America's climate choices: Limiting the magnitude of climate change

Laurie Geller[†]; Robert Fri; Marilyn Brown [†] National Academy of Sciences, USA Leading author: <u>lgeller@nas.edu</u>

At the request of Congress, the National Academy of Sciences convened a series of coordinated activities to provide advice on actions and strategies the nation can take to respond to climate change. This suite of activities included a study on strategies for limiting the magnitude of future climate change (i.e. mitigation). Limiting climate change is a global effort that will require significant reductions of greenhouse gas emissions by countries around the world. U.S. action alone is not sufficient, but it is clearly necessary for the U.S. to make significant contributions to the global effort. While efforts to limit climate change are already underway across the U.S. (by state and local governments, businesses, non-governmental organizations, and individual households), we currently lack a framework of federal policies to help assure that all key actors participating and working towards coherent national goals. This study recommends a U.S. policy goal stated as a budget for cumulative greenhouse gas emissions through the year 2050, and offers an illustrative range of budget numbers derived from recent work of the Energy Modeling Forum. The report evaluates the types of changes to our nation's energy system that are needed to meet a budget in the proposed range, which leads to a conclusion that the U.S. must get started now in aggressively pursuing available emission reduction opportunities, while also investing heavily in R&D to create new emission reduction opportunities. The study offers a series of recommendations for how to move ahead in pursing these near-term and longer-term opportunities. The recommendations address the need for a carbon pricing system and strategicallytargeted complimentary policies, for effective international engagement, for careful balancing of federal with state/local action, and for consideration of equity and employment impacts of response policies. The study also discusses the need to design policies that are both durable over the longterm, and have the capacity to evolve in response to new scientific, technological, and economic developments.