



8 FEB. 2016 STEVEN ROSE

Senior Research Economist, Energy and Environmental Analysis Research Group

Characterizing & Advancing Our Understanding of the Social Cost of Carbon: Deconstructing the Modeling

The social cost of carbon (SCC) is an estimate of global climate change damages to society from a unit of carbon dioxide (CO₂) emissions. Policy-makers are increasingly developing and using SCC estimates to value the climate benefits of regulations reducing CO₂ from vehicles, stationary sources, and energy use. For instance, the US Government recently developed revised estimates using a complex approach with three models. Despite the SCCs increasing prevalence in policy, relatively little is known about the modeling and the specific risks to society implied. This despite the fact that SCC modeling is an aggregate representation of global economic and physical systems for hundreds of years and represents vast amounts of climate change scientific understanding. Overall, there is need for greater technical understanding of the modeling in order to properly interpret, evaluate, and use current estimates and advance science. This study undertakes the first direct comparison of SCC models, diving deep into the modeling with component-by-component assessments that code and run the individual components with controlled experiments to elucidate, evaluate, and compare model behavior. The study explores intermediate and disaggregated results related to socioeconomic, climate, and damage modeling, evaluating total and incremental responses using reference and CO₂ pulse experiments and deterministic and probabilistic modeling. Together, our findings suggest the need for further scientific evaluation of differences and that there are fundamental challenges for policy use associated with the comparability, uncertainty, and robustness of SCC and aggregate damage estimates.

Bio

Steve is a Senior Research Economist in the Energy and Environmental Research Group at the Electric Power Research Institute. Steve's research focuses on long-term modeling of energy systems and climate change drivers, mitigation, and potential risks, as well as the economics of land-use and bioenergy as they relate to climate change and energy policy. Steve serves on the U.S. National Academy of Sciences' committee on modeling the social cost of carbon, the U.S. Carbon Cycle Science Program Carbon Cycle Scientific Steering Group, and EPA's Science Advisory Board panel on Carbon Dioxide Emissions from Biogenic Sources. In addition, Steve co-chairs the bioenergy modeling subgroup of Stanford University's Energy Modeling Forum (EMF). Steve was also a lead author for the IPCC's Fifth and Fourth Assessment Reports, and the U.S. National Climate Assessment.

Carnegie Mellon University

Center for Climate and Energy Decision Making Seminars



8 February 2016
2:00-3:15pm EDT

Baker Hall 129
Carnegie Mellon University

Refreshments will be served. Seminar is presented under the auspices of CEDM and the department of Engineering and Public Policy.

CONNECT ONLINE VIA
BLUE JEANS

<https://bluejeans.com/310778643>

VISIT CEDM ONLINE
www.cedmcenter.org