

# Climate Engineering and Climate Tipping-Point Scenarios

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**Abstract.** Many scientists fear that anthropogenic emissions of greenhouse gases have set the Earth on a path of significant, possibly catastrophic, changes. This includes the possibility of exceeding particular thresholds or tipping points in the climate system. In response, governments have proposed emissions reduction targets, but no agreement has been reached. These facts have led some scientists and economists to suggest research into climate engineering. In this talk, we analyze the potential value of one climate engineering technology family, known as solar radiation management (SRM) to manage the risk of differing tipping-point scenarios. We find that adding SRM to a policy of emissions controls may be able to help manage the risk of climate tipping points and that its potential benefits are large. However, the technology does not exist and important indirect costs (e.g., change in precipitation) are not well understood. Thus, we conclude the SRM merits a serious research effort to better understand its efficiency and safety.

**Biography.** J. Eric Bickel is an associate professor and Director of the Graduate Program in Operations Research and Industrial Engineering at The University of Texas at Austin. His research interests include the theory and practice of decision analysis. Professor Bickel is on the Board of Directors for Strategic Decisions Group and is the President of the Decision Analysis Society. He holds an M.S. and Ph.D. from the Department of Engineering-Economic Systems at Stanford University. He is a member of both the Mechanical and Petroleum Engineering Departments at The University of Texas at Austin. His work has been featured in the *New York Times*, *The Wall Street Journal*, the *Financial Times*, *Bloomberg*, *National Public Radio*, and in dozens of local and regional media sources. In addition, this work is featured in the documentary Cool IT. This work was part of the Copenhagen Consensus on Climate Project and was selected by a panel of economists, including four Nobel Laureates, as the best response to climate change. While in graduate school, he developed a baseball pitch/hit charting software program called ChartMine. ChartMine was used by over 300 colleges, including one-third of Division 1 programs, and ESPN.

