

Slate

Plan B for the Climate

Rep. Bart Gordon on the policy implications of geoengineering.

By Bart Gordon

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We have just finished what was, in 10 states, the warmest summer on record. The fact is that the climate is changing and changing quickly. There is broad scientific consensus that humans are responsible and that we can best mitigate the damage by controlling concentrations of greenhouse gases such as carbon dioxide. I am fully committed to reducing our carbon emissions, especially by advancing new energy technologies, improving efficiency, and overcoming barriers to wider adoption of renewable energies. However, there is a real possibility that our best efforts may not be enough to undo the damage or to prevent calamitous future change from occurring. If we find ourselves reaching an environmental tipping point, we will need to know what our options are and whether those options include geoengineering.

Geoengineering can be broadly described as the deliberate large-scale modification of Earth's climate systems for the purposes of counteracting or mitigating anthropogenic climate change. The field includes a wide range of applications, from fairly innocuous proposals like

planting more trees to absorb carbon dioxide and painting rooftops white to reflect sunlight, to more attention-grabbing strategies like spraying materials in the atmosphere to reflect solar radiation back into space, or fertilizing oceans with chemicals that stimulate the growth of carbon-consuming organisms. Understanding the full range of these options—and, most importantly, their many potential side effects—will require highly interdisciplinary and exhaustive research.

While some may claim that, in comparison with traditional mitigation techniques, geoengineering technologies offer faster-acting, more politically palatable, and cost-effective solutions, many people are understandably nervous about geoengineering. The project carries

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with it a tremendous range of uncertainties, ethical and political concerns, and the potential for catastrophic environmental side effects. It will take time to research these new technologies, test their potential benefits and hazards, and develop appropriate structures to govern their use. This is why I believe we should begin investing in research now. This issue is too important for us to keep our heads in the sand. We must get ahead of geoengineering before it gets ahead of us, or worse, before we find ourselves in a climate emergency with inadequate information about our options.

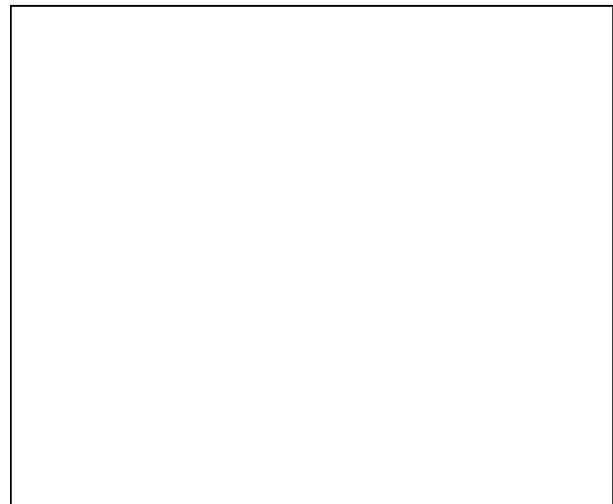
Federally funded research on geoengineering is nearly non-existent in the United States. However, federal agencies already conduct a wide variety of relevant research activities. I believe that the creation of any federal geoengineering research program should capitalize on existing facilities, instruments, skills, and partnerships present within federal agencies.

Within the next month, I will release a report titled *Geoengineering the Climate: Research Needs and Strategies for International Coordination*. The report will present the results of an inquiry on geoengineering conducted by the U.S. House of Representatives Committee on Science and Technology in collaboration

with our counterpart in the United Kingdom, the House of Commons Science and Technology Committee. The report will also explore domestic research capacities at various federal agencies, potential organizational structures for managing research, and key ideas to keep in mind as the discipline develops. We hope that this report will provide much-needed guidance in the coming months, both to establish some foundational principles and help preclude undesirable activities.

Full-scale geoengineering deployment, would, as intended, have effects on the climate that are international in scope. Many geoengineering strategies could greatly impact the natural resources or weather patterns of multiple nations. For example, if one country were to spray sulfates into the atmosphere to reflect incoming solar radiation, it may be difficult to predict where those sulfates

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would eventually end up and what their effects might be. Some geoengineering techniques are so inexpensive that a single nation, a private company, or even an individual could feasibly deploy them. And in this new field, there are very few national or international laws in place. We need international agreements to establish the "rules of the road," to collaborate on research where possible, and to monitor the safety of these efforts, should they ever be deployed. Several of our international counterparts are already exploring geoengineering. The United States will need its own foundation of research so that we will be prepared to make informed decisions when it comes to international discussions and agreements.

In addition to the many scientific unknowns about geoengineering, there are also social and economic challenges to explore. My chosen field is political science, and the one thing I know is that our national conversation about geoengineering must take place out in the open. Many people have serious fears about geoengineering, and rightly so. In order for the public to understand and become comfortable with the idea of a research portfolio, our efforts must be transparent. The House Committee on Science and Technology has made efforts to begin a public conversation. In the last year, the committee has held three public

hearings on geoengineering to assess the suggested strategies, the scientific basis and engineering challenges, and domestic and international governance issues. Witness testimonies and complete videos of all three hearings are posted on the committee's Web site, and the chairman's report will be made available to the public online. As this discussion goes forward, transparency and public engagement must remain leading priorities for policy makers and scientists. These are critical components of a geoengineering policy that is effective, socially equitable and politically feasible.

We, as a nation, need a purposeful conversation about America's climate options and geoengineering research needs. I am looking forward to speaking with a number of experts on the issue on Monday at the Future Tense conference on geoengineering at the New America

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Foundation. The next several years will require deliberative discussion and internationally-coordinated research in order to understand our options and the potential impacts. Our first priority must be to limit greenhouse gas emissions. However, if such reductions achieve too little, too late, we must at least understand "Plan B."

This piece arises from Future Tense, a collaboration among Arizona State University, the New America Foundation, and Slate. A Future Tense conference on geoengineering will be held at the New America Foundation on Monday, Sept. 27. (For more information, please visit the.) Read more of's special issue on geoengineering.

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Bart Gordon is chairman of the House Committee on Science and Technology.

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