

R E S P O N S E

Review of Freeman and Guzman's *Climate Change and U.S. Interests*

by Jeffrey Hopkins

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Jody Freeman's and Andrew Guzman's article, *Climate Change and U.S. Interests*, was engaging and convincing in many aspects, though I am not sure that the parts that engaged and convinced me were the parts that Freeman and Guzman intended.¹ While I find their introductory premise flawed, these flaws are not fatal. Still, the material that follows must necessarily be updated and enhanced.

Freeman and Guzman start off by splitting the U.S. population into two groups: those that accept the science and those that don't. They characterize the United States as being a country where there is now widespread, if not universal, consensus that climate change is occurring. Data by Jon Krosnick at Stanford would support this view at the level of the general population²—there is broad support that the scientific case is fairly settled and less subject to variability over time than commonly believed. While this is the case on a very broad public acceptability level, there has been too much politicization and demonization in politics to call anything related to the acceptability of climate change science a consensus.

Freeman and Guzman set aside those who do not accept the science and, instead, focus on the people who accept the science but claim we should do nothing in the face of the threat (those who accept the science and advocate action are similarly ignored). They helpfully enumerate four mutually exclusive arguments used to justify non-action, including arguments that: (1) the United States comes out better (in fact, a *winner*) as a result of a changed climate; (2) action is *futile* because any emissions reductions we bring about are swamped by emissions increases of other countries; (3) action will lead to *leakage* resulting in industry-fleeing

countries that act for countries that don't; and (4) it isn't *fair* for burdens to be disproportionately shared.

The authors focus exclusively on the climate change winner argument and say that their essay will have been successful if they dispose of it. Having never heard the argument before reading the paper, I initially suspected a straw doll, but would rather conclude that they have merely set themselves too low of a goal for this study. I would suggest that the authors expand their focus to more critical discussion areas. There are two promising areas—one could look either at the *futility* and the *fairness* arguments that have raged on for years or, alternatively, they could expand their focus to those who do not accept the science. (The *leakage* argument is a bit more nuanced than discussed in the paper, and it isn't fundamentally an argument against action but rather a proposal for a policy remedy—transition assistance—as part of a climate action policy.)

I recommend focusing on the underpinning of the arguments against the science. A chief argument of those who argue against action based on the science is due to the fact that the science is not settled. Freeman and Guzman point out at multiple points, in the middle sections of the paper, that uncertainty isn't the same as ignorance. They are absolutely correct here, but what is uncertainty and how do we treat it? The authors bring factors into the analysis of the case for action against climate change that are not settled, weigh and consider their effects, and make a rational choice on a course of action. Freeman and Guzman should additionally give policymakers some guidance on how to “think” about uncertainty, rather than allowing policymakers uncertain of the science to abstain from judgment altogether until all reasonable doubt is removed. It could be a very long time, and effectively too late, if we installed such a gateway on our decisionmaking.

Uncertainty is largely the focus of sections II (on leading scientific and economic models) and III (spillovers). I would collapse the arguments into a single thrust and overlay a framework of uncertainty analysis. The causal linkages and measurements of impacts are imprecise across both the atmospheric and economic modeling of climate impacts as well as the spillover effects related to the economy and national security. While the authors do an admirable job of alerting us to the problems of equating uncertainty with

Author's note: The views expressed within this paper are the author's and do not necessarily reflect those of any organizational affiliation.

1. Jody Freeman & Andrew Guzman, *Climate Change and U.S. Interests*, 41 ELR 10695 (Aug. 2011).
2. JON A. KROSNICK & BO MACINNIS, FREQUENT VIEWERS OF FOX NEWS ARE LESS LIKELY TO ACCEPT SCIENTISTS' VIEWS OF GLOBAL WARMING (2010), available at <http://woods.stanford.edu/docs/surveys/Global-Warming-Fox-News.pdf> (indicating that despite significantly greater likelihood of being a climate skeptic, even heavy Fox News viewers do not as a group disagree with the views of mainstream scientists nor do they express little trust of scientists as a group).

ignorance, beyond saying that uncertainty is an important issue, they do little to guide us on how to characterize risk or make decisions in the face of it.

While the task of expanding their argument may appear daunting, I hope that the authors decide to take me up on it. There is some good news here as some of the linkages that they would like to formalize are also the subject of advances in modeling underway for the 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) due in 2013.³ The Summary for Policy Makers will lead with a chapter that includes the treatment of uncertainty. For the first time, the standard integrated assessment models used to date will be joined with Earth Systems Models. Earth Systems Models will incorporate advances in our understanding of carbon cycle feedbacks, which will allow us to incorporate uncertainty and begin to trace impacts to their causes, especially at the regional scale.

These same advances in physical modeling are likewise increasingly being incorporated into economic models, including further advances in the approaches used by Nordhaus cited extensively in the paper. A useful update on the state of modeling was the subject of a November 2010 conference on improving the policy analysis of impacts from climate change.⁴ The presentations therein are particularly useful.

Strictly, incorporation of uncertainty in analysis is only helpful to the extent this information can become incorporated into policy decisions. Formalizing uncertainty will improve the middle sections of the paper, where linkages and uncertainty are asserted to play a major role but their treatment is ad hoc, considerably.

Where Freeman and Guzman could really play a useful role is in treating this information within a risk management framework and, importantly, signaling risk and uncertainty straight up. Likewise, Freeman and Guzman should consider the helpful approach by Mabey, Gullede, Finel and Silverthorne, which sets forth the ABC's of climate risk management.⁵ Mabey et al. lay out the following proposal:

A=Aim to stay below 2° C. Addressing this goal means, among other things, focusing on minimizing the costs of mitigation and, because the goal is aggres-

sive, will require transformational technology as well as enabling infrastructure.

B=Build and budget for 3-4° C. Under this goal, one would focus on the factors that Freeman and Guzman discuss and seek to add to the standard model, both economic and security-related factors. Risk of catastrophic, cross-sectoral, and non-market impacts are treated explicitly.

C=Contingency plan for 5-7° C. Addressing this goal, feedbacks are even more pronounced and tipping points are tripped.

From a risk management perspective, the way to incorporate the evidence that Freeman and Guzman desperately want to uncover is to put in place a strategy that is robust across all three scenarios. This is because there is some likelihood that we will be facing any of them.

In sum, Freeman and Guzman fail to frame their discussion properly by aiming too low in taking on the 'climate change winner' argument and hoping to win this argument by insisting that impacts that are frequently bracketed and set aside are in fact real and should increase arguments in favor of determined and decisive climate action. The usefulness of including uncertain and often-bracketed impacts is, in fact, a much broader discussion and should be extended to the arguments made against the science itself. Freeman and Guzman ask us to treat these costs seriously, which is an entirely worthy goal. We need for them to go further and address 'how' exactly to think about the risk of climate change.

3. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, AGREED REFERENCE MATERIAL FOR THE IPCC FIFTH ASSESSMENT REPORT, available at <http://www.ipcc.ch/pdf/ar5/ar5-outline-compilation.pdf>.

4. See National Center for Environmental Economics, Improving the Assessment and Valuation of Climate Change Impacts for Policy and Regulatory Analysis: Research on Climate Change Impacts and Associated Economic Damages, <http://yosemite.epa.gov/ee/epa/erm.nsf/vwRepNumLookup/EE-0566?OpenDocument> (last visited Apr. 15, 2011).

5. NICK MABEY ET AL., THIRD GENERATION ENVIRONMENTALISM LTD, DEGREES OF RISK: DEFINING A RISK MANAGEMENT FRAMEWORK FOR CLIMATE SECURITY (2011), available at http://www.e3g.org/images/uploads/Degrees_of_Risk_Defining_a_Risk_Management_Framework_for_Climate_Security_Executive_Summary.pdf.