

EMF 22: Greenhouse Gas Stabilization

Motivation:

Although uncertainty surrounds the politics of climate change policy, there are emerging important technological developments that could fundamentally alter mitigation strategies. Carbon sequestration options could capture and store carbon both in underground oil and gas extraction and in generating power from fossil fuels. The Bush administration has focused corporate and government attention on the prospects of a hydrogen economy at some point in the future. Scientific research has focused attention on the role of non-carbon greenhouse gases. For all of these reasons, previous estimates of the costs of stabilizing future greenhouse gas concentrations may now be seriously outdated.

Focus:

A new study on greenhouse gas stabilization will allow an integrated and systematic analysis of the problem and various strategies by incorporating the most recent information available in modeling frameworks. As a result of recent EMF studies and other efforts, the community of integrated assessment modelers has increased its knowledge about a number of factors that affect costs.

Issues:

- Technology plays a critical role in stabilization plans. What roles will hydrogen, carbon sequestration options and other greenhouse gases play in the estimation of costs associated with reaching various greenhouse stabilization targets. How will these technologies alter the energy mix in various regions of the world, both with and without stabilization?
- In what significant ways, can existing models incorporate more technological detail of interest to the policymaker or corporate strategist? How can technology experts help improve the frameworks for evaluating stabilization and its effect?
- What constraints do agricultural, forestry and other land use place on stabilization strategies?
- What are reasonable population growth trends and how does advanced productivity and income affect demography?
- What other criteria need to be incorporated into stabilization and other scenarios that would be useful to a wider community of interested parties?
- What is the evidence for convergence between rich and poor countries and how does this trend influence economic growth, especially in the developed countries?

Economy, Technology, & Integrated Assessment Models (19):

Asia / Australia

ABARE (Guy Jakeman & Brian Fisher) with GTEM
CICERO -University of Oslo (H.A. Aaheim) with COMBAT
Energy Research Institute China (Jiang Kejun) with IPAC
IAE Japan (Atsushi Kurosawa) with GRAPE
National Institute for Environmental Studies, Japan (Junichi Fujino) with AIM
Indian Institute of Management (P. Shukla) with SGM-India

Canada

McGill University (Richard Loulou) with ETSAP-TIAM

Europe

CEA -IDEI (Marc Vielle) with GEMINI-E3
Cntr for European Econ Research-(C. Boehringer & A. Loschel) with EU PACE
Copenhagen Economics (Jesper Jensen) with the EDGE Model
Hamburg Univ. (Richard Tol) with FUND
IIASA (Shilpa Rao) with MESSAGE
Oldenburg University, Germany (Claudia Kemfert) with WIAGEM
RIVM (Detlef van Vuuren, Tom Kram, & Bas Eickhout) with IMAGE
UPMF (Patrick Criqui) & CIRAD (Daniel Deybe) with POLES/AGRIPOL

United States

Argonne Nat Lab (Don Hanson) & EPA (Skip Laitner) with AMIGA
EPRI (Rich Richels) & Stanford Univ (Alan Manne) with MERGE
MIT (John Reilly) with EPPA
PNNL-JGCRI (Jae Edmonds, Hugh Pitcher, & Steve Smith) with SGM & MiniCAM

Scientific and Technical Experts

Non-CO2 GHG Experts

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Paul Freund and John Gale, IEA Greenhouse Gas R&D Programme

Methane & N2O

Ann Gardiner, Judith Bates, AEA Technology Casey Delhotal, Dina Kruger, Elizabeth Scheehle, USEPA Chris Hendriks, Niklas Hoehne, Ecofys

Fluorinated (HGWP) Gases

Jochen Harnish, Ecofls, Germany
Deborah Ottinger and Dave Godwin, USEPA

Sinks (Terrestrial Sequestration)

Bruce McCarl, Texas A&M
Ken Andrasko, USEPA & Jayant Sathaye, LBNL
Roger Sedjo, RFF & Brent Sohngen, Ohio State University
Ron Sands, PNNL-JGCRI

Adaptation

Gary Yohe, Wesleyan University

Sally Kane, National Science Foundation

Hydrogen, Sequestration and Other Technologies:

Franklyn Orr, Stanford University

Other experts from Stanford's Global Change and Energy Project (G-CEP) and its collaborators.

Howard Herzog, MIT

Dale Simbeck, SFA Pacific