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Subcommittee Examines Geoengineering Strategies and Hazards

(Washington, DC) – Today, **House Committee on Science and Technology's Energy and Environment Subcommittee** held a [hearing](#) to examine the scientific basis and engineering challenges of geoengineering, a term that encompasses a wide range of strategies to deliberately alter the Earth's climate systems for the purpose of counteracting the effects of climate change.

"Make no mistake, despite the sometimes far-fetched proposals, this is not a subject that should be taken lightly," said **Chairman Brian Baird (D-WA)**. "As Chairman Gordon has also made clear: geoengineering has been proposed as—and it can only be responsibly discussed as—a last-ditch measure in the case that traditional carbon mitigation efforts prove ineffective on their own. Even then, a tremendous amount of research is required to know what strategies may be worth deploying."

Members questioned witnesses about the science, engineering needs, environmental impacts, price, efficacy, and permanence of select geoengineering proposals.

Geoengineering strategies fall into two major categories: Solar Radiation Management and Carbon Dioxide Removal. Solar Radiation Management techniques aim to reflect a portion of the sun's radiation back into space, thereby reducing the amount of solar radiation trapped in Earth's atmosphere. Types of Solar Radiation Management include: installing reflective surfaces in space; and increasing reflectivity of natural surfaces, built structures, and the atmosphere. Carbon Dioxide Removal aims to reduce excess carbon dioxide concentrations by capturing carbon directly from air and storing it. Carbon Dioxide Removal proposals include such methods as carbon sequestration in biomass and soils, ocean fertilization, modified ocean circulation, non-traditional carbon capture and sequestration in geologic formations, and distributing mined minerals over agricultural soils, among others.

Some Solar Radiation Management approaches could be quickly deployed at a relatively low cost and shut down if necessary. Witnesses discussed the low cost as a potential risk in itself, because nations, corporations, or individuals could act unilaterally.

Unfortunately, neither Solar Radiation Management nor Carbon Dioxide Removal techniques would eliminate all climate change effects. For example, Solar Radiation Management could block solar radiation, but ocean acidification, the change in ocean chemistry caused when ocean water absorbs excess carbon dioxide, would continue unabated. Ocean acidification reduces the ability of shellfish and corals to form their shells and skeletons, which impacts the health of the entire ocean food chain.

Witnesses also strongly emphasized that any type of intervention may carry significant unintended and unknown consequences for ocean ecosystems, agriculture, and the built environment. They emphasized the need for more research to understand potential consequences.

"Without question, our first priority is to reduce the production of global

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greenhouse gas emissions," said **Baird**. "However, as I said, if such reductions achieve too little, it could be a good time to consider plan B. Many proposals for geoengineering have already been made. Some may have potential, some sound downright scary, and they all carry levels of uncertainty, hazards, and risks that could outweigh their intended benefit. Furthermore, the technologies proposed for deployment of many of these geoengineering techniques are very young or non-existent, and there are major uncertainties regarding their effectiveness, environmental impacts, and economic costs."

This hearing is the second of a three-part series on geoengineering in the Committee on Science and Technology. The series is intended to create the foundation for an informed and open dialogue on the science and engineering of geoengineering. The Full Committee held the first hearing on November 5, 2009, entitled *Geoengineering: Assessing the Implications of Large-Scale Climate Intervention*. The third hearing is planned for spring of 2010 and will cover issues of governance.

The series of hearings is part of a partnership with the United Kingdom House of Commons Science and Technology Committee. The two Committees are holding parallel hearings and sharing materials once they are publically available. The Commons Committee's hearings and requests for information focus on the domestic and international regulatory frameworks that may be applicable to geoengineering.

For more information, including on the Committee's work on [geoengineering](#), please see our [website](#).

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