Harvard Kennedy School Energy Policy Seminar Series, Spring 2014
Professor David Keith on Geoengineering the Climate

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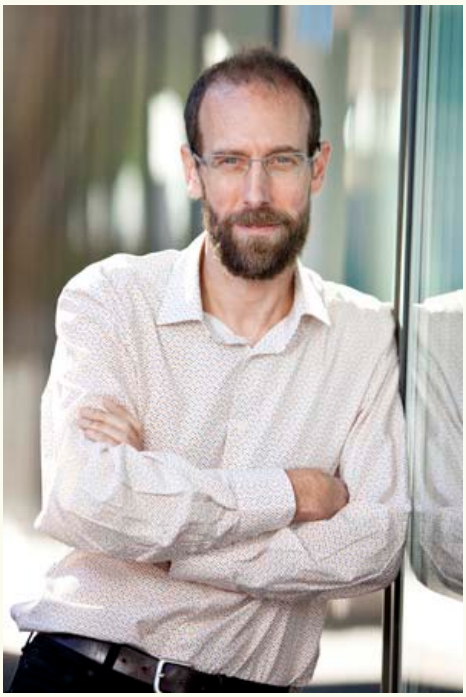
By Louisa Lund, Program Director, Consortium for Energy Policy Research

Geoengineering, using solar radiation management (SRM) to reduce planetary warming, can be done in a way that is "moderate, responsive, and temporary," Professor David Keith argued in the Harvard Kennedy School's April 14 energy policy seminar, in a talk based on his recent book, *A Case for Climate Engineering.*

Keith acknowledged that the idea of geoengineering has garnered extreme reactions, including Al Gore's characterization of the idea as "insane, utterly mad, and delusional in the extreme." Properly understood, however, Keith argued that geoengineering could be a prudent response to global warming, and certainly "less suboptimal" than doing nothing.



Keith noted that most of the literature on geoengineering assumes that geoengineering would be used to bring the earth back to pre-industrial temperatures, and that it would be undertaken as a one-time, irreversible decision. The risks associated with geoengineering are much smaller, Keith argued, if it is thought of as being used in a limited way to slow (not reverse) temperature increases, with ongoing checks and course adjustments.

For example, Keith suggested, solar radiation management measures, such as putting sulfur in the upper atmosphere, could be gradually ramped up so as to reducing the greenhouse gas-related increase in radiative forcing by one half. Peak rates of sulfur use would remain eight times lower than the amount of sulfur emitted by the Mount Pinatubo eruption.

Such an approach, Keith argued, would allow for the assessment of specific risks, such as ozone loss and ecosystem impacts, and for tailoring geoengineering efforts to minimize these risks.

Professor Keith went on to detail his latest findings related to one key source of skepticism about the usefulness of solar radiation management as a way of moderating global temperature--concern about whether the temperature and precipitation impacts of SRM might vary widely across the globe, significantly reducing its usefulness. Many scholars, Professor Keith included, expected this to emerge as an important limit on the effectiveness of solar radiation management. However, the latest (soon to be published) study of the likely impacts of solar radiation management on a region by region basis climate modeling results are "stunning" in the way they show a relatively even distribution of impacts across the globe. "Solar engineering works on a region by region basis much better than most of us thought," Keith said.

Professor Keith spoke as part of the Kennedy School's Energy Policy Seminar Series, which is jointly sponsored by the Energy Technology Innovation Policy research group of the Belfer Center on Science and International Affairs and by the Consortium for Energy Policy Research of the Mossavar-Rahmani Center on Business and Government.