Increase Federal Funding for Research on Reducing Greenhouse Gas Emissions

- Despite the limited success in reducing greenhouse gas emissions, the federal agencies that should be addressing this problem (NSF, EPA, DOE) are funding very little research to test behavioral strategies for reducing emissions.[1] This includes evaluating policies that incentivize high impact changes in behavior (e.g., transitioning to solar energy).

- Behavioral Science research over the past forty years has produced effective interventions for virtually every aspect of psychological and behavioral functioning that has been studied.[2-4] For example, the massive federal effort to reduce cigarette smoking transformed American culture from one where smoking was common and widely admired to one where a shrinking minority of people smoke.[5]

- Small Scale experimental evaluations of strategies for affecting climate-relevant behavior have consistently shown encouraging levels behavioral plasticity for reducing emissions.[6] Moreover, other strategies with high levels of potential impact on a population level are ripe for the picking.[7] However, due to lack of funding, we have failed to translate our knowledge into the widespread changes that are needed to combat climate change.[1,8]

THE POWER OF BEHAVIORAL SCIENCE

Reducing greenhouse gas emissions will require the development, testing, and scaling up of diverse strategies. Changes are needed in virtually every aspect of society, from the activities of individuals and households to major systems of society (through effective policy change) such as transportation, energy generation, and food production and consumption. Existing research has delineated the targets for change that have the greatest potential to reduce emissions (technical impact), the feasibility of getting change agents to adopt and implement mitigation activities (behavioral plasticity), and the degree to which reduction initiatives will change the behavior of the people and organizations that are targeted (initiative feasibility).[9] What is needed is a substantial expansion of multi-disciplinary empirical research to develop and widely disseminate increasingly effective strategies to bring about the massive reductions in emissions that are needed.

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Examples of How Behavioral Science Can Accelerate the Reduction of Emissions

Adoption of Technology. The nation is betting heavily that technology can reduce emissions.[1,10] However, the adoption and effective use of new technologies requires that we influence people, organizations, and industries to adopt new technologies. Research is needed to pinpoint the most effective ways to accelerate their adoption. Policies that incentivize households and business to adopt green-technology are an obvious pursuit.

Policy Adoption and Implementation. Policy adoption is a matter of human behavior and the actions of organizations. Writing a policy in Washington does not guarantee that it will be adhered to across the nation. Research is needed to identify effective strategies for getting policies adopted, identifying the policies that are most likely to be adhered to, and developing strategies that can increase adherence once they are adopted. One set of policies that are particularly noteworthy are those that incentive homeowners to retrofit their homes (for example, with solar panels) to increase energy efficiency and reduce household emissions.

Scaling Up. Numerous interventions for affecting climate relevant behavior and systems have already been developed by behavioral scientists conducting small scale research.[11-18] These strategies need to be deployed throughout the nation. This too requires research to see which interventions initiative are most feasible on larger scales. Other strategies with high technical impact and initiative feasibility (such as expanding the solar energy tax credit) are also needed on large scales.

Developing and Testing Comprehensive Community Interventions. Thousands of communities worldwide are attempting to reduce their emissions. Yet empirical research that would identify the most effective strategies has been quite limited[8] (despite the success of community interventions for other problems[e.g. 19]). Comprehensive community interventions have the potential to produce synergistic effects due to multiple sectors of the community taking actions that promote action in other sectors.[6] Investment in research on such interventions would enable the nation to accumulate increasingly effective interventions and to abandon strategies that are not working.

Strategies for Affecting the Behavior and Organizational Practices That Contribute the Most to Emissions. Seventy-two percent of global greenhouse gas emissions come from household or "lifestyle" consumption, including mobility, diet, and housing, as opposed to government or capital and infrastructure investment.[20] Behavioral science research has already made progress on many of these sources of emissions.[e.g., 21-24] Greater investment in this research, including policies and interventions to affect our transportation, energy, and food systems, could accelerate the reduction in emissions.

SUGGESTED POLICY

In light of the limited number of studies testing strategies for affecting greenhouse gas emissions, the National Science Foundation (NSF), the Environmental Protection Agency (EPA), and the Department of Energy (DOE) should be directed to:

- **Identify** all of its projects that involve the use of an intervention to affect any aspect of individual, household, organizational, or community behavior or actions that affects greenhouse gas emissions.

- **Create** a committee of behavioral scientists to recommend promising programs of research that are likely to affect individual, household, organizational, or community behavior or actions that affects greenhouse gas emissions such as policy changes.

- **Establish** funding opportunities for the use of interventions to affect behavior or organizational actions that contribute to greenhouse gas emissions and commit 10% of the NSF, EPA, and DOE funding that is currently expended on any aspect of climate change to these opportunities.

Example of Possible Lines of Research

o School programs to educate students and parents about climate change.
o Policies that get people to weatherize their homes and install solar panels
o Strategies for getting communities to require organizations to audit their emissions or to put a tax on carbon
o Strategies to promote the reduction of GHG emission throughout entire communities
o Media strategies to:
  ▪ Increase support for policies that reduce emissions
  ▪ Influence household and organizational actions
  ▪ Strategies for Increasing Acceptance of and Compliance with Policies

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