

**Testimony before the U.S. Senate Environment and
Public Works Committee**

Senator Barbara Boxer, Chairman

**Hearing on Scientific Integrity and
Transparency Reforms at the EPA**

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Chairman Boxer, Senator Inhofe, Members of the Committee, thank you for having me here today, to testify about this vitally important topic.

I generally like to begin with a few words of background. By training, I am an environmental scientist, having received my doctoral degree in environmental science and engineering from UCLA in 1994. I was drawn to the field through a childhood in the smoggy San Fernando Valley of California where I grew up, developed asthma, and learned first hand about the hazards of air pollution.

I developed a love for the environment when, with my mother, I'd camp in California's many state parks, and out in the Mojave desert, where we had a placer mining claim, and where the air was clean, dry, and thoroughly healthful.

In the 1970s, when the oil embargo hit, I tried to set up my own solar distillery to make fuel ethanol from surplus oranges of my neighbors, but the Bureau of Alcohol, Tobacco, and Firearms wouldn't give a license to distill alcohol to a 13-year old in those days.

I have worked at the intersection of science and public policy since 1990, when I took an internship position as an environmental policy analyst at Hughes Aircraft Company, which was then headquartered in Los Angeles California. Both the subject of my doctoral studies and the focus of my work at Hughes Aircraft involved air quality regulations then being promulgated by the California Air Resources Board, and the Air Quality Management District.

Subsequently, in work at several think tanks in the United States and Canada, my research has broadened to incorporate climate change and energy policy analysis as state, provincial, and federal levels.

As more and more of our nation's public policy decisions involve the use of complex scientific information, it becomes more and more important that our policymaking institutions make use of such information in a process that is free of bias, is open to outside review and analysis, allows for the airing of divergent opinion, and is deliberative enough to ensure that the decisions we make are the right ones.

As recent experience has shown, this is not currently the case. Policies intended to mitigate climate change and conventional pollution with the use of corn-ethanol have backfired badly. Rather than reduce greenhouse gas emissions, poorly-thought out ethanol mandates have increased them. Rather than reduce conventional air pollution, corn-ethanol has increased them, along with polluting surface and ground water, contaminating fish stocks with pesticide and herbicide residues, and expanding oceanic dead-zones caused by algae which bloom as they are over-fed by fertilizer run-off from corn agriculture. Most of these problems were raised by non-governmental analysts before the ethanol mandates were passed, but the policymaking process proved opaque to such cautionary voices.

Now, warnings are coming from non-governmental policy analysts and scientists that we may see equally perverse impacts from other forms of renewable energy that are being promoted at breakneck speed through the spending of stimulus money, and pending legislation involving energy and climate change. For example, new scientific reports are validating concerns expressed by energy analysts that concentrated solar power systems may have unsustainable water demand and will imperil fragile desert ecosystems.

Warnings that wind turbines are not environmentally benign are being validated as they are found to cause noise pollution, visual blight, bird and bat kills, and potentially harm livestock. One recent study has found that mass transit systems may well produce more pollution than the automobiles and air travel they seek to displace. Left and right, we are seeing failings of our government's policymaking bodies to listen to cautionary voices in the development of public policy dependent on the sound use of scientific information.

The President's memoranda on Transparency and Open Government and on Scientific Integrity are a good start, but they can only be considered a start in the process to ensure that scientific information is used properly in the process of public policy formation.

On the positive side of the ledger, the memoranda correctly identify certain important elements of a transparent process featuring scientific integrity. The President is exactly correct when he says that "political officials should not suppress or alter scientific or technological findings and conclusions."

It is also reassuring to see the President order that “To the extent permitted by law, there should be transparency in the preparation, identification, and use of scientific and technological information in policymaking.”

Of particular importance, I think, is the President’s declaration that “Government should be participatory.” As the President observes, “Public engagement enhances the Government’s effectiveness and improves the quality of its decisions. Knowledge is widely disbursed in society, and public officials benefit from having access to that dispersed knowledge.”

The President’s call for Executive departments and agencies to offer Americans greater opportunities to participate in policymaking processes and to infuse the decision-making process with their “collective expertise and information” is spot on.

But all too often, I have seen an assumption that only scientists working within government, or dependent on governmental grants have worthwhile knowledge to inject into public policy decision-making. There is, I believe, an inherent bias against scientists in the private sector, even though those are often the people who, day by day, in their laboratories, are producing the prescription drugs that save millions, and who develop the technologies that empower billions.

The same is true with regard to the President’s (and agency) emphasis on the peer-reviewed literature. As we have discovered through revelations about fraud in the scientific and medical literature, peer-review is no guarantee of accuracy. And often, the keys to publication are in the hands with those who have a vested interest in preserving the theory that gained them the prestige and standing to be considered as peer-reviewers. As a recent article, ironically published in the peer-reviewed journal PLOS Medicine demonstrated, “most claimed research findings are wrong.”

The President, Congress, and regulatory agencies should explicitly recognize that there is a legitimate role for non-governmental, independent scientific participation in the public policy decision-making process in terms of both personnel, and the injection of scientific research conducted outside the peer-reviewed literature.

Many times, over my career, I have seen a lack of real opportunity for consultation in the policymaking process. I have seen massive scientific reports issued by state and federal governmental agencies the day before Thanksgiving weekend, or just before the Christmas season, with minimal time allowed for the review of thousand-page scientific summary documents, and only trivial opportunities for meaningful consultation. We may see that again in coming months, where we've been promised the passage of landmark legislation on climate change, just in time for the Independence Day holiday, and many people's summer vacation.

Post-regulatory release of Regulatory Impact Assessments, as was the case with the 1997 revisions to the National Ambient Air Quality Standards, have sometimes made a mockery of the very idea of consultative decision making.

Massive dockets in which thousands of review comments receive little more than blithe dismissals have been common features of governmental decision-making on important scientific issues I have sought to analyze over the last 18 years.

Well-credentialed and experienced scientists have too often been frozen out of consultative processes because they are viewed as tainted by an industrial connection, or because they hold unorthodox views.

In conclusion, the President’s memoranda on Transparency and Open Government, and Scientific Integrity are a good step, but only a single step in improving the way that our government makes use of scientific information at all levels of the decision-making process.

As more and more issues require the use of such information, more attention needs to be paid to reforming the processes by which scientific information is gathered, validated, balanced, summarized, and used to inform the decision-making process.

Finally, it must always be remembered that science may be able to tell us “what is,” but it can never tell us “what to do.” Science informs — it does not compel. Public policy formation involves the balance of many factors, social, economic, ethics, equity, individual rights, personal responsibility, and more.

Creating openness and transparency in the scientific elements of the decision-making process is important, but that same level of openness, transparency, and consultation should infuse every element of the public policy development process.

Thank you for providing me this opportunity to address you on an issue near and dear to my heart. I will, of course, gladly take your questions.