

Don't count on long-term success in climate policy, warns paper in *Decision Analysis*

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Long-term climate change policy in the U.S. and abroad is likely to change very slowly, warns a researcher who calls for stronger short-term goals to reduce carbon emissions, according to a study published in *Decision Analysis*, a journal of the Institute for Operations Research and the Management Sciences (INFORMS).

"Incorporating Path Dependence into Decision Analytical Methods: An Application to Global Climate Change Policy" is by Mort Webster. Dr. Webster is currently Assistant Professor for Engineering Systems at MIT. From 2006 until earlier this year, he was a visiting assistant professor in the MIT Joint Program on the Science and Policy of Global Change and in the university's Department of Earth, Atmosphere and Planetary Sciences.. The study appears in the current issue of *Decision Analysis*.

Prof. Webster writes that climate policy decisions are normally made as sequential decisions over time under uncertainty -- given the magnitude of uncertainty in both economic and scientific processes, the decades-to-centuries time scale of the phenomenon, and the ability to reduce uncertainty and revise decisions along the way.

Although staging climate change policy decisions over time would seem to make sense, he points out that the tendency of U.S. and international policy to change extremely slowly requires front-loading the painful decisions.

Applying decision analysis in the context of idealized government decision makers over a century raises the question of how to deal with the fact that political systems tend to exhibit "path dependency," a force that makes large policy shifts difficult and rare, and limits most decisions to small incremental changes.

In his paper, he argues that consideration of path dependence in the context of climate policy justifies greater near-term emissions reductions in what amounts to a hedging strategy.

Prof. Webster challenges the Bush Administration, which has cited uncertainty about future climate change among the reasons that it calls for the postponement of stricter mandated emissions reductions until the next decade.

This raises a central question for near-term climate policy, both in the United States and abroad, he writes: whether or not regulations of greenhouse gas emissions can be delayed, and whether some level of mitigating effort is required at once. Countering those who say the dust should settle before committing to big decisions, he points out that when a decision will be irreversible -- as is likely the case in climate policy -- delaying the decision is probably not the best option, according to research in decision analysis.

Decision making in public policy, he writes, is complicated by the reluctance of leaders to reverse course after they have made important policy choices.

"A large-scale international policy issue such as climate change is especially vulnerable to path dependencies. If significant global emissions reductions are required in the long-run, this will be an extremely difficult problem to coordinate across nations," he writes.

Climate policy optimization models typically assume that some fraction of baseline emissions can be reduced in each period, ranging from none to nearly 100%, he notes. But, he points out, the range of reductions considered in any period is independent of any choices made in previous periods.

"The question posed in this study is: Does accounting for path dependency in political systems change the first-period (today) optimal choice from a sequential decision model of climate policy?," he writes. "If it does, then this would argue for a more aggressive hedging strategy with greater emissions reductions for near-term climate policy. This action would allow for greater flexibility if significant reductions are required later in the century."

Source: Institute for Operations Research and the Management Sciences

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