still playing a role at the IPCC as it prepared its next assessment of the climate science consensus.

MacCracken and three colleagues should be replaced, or at least kept out of "any decisional activities," he wrote. Meanwhile, U.S. input to the IPCC should be delayed.

Further, two scientists highly critical of the prevailing consensus should be enlisted: John Christy of the University of Alabama should take the science lead and Richard Lindzen of MIT should review U.S. submissions to the IPCC.

Exxon had been circulating a proposal to fundamentally overhaul MacCracken's global change research program, by emphasizing the uncertainties of climate science.

The timing was not coincidental because the administration, as required by law, was about to lay out a new federal climate research strategy. Exxon and its allies wanted the work done during the Clinton-Gore years to be marginalized.

In March 2002, Flannery, Exxon's science strategy and programs manager, contacted John H. Marburger, the president's incoming assistant for science and technology, to pitch the company's

favored approach of emphasizing the uncertainty. Earlier discussions, he asserted, "have not sought to place the uncertainty in the context of why it is important to public policy."

Exxon's position paper, attached to his letter, took a dig at the work of the IPCC.

"A major frustration to many is the all-too-apparent bias of IPCC to downplay the significance of scientific uncertainty and gaps," the memo said.

A Seat at the Table

Exxon had not always been so at odds with the prevailing science.

Since the late 1970s, Exxon scientists had been telling top executives that the most likely cause of climate change was carbon pollution from the combustion of fossil fuels, and that it was important to get a grip on the problem quickly. Exxon Research & Engineering had launched innovative ocean research from aboard the company's biggest supertanker, the Esso Atlantic. ER&E's modeling experts, by the early 1980s, had confirmed the consensus among outside scientists about the climate's sensitivity to carbon dioxide.

"The facts are that we identified the potential risks of climate change and have taken the issue very seriously," said Ken Cohen, Exxon's vice president of public and government affairs, in a press release on October 21 addressing the ICN reports. "We embarked on decades of research in collaboration with many parties."

Exxon has declined to answer specific questions from InsideClimate News.

A 1980 memo proposed an ambitious public-relations plan aimed at "achieving national recognition of our CO_2 Greenhouse research program."

"It is significant to Exxon since future public decisions aimed at controlling the build-up of atmospheric CO_2 could impose limits on fossil fuel combustion," said the memo. "It is significant to all humanity since, although the CO_2 Greenhouse Effect is not today widely perceived as a threat, the popular media are giving increased attention to doom-saying theories about dramatic climate changes and melting polar icecaps."

Most of all, Exxon wanted a seat at the policy-making table, and the credibility of its research had earned that. In 1979, David Slade, manager of carbon dioxide research at the Energy Department, called it "a model for research contributions from the corporate sector."

Sen. Gary Hart, a Colorado Democrat, invited Henry Shaw, an early Exxon scientist, to join the policy deliberations. He was the only industry representative invited to an October 1980 conference of the National Commission on Air Quality, newly set up by Congress, to discuss "whether potential consequences of increased carbon dioxide levels warrant development of policies to mitigate adverse effects."

Shaw's bosses agreed that he should attend, "both to be informed as to what actions or proposals that result and to bring objective thinking and information to the meeting," Harold Weinberg, Shaw's boss in Exxon Research and Engineering, wrote in a memo. But first, he said, Shaw needed to be briefed by public affairs executives "on possible hidden agenda and individual biases of which we may not already be aware."

When Shaw gave feedback to the commission in December, he noted the uncertainties about carbon dioxide and climate change. At the same time, he wrote that it was "important" to place CO_2 on the nation's public policy agenda, as the commission was recommending, and supported the panel's suggestion that it was "timely to consider ways of reducing CO_2 emissions now."

He also backed a recommendation that the U.S. "seek to develop discussions on national and international policies."

In late spring of 1981, Flannery was one of the few industry representatives at a large gathering of accomplished scientists at Harper's Ferry, W. Va., for a Department of Energy "Workshop on First Detection of Carbon Dioxide Effects." He sat on a panel with NASA's James Hansen, who was about to publish a landmark study in Science magazine warning of significant warming even if controls were placed on carbon emissions.

The workshop's proceedings would declare that "scientists are agreed" that carbon dioxide was building up in the atmosphere, that the effects "are well known" and "will bring about an increase in the mean global temperature," and that it is "commonly accepted" that warming "will affect the biosphere through a change in climate."

Working with Hoffert, Flannery wrote a highly technical 50-page chapter to a 1985 Energy Department report. Their modeling projected up to 6 degrees Celsius of warming by the end of the 21st century unless emissions of greenhouse gases were curtailed.

The influential government report said the models provided a "firm basis" for this kind of projection, and that "we are already committed to some of this warming as a result of emissions over the last several decades."

The Harper's Ferry conference was chaired by MacCracken; he also edited the warming report. He recalled recently that "the underlying push was for a level of understanding that was convincing enough to let policymakers become aware of what the issue was that society faced."

As Hoffert put it in a recent interview, in those days at Exxon "there were no divisions, no agendas. We were coming together as scientists to address issues of vital importance to the world."

Fork in the Road

In 1988, James Hansen told Congress that there was now enough warming to declare that the greenhouse effect had arrived. Also that year, the United Nations set up the Intergovernmental Panel on Climate Change.

It was a moment that Exxon's climate experts had been forecasting for a decade: that as warming became unmistakable, governments would move to control it.

Looking backward, one Exxon document from the early 1990s reflects a trail of research into global warming stretching back "long before the issue achieved its current prominence."

An internal compendium of the company's environmental record, on file in the official ExxonMobil historical archives at the University of Texas-Austin, acknowledged the uncertainties that have always faced climate researchers, but it didn't downplay the risks.

"Fossil fuel use dominates as the source of man-made emissions of carbon dioxide," said one section of the encyclopedic review. "Current scientific understanding demonstrates the potential for climate change to produce serious impacts."

"For Exxon and the petroleum industry, potential enhancement of the greenhouse effect and the possibility of adverse climate are of particular and fundamental concern," it said.

Drilling for Uncertainty

The IPCC published its first report in 1990. Despite the scientific gaps, the panel warned that unrestrained emissions from burning fossil fuels would surely warm the planet in the century ahead. The conclusion, the IPCC said after intense deliberations, was "certain." It prescribed deep reductions in greenhouse gas emissions to stave off a crisis in the coming decades.

At this crucial juncture, Exxon pivoted toward uncertainty and away from the global scientific consensus.

At the IPCC's final session to draft its summary for policymakers, Exxon's Flannery was in the room as an observer. He took the microphone to challenge both the certainty and the remedy. None of the other scientists agreed with Flannery, and the IPCC brushed off Exxon's advice to water down the report, according to Jeremy Leggett's eyewitness account in his book, *The Carbon War*.

At a conference in June 1991, MacCracken joined a panel chaired by Flannery to work together on a climate change project involving geo-engineering.

The contact, according to MacCracken, led to an unexpected solicitation from the oil lobby in Washington. Will Ollison, a science adviser at the American Petroleum Institute, in a fax marked urgent, asked MacCracken, then at the Lawrence Livermore National Laboratory, to write a paper highlighting the scientific uncertainties surrounding global warming.

The API, where Exxon held enormous sway, wanted him to write up the complex nuances in plain English – with an emphasis on the unknown, not the known.

Ollison said the IPCC's 1990 report "may not have adequately addressed alternative views."

“A review of these alternative projections would be useful in illustrating the uncertainties inherent in the ‘consensus’ views expressed in the IPCC report,” Ollison wrote.

MacCracken rejected the task as “fruitless.”

“I would caution you about too readily accepting whatever the naysayers put forth as a means of achieving balance,” MacCracken wrote back.

Flannery, for his part, continued to emphasize uncertainty. And so did Exxon’s new chairman and chief executive, Lee Raymond, who spoke of it repeatedly in public.

“Currently, the scientific evidence is inconclusive as to whether human activities are having a significant effect on the global climate,” Raymond claimed in a speech delivered in 1996 to the Economic Club of Detroit.

“Many people, politicians and the public alike, believe that global warming is a rock-solid certainty,” he said the next year in a speech in Beijing. “But it’s not.”

Addressing the World Petroleum Congress, which was meeting just before the conclusion of the Kyoto Protocol negotiations, Raymond even disputed that the planet was warming at all. “The earth is cooler today than it was 20 years ago,” he said.

That was false. Authoritative climate agencies declared 1997 the warmest year ever measured. Decade by decade, the warming has continued, in line with the climate models.

But Raymond, turning his back on Exxon researchers and their state-of-the-art work, mocked those climate models.

“1990’s models were predicting temperature increases of two to five degrees Celsius by the year 2100. Last year’s models say one to three degrees. Where to next year?”

“It is highly unlikely,” he said, “that the temperature in the middle of the next century will be significantly affected whether policies are enacted now or 20 years from now.”

The Doubt Industry

Exxon and its allies had been working hard to spread this dilatory message.

First, they set up the Global Climate Coalition (GCC), a lobbying partnership of leading oil and automobile companies dedicated to defeating controls on carbon pollution.

“As major corporations with a high level of internal scientific and technical expertise, they were aware of and in a position to understand the available scientific data,” recounts an essay on corporate responsibility for climate change published last month in the peer-reviewed journal Climatic Change.

“From 1989 to 2002, the GCC led an aggressive lobbying and advertising campaign aimed at achieving these goals by sowing doubt about the integrity of the IPCC and the scientific evidence that heat-trapping emissions from burning fossil fuels drive global warming,” says the article, by Harvard climate science historian Naomi Oreskes and two co-authors.

Then, in 1998 Exxon also helped create the Global Climate Science Team, an effort involving Randy Randol, the company’s top lobbyist, and Joe Walker, a public relations representative for API.

Their memo, leaked to The New York Times, asserted that it is “not known for sure whether (a) climate change actually is occurring, or (b) if it is, whether humans really have any influence on it.” Opponents of the Kyoto treaty, it complained, “have done little to build a case against precipitous action on climate change based on the scientific uncertainty.”

The memo declared: “Victory will be achieved when average citizens ‘understand’ (recognize) uncertainties in climate science,” and when “recognition of uncertainty becomes part of the ‘conventional wisdom.’”

Exxon wholeheartedly embraced that theme. For example, an advertisement called “Unsettled Science” that ran in major papers in the spring of 2000, prompted one scientist to complain that it had distorted his work by suggesting it supported the notion that global warming was just a natural cycle. “It’s a shame,” Lloyd Keigwin later told the Wall Street Journal. “The implication is that these data show that we don’t need to worry about global warming.”

Another ad, one of a series placed in The New York Times, cast aspersions on scientists who “believe they can predict changes in climate decades from now.”

Then, in the heat of the 2000 presidential race between climate champion Al Gore and erstwhile oilman George W. Bush, Exxon placed an ad in the Washington Post accusing MacCracken’s office of putting the “political cart before a scientific horse.”

Blowing the Whistle

The collaboration between Exxon, its surrogates, and the Bush administration to emphasize uncertainty and stave off action came to light in 2005. A whistleblower named Rick Piltz disclosed that Philip Cooney, an oil lobbyist who had become chief of staff at the White House environmental council, had been heavily editing the work of government researchers. Cooney resigned, and was hired by Exxon.

But the clashes continued between the scientific establishment and Exxon’s purveyors of uncertainty.

The Royal Society of the United Kingdom, for centuries a renowned arbiter of science, harshly criticized Exxon in 2006 for publishing “very misleading” statements about the IPCC’s Third

Assessment Report. The IPCC found that most of the observed warming of the planet in the late 20th century was probably caused by humans.

The Society's communications manager Bob Ward reminded Exxon pointedly that one of its own scientists had contributed to the IPCC chapter in question.

The Royal Society said it had no problem with Exxon funding scientific research, but "we do have concerns about ExxonMobil's funding of lobby groups that seek to misrepresent the scientific evidence relating to climate change."

Ward said Exxon was funding at least 39 organizations "featuring information on their websites that misrepresented the science on climate change, by outright denial of the evidence that greenhouse gases are driving climate change, or by overstating the amount and significance of uncertainty in knowledge."

Exxon's uncertainty campaign was detailed in three exhaustive reports published in 2007 by the Union of Concerned Scientists and the Government Accountability Project.

At a Congressional hearing in 2007, Harvard scientist James McCarthy, who was a member of the UCS board and the newly elected president of the American Association for the Advancement of Science, declared: "The Bush administration and a network of Exxon-funded, ExxonMobil funded organizations have sought to distort, manipulate and suppress climate science so as to confuse the American public about the urgency of the global warming problem, and thus, forestall a strong policy response."

To this day, top Exxon officials sometimes argue that models are no basis for policy.

While Rex Tillerson, the current chairman, doesn't echo Lee Raymond's science denial in his formal speeches, he sometimes backslides when speaking off the cuff.

At Exxon's annual meeting in 2015, Tillerson said it would be best to wait for more solid science before acting on climate change. "What if everything we do, it turns out our models are lousy, and we don't get the effects we predict?" he asked.

And in its formal annual energy forecasts, as well as in its latest report on the implications of its carbon footprint, Exxon adopts business-as-usual assumptions. It deflects the question of how much carbon will build up in the world's atmosphere over the next few decades, or how much the planet will warm as a result.

"As part of our energy outlook process, we do not project overall atmospheric GHG [greenhouse gas] concentration, nor do we model global average temperature impacts," both reports say.

In footnotes, Exxon offers this excuse: "These would require data inputs that are well beyond our company's ability to reasonably measure or verify."