March 26, 2026

ROBERT H. SOCOLOW

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Education

Harvard University, M.A., 1961 and Ph.D. 1964 (Physics)
Harvard College, B.A. (summa cum laude, Physics), 1959
Fieldston School, New York, NY, 1955

Archived materials at the Science History Institute and elsewhere

Dr. Socolow's written materials are archived at the Science History Institute. See this Finding Aid for details. This CV will exist as a supplement to Dr. Socolow's oral history, soon to be available online at the Science History Institute.

Contents

Chronology

January 2022-present: Professor of Mechanical and Aerospace Engineering, Emeritus; Senior Scholar in Mechanical and Aerospace Engineering

September 2019-January 2022: Professor of Mechanical and Aerospace Engineering, Emeritus, and Lecturer with Rank of Professor in Mechanical and Aerospace Engineering and Freshman Seminars, Princeton University

2017-2019: Professor of Mechanical and Aerospace Engineering, Emeritus; Senior Research Scholar, Mechanical and Aerospace Engineering; Lecturer with rank of Professor in Mechanical and Aerospace Engineering and Freshman Seminars, Princeton University

2014-2017: Professor of Mechanical and Aerospace Engineering, Emeritus; Senior Research Scholar, Mechanical and Aerospace Engineering, Princeton University

2013-2014: Professor of Mechanical and Aerospace Engineering, Emeritus; Senior Research Scholar; and Lecturer with rank of Professor in Public Affairs, Princeton University

1979-2013: Professor, Mechanical and Aerospace Engineering, Princeton University

1979-98: Director, Center for Energy and Environmental Studies (formerly Center for Environmental Studies), Princeton University

1978-79: Professor, Department of Aerospace and Mechanical Sciences; Acting Director, Center for Environmental Studies, Princeton University

1977-78: Professor, Department of Aerospace and Mechanical Sciences; Associate Director, Center for Environmental Studies, Princeton University

1976-77: Visitor, Cavendish Laboratory, Department of Physics, University of Cambridge, Cambridge UK.

1971-77: Associate Professor, Department of Aerospace and Mechanical Sciences; Member, Center for Environmental Studies, Princeton University

1971: Summer: Research Associate, Department of Geology and Geophysics, Yale University

1970-71: Yale University Junior Faculty Fellowship

1971: Spring term: Member, Institute for Advanced Study, Princeton, NJ

1966-71: Assistant Professor, Department of Physics, Yale University.

1969-1970: Environmental Study Group (full-time contributor)

1964-66: National Science Foundation Post-doctoral Fellow in Physics, University of California at Berkeley and European Center for Nuclear Research (CERN), Geneva.

1960-64: National Science Foundation Pre-doctoral Fellow in Physics, Harvard University

1960-64: Graduate student, Department of Physics, Harvard University. M.A. 1961. Ph.D. 1964 (thesis advisor, Sidney Coleman)

1959-60: Frederic Sheldon Travelling Fellowship, Harvard College

1955-59: Undergraduate, Harvard College, B.A., Physics ("Junior Eight," *summa cum laude)*

1958: Indiana University, summer for-credit course, Russian Workshop Certificate

1950-55: Fieldston School (8-12), New York City

1945-50: Walden School (3-7), New York City

1942-45: Beit HaYaled (K-2), New York City

Honors, awards and celebrations

2023 John Scott Award (Medal and Premium) from the Board of Directors of City Trusts, City of Philadelphia, "for singular thought leadership pioneering new concepts and creating new fields in energy and the environment, specifically addressing energy efficiency, carbon capture and sequestration, and climate stabilization strategies. Awarded November 30, 2023.

2019 Destiny Studies for a Small Planet, A Retirement Symposium celebrating Robert Socolow's 48 years' commitment to environmental problem solving at Princeton, April 14-15, 2019. Link includes photographs and videos of musical program and talks.

2014 Member, American Academy of Arts and Sciences, Cambridge, MA, October 11, 2014 induction

2014 "Ten Milestone Articles" Award (2014 selection). Special 10th anniversary highlights brochure of the journal. Commitment accounting of $C0_2$ emissions, with S.J. Davis., Featured in *Environmental Research Letters,* ***Vol. 9*** 084018

2010 Leadership in the Environment award of the Keystone Center. Presented by Congressman Rush Holt at the 2010 Keystone Center Leadership Awards Dinner, Union Station, Washington D.C., June 10, 2010

2009 Frank Kreith Energy Award of the American Society of Mechanical Engineers, presented at the Honors Assembly of the ASME Congress, Orlando, Florida, November 16, 2009

2009 Cited for the co-invention of "the Personal Carbon Footprint," listed as Number 12 in "The 50 Best Inventions of 2009," compiled by Time Magazine, December 8, 2009. The Personal Carbon Footprint is *Time*'s restatement of the key idea in Chakravarty et al., *PNAS*, 2009, namely that carbon accounting should include a focus on individual emissions as a supplement to national per capita emissions.

2007 *"Innovators:* A President, a Banker, and an Eclectic Group of Researchers Tackle Earth's Vexing Issues." (Steve Pacala and Rob Socolow are two of the four in the eclectic group.) *Time Magazine,* April 9, 2007, pp. 63-66.

2007 Paper selected for inclusion in ***The Best American Science and Nature Writing****,* Preston, R., Ed. (Houghton Mifflin, New York, 2007) pp. 259-267. A plan to keep carbon in check. with S.W. Pacala. *Scientific American*. **293,** 50-57 (2006).

2005 Axelson Johnson Commemorative Lecture award: For "outstanding research in global carbon management and the hydrogen economy," from the Royal Academy of Engineering Sciences, Sweden (IVA) and the Axel Axelson Johnson Endowment. The award, given every five years, in principle, was last given in 1995. The inscription on the medal reads: "For a remarkable effort in the application of engineering science research in mankind's service [and] for presenting this to the academy in the Academy in the Axel Axelson Johnson lecture," 2005.

Lifetime National Associate of the National Academy: "In recognition of extraordinary service to the National Academies in its role as advisor to the Nation in matters of science,

engineering, and health, by the authority of the Council of the National Academy of Sciences and the Governing Board of the National Research Council," 2004.

The Leo Szilard Lectureship Award, American Physical Society: "For leadership in establishing energy and environmental problems as legitimate research fields for physicists, and for demonstrating that these broadly defined problems can be addressed with the highest scientific standards," 2003.

Princeton University h'00, honorary member of the undergraduate class of 2000.

Fellow, American Association for the Advancement of Science (elected 1990).

National Academy of Sciences medallion recipient, given to "those Americans who have made particularly important contributions to the inter-academy program," commemorating 30 years of scientific cooperation between the National Academy of Sciences and the Academy of Sciences of the USSR, 1959-89.

Fellow, American Physical Society (elected 1984, nominee of the Forum on Physics and Society in its first cohort).

Guggenheim Fellowship, 1976-77, for study of international energy issues at the Cavendish Laboratory, University of Cambridge, U.K.

German Marshall Fund Fellowship, l976-77, for study of international energy issues at the Cavendish Laboratory, University of Cambridge, U.K.

National Science Foundation Post-Graduate Fellowship, 1964-1966

National Science Foundation Graduate Fellowship, 1960-1964

Frederick Sheldon Travel Fellowship, Harvard University, 1959-1960

Woodrow Wilson Fellow, honorary, 1959

Sigma Xi, 1959

Phi Beta Kappa ("Junior Eight"), 1958

John Harvard Scholarship, honorary, 1955

Responsibilities at Princeton University

Present

Associate Faculty, High Meadows Environmental Institute, (renamed in October 2020, previously the Princeton Environmental Institute)

Co-organizer, Climate Futures Initiative in Science, Values, and Policy, a research initiative sponsored by High Meadows Environmental Institute and the University Center for Human Values, 2014-

Collaborator, Energy Systems Analysis Group of the Andlinger Center for Energy and the Environment, 2000-

Associated Faculty, Center for Policy Research on Energy and the Environment, Princeton School of Public and International Affairs (formerly Woodrow Wilson School of Public and International Affairs.)

Associated Faculty, Brazil LAB, Princeton University

Fellow, Rockefeller College

Past

Senior Advisor, Carbon Mitigation Initiative, High Meadows Environmental Institute, (renamed in October 2020, previously the Princeton Environmental Institute), 2019-2025.

Member of Director Search Committee, Andlinger Center for Energy and the Environment, 2021-2022

Teacher, Freshman Seminars, Time Capsules for Climate Change: A Freshman Seminar, Fall 2017, 2018, 2019, 2020, 2021

Teacher, Undergraduate and Graduate Courses, Mechanical and Aerospace Engineering, Princeton School of Public and International Affairs, and High Meadows Environmental Institute

Chair of Postdoctoral Search Committee, Climate Futures Initiative, January – April 2021

Co-Principal Investigator, Carbon Mitigation Initiative, a 25-year University-wide sponsored research program supported by BP, 2000-2019.

Organizer, Energy Technology Distillates, a series of energy and environment publications sponsored by the Andlinger Center for Energy and the Environment, 2013-2019.

Head, Princeton Energy and Climate Scholars (PECS), an honor society for graduate students, 2008-2019

Member, Princeton Environmental Institute Executive Committee (renamed High Meadows Environmental Institute, October 2020), 1994-2005 and 2007-2016.

Head, Siebel Grand Challenge in Energy, Climate and Security (Princeton Environmental Institute (renamed High Meadows Environmental Institute, October 2020), Princeton School of Public and International Affairs, School of Engineering and Applied Science), 2008-2015.

Co-Principal Investigator, Carbon Mitigation Initiative, a 15-year (2000-2015) University-wide sponsored research program supported by BP and Ford.

Co-organizer (with Robert Keohane, Melissa Lane, Michael Oppenheimer and Harold Shapiro), Communicating Uncertainty: Science, Institutions, and Ethics in the Politics of Global Climate Change, a 3-year research initiative (2011-2014) sponsored by Princeton Institute for International and Regional Studies.

Participant, “Frontiers on Combustion” 2012 Princeton-CEFRC Summer School on Combustion

Co-organizer (with Robert Keohane and Michael Oppenheimer), Climate Change Colloquium for Princeton faculty, Fall 2010.

Member of Planning Group, Initiative on Oil and the Middle East (with Stephen Pacala, Shivaji Sondhi, and Michael Cook).

Participant, workshop on "Science, Democracy, and Global Environmental Regulation," Woodrow Wilson School (renamed Princeton School of Public and International Affairs, 2020), May 14-15, 2009. Also, contributor of an informal paper to the workshop, "Science, Democracy, and Geoengineering."

Co-organizer, Ethics and Climate Lecture Series (jointly with the University Center for Human Values), 2008-2009.

Co-convenor (with David Tilman), one-day workshop on the environmental dimensions of biofuels resources, June 2008.

Convener, High Meadows Environmental Institute Faculty Seminar Series

Member, Faculty Advisory Committee on Policy, 1999-2001

Member, Council of the Princeton University Community (Executive Committee, 1999, 2001)

Co-Convenor, “Linking Industrial Ecology to Public Policy,” an NSF-sponsored workshop, White House Conference Center, Washington, DC, April 30, 1998.

Director, Center for Energy and Environmental Studies, 1979-98

Faculty Fellow, Princeton Society of Fellows of the Woodrow Wilson Foundation, 1995-97

Member, Princeton Environmental Institute Executive Committee, 1990’s

Professor-in-charge, Thermal Sciences, Department of Mechanical and Aerospace Engineering

Member, Board of Directors, Center for Jewish Life (Hillel)

Member, Council on Science and Technology, 1991-97

Faculty Advisor, Marshall Scholarship Competition, 1991-97

Chair, Topical Program in Environment and Energy, School of Engineering 1987-88

Affirmative Action Officer, Department of Mechanical and Aerospace Engineering, 1987-1988

Examiner for MAE, Russian Language Proficiency, 1986-1988

Vice-chairman of 11-member U.S. delegation, Workshop on U.S.-U.S.S.R. Collaboration on Energy Conservation Research and Development, Moscow and Irkutsk, July 4-18, 1987.

Participant, meeting of the Editorial Board of Annual Reviews of Energy, Berkeley, CA, July 2, 1987.

Member, Princeton University Research Board, 1977-

Member, Sponsored Research Subcommittee, Department of Aerospace and Mechanical Sciences, 1977-1978

Consultant on energy conservation in housing to: Response Analysis, Princeton, N.J., 1977-1978

Teacher, Undergraduate and Graduate Courses, Mechanical and Aerospace Engineering and Princeton School of Public and International Affairs (formerly Woodrow Wilson School of Public and International Affairs)

Conference Director, Air Quality and Automobile Emissions: A Case Study (Princeton University Conference Number 110, Sponsored by the Center for Environmental Studies) April 11-12, 1972

Co-organizer with Hal Feiveson. Spring 1972 "On Wilderness" Colloquium (evening lecture) Series at Stevenson Hall, McPhee, J (2023). "Not that one," a brief chapter in *Tabula Rasa Volume 1*, Farrar Straus & Giroux, pp 132-133. The chapter is a reprint of McPhee's brief article with the same title in *The New Yorker*, February 7, 2022. McPhee recounts the lecture by Edward Abbey in the Princeton's *On Wilderness* series in 1972.

Boards, committees, editorships, and other activities beyond Princeton University

Present

Member, Science and Security Board, Bulletin of the Atomic Scientists, 2019- . Chair of Nominating Committee, 2023-

Member, National Academies of Sciences, Engineering, and Medicine's Committee to Advise the U.S. Global Change Research Program, 2021-2025 (suspended)

Past

National Research Council

Member, *America's Climate Choices*, a Committee of the National Research Council, 2008-2011

Member, *America's Energy Future*, a Committee of the National Research Council, 2007-2009

Member, *Grand Challenges for Engineering*, a committee of the National Academy of Engineering, 2006-2009

Member, *Panel on Carbon Sequestration*, National Research Council 2005-2006

Member, *Committee on Alternatives and Strategies for Future Hydrogen Production and Use*, 2002-2004 (Report 2004)

Member, *Committee to Review DOE's Vision 21 R&D Program* Preliminary Report 2000, Final Report 2003

Member, *Board on Energy and Environmental Systems*, 1999-2002

Member, *Ecosystems Panel*, National Research Council, 1997-2000

Member, *Committee on R&D Opportunities for Advanced Fossil-Fueled Energy Complexes*, National Research Council, 1999-2000

Member, *Steering Committee, Exploratory Workshop on Earth Systems Engineering*, National Academy of Engineering, 2000

Member, *Steering Group, Fusion Science Assessment Committee*, National Research Council, 1999-2000

Member, *Committee on the Human Dimensions of Global Change*, National Research Council, 1992-1998

Member, *Committee for the Study on Transportation and a Sustainable Environment*, National Research Council, 1994-1997

Member, *Board on Global Change*, National Research Council, Washington, DC, 1993-95

Member, US-Soviet Committee on Energy Conservation Research and Development, National Academy of Sciences, 1986-89

Member, Committee on Behavioral and Social Aspects of Energy Consumption and Production, Assembly of Behavioral and Social Sciences, National Research Council, 1981-1984

Member, C*ommittee on Buildings and Community Energy Systems Energy Conservation (Phase III)*, Advisory Board on the Built Environment (ABBE), National Research Council, 1981-1983

Member, Commission on Sociotechnical Systems, National Academy of Sciences, National Research Council, 1980-1982

U.S. Department of Energy

Member, *Secretary of Energy Advisory Board Task Force*, contributing to its report on "CO_2 Utilization and Negative Emissions Technologies," submitted to the Secretary of the U.S. Department of Energy, 2016

Member, *Nuclear Energy Research Advisory Committee*, U.S. Department of Energy, 1998-2000

Member, *Coordinating Committee, Project to prepare the "Working Paper on Carbon Sequestration Science and Technology,"* U.S. Department of Energy, 1999

Co-chair, *Workshop on Technological Opportunities for Fuels Decarbonization and Carbon Sequestration*, Washington, DC, sponsored by the U.S. Department of Energy, The Embassy Row Hilton, July 28-29, 1997

Member, Conference Organizing Committee*, Basic Research Needs for Environmentally Responsive Technologies of the Future*; and Chairperson, *Cross-Cutting Workshop, Health, Ecological, and Environmental Impacts*. Sponsored by NSF and DOE, New Orleans, January 4-5, 1996

Member, Conference Organizing Committee, *Basic Research Needs for Vehicles of the Future*. Sponsored by NSF and DOE, New Orleans, January 5-7, 1995

Member, Conservation Panel, Energy Research Advisory Board, U.S. Dept. of Energy, 1979-1982

Consultant, Buildings Energy Data Group, Oak Ridge National Laboratory, 1979-1980

Consultant/Member, Buildings Group Advisory Committee, Energy and Environment Division, Lawrence Berkeley Laboratory, 1978-1980

Member, Advisory Committee, National Center for the Analysis of Energy Systems, Brookhaven National Laboratory, 1979-1980

Other activities beyond Princeton University

Participant, Nobel Laureate Assembly for the Prevention of Nuclear War, University of Chicago, July 14-16, 2025

Participant, Fall 2024 Workshop Series on the Ethics and Social Interactions of Climate Intervention Technologies, Directorate for Geosciences, National Science Foundation. Toby Scott, facilitator. October 2024 to February 2025.

Participant, NSF-Sponsored Workshop series, *The Ethics and Social Interactions of Climate Intervention Technologies*, Fall 2024

Participant**,** Simons Foundation Solar Geoengineering Workshop, Flatiron Institute, September 19-20, 2022.

Mentor, working group on "Climate Change and Energy Transition," *George Washington University Senior Manager Course in National Security Leadership*, March 5 and March 8, 2021.

Member, Expert Council, *MIT Climate Collaboratorium*, 2010-2020

Member, Strategic Advisory Board, *Joint Center for Artificial Photosynthesis* (Cal Tech) 2010-2020

Member, Editorial Board, *Energy and Environmental Science*, Royal Society of Chemistry, 2007-2018

Guest editor (with M. Tavoni), *"*Carbon Dioxide Removal from the Atmosphere: Complementary Insights from Science and Modeling," Special issue of *Climatic Change,* 2018

Member, Deutsche Bank Climate Change Advisory Board, 2008-2017

Member, Director's Advisory Board, Lawrence Berkeley National Laboratory (LBNL), 2009-2016

Member, Scientific Advisory Panel, Centro Euro-Mediterraneo per i Cambiamenti Climatici, 2011-2014

Member, Selection Committee, "Climate Change and Urban Resilience," International Center for Climate Governance Awards, 2013

Chair (2012), Science and Security Board, *Bulletin of the Atomic Scientists*, 2008-2013

Member, Scientific Advisory Board, Fondazione Eni Enrico Mattei (FEEM), Milan, 2009- 2013

Juror, Heinz Awards Program, Heinz Family Foundation, 2010 and 2011

Co-chair (with successive co-chairs William Brinkman, Arun Majumdar, and Michael Desmond), *Report on the Direct Capture from Air of Carbon Dioxide with Chemicals*, Panel on Public Affairs, American Physical Society, 2008-2011

Chair (2010), Panel on Public Affairs (POPA), American Physical Society; Chair-Elect (2009) and Vice-chair (2008)

Invited participant, Scoping meeting for the IPCC Fifth Assessment Report (AR5). July 13-17, 2009, Venice, Italy

Invited participant, Ideas Festival of the Aspen Institute, 2006, 2008, and 2009

Convenor, Workshop on Nuclear Power and Climate, Princeton University, November 19, 2009

Member, week-long summer study on aerosol injection into the stratosphere (Steve Koonin, chair; sponsored by Novim, a Santa Barbara CA non-governmental organization), 2008-2009

Co-convenor (with David Tilman), one-day workshop on the environmental dimensions of biofuels resources, Princeton University, June 2008

Scientific advisor, MissionPoint Capital Partners, 2007-2009

Invited guest, World Economic Forum, Davos, Switzerland, 2007

Chair, Academic Review Panel, "Reducing U.S. Greenhouse Gas Emissions: *How Much at What Cost*?," U.S. Greenhouse Gas Abatement Mapping Initiative, Executive Report, McKinsey & Company, December 2007

Member, Program Committee, 50th Anniversary of the Global Carbon Dioxide Record, Symposium and Celebration, Kona, Hawaii, 2007.

Member, Program Committee, NETL Meeting: Sixth Annual Conference on Carbon Capture & Sequestration, 2007

Member, The National Petroleum Council CO_2/Environment committee, contributing to its "Global Oil and Gas Study," requested by the secretary of the U.S. Department of Energy, 2006-2007

Consultant, Vattenfall and McKinsey "Global Energy Study", 2006

Convener, International Energy Workshop of the InterAcademy Council, held under the auspices of the Indian National Science Academy, New Delhi, India, May 30-31, 2006

Consultant, International Energy Agency, assisting in the development of the "Alternative Policy Scenario" presented in the *World Energy Outlook-2006*, 2005-2006

Consultant, World Wildlife Fund, assisting its WWF-wide "Energy Task Force," 2005-2007

Member, InterAcademy Council committee, charged with conducting an energy study, "Transitions to Sustainable Energy Systems," 2005-2007; coauthored the report, "Lighting the Way: Toward a Sustainable Energy Future."

Member, Steering Committee, U.S. Department of Energy/National Energy Technology Laboratory, Fourth Annual Carbon Capture and Sequestration Conference, May 2005

Member, Managing Board, *Journal of Industrial Ecology*, 1997-2005

Member, IIASA Evaluation Committee on Energy and Technology, 2004

Member, Oxford Commission on Sustainable Consumption, Oxford Centre for the Environment, Ethics and Society, Mansfield College, University of Oxford, 1999-2004

Contributing Editor, *Environment*, 1999-2007

Member, Future of Coal subproject, Energy Futures Project, Turner Foundation and U.N. Foundation, 2002-2003

Member, Environmental Science Advisory Committee, Environmental Defense Fund, 1999-2001

Member, Editorial Board, *Perspectives in Energy* (Pion)

Editor, *Annual Review of Energy and Environment* (Annual Reviews), 1992-2002; Associate Editor 1988-1992

Member, Science and Policy Program Committee, Second International Nitrogen Conference, 2001, 1999-2002

Member, Editorial Committee for the special issue of *Ambio*, Vol. 31, presenting the edited papers for the Second International Nitrogen Conference, October 14-18, 2001, Potomac, MD, 2002

Member, Advisory Committee for the Foundation's Initiative in the Former Soviet Union, The John D. and Catherine T. MacArthur Foundation, 1993-2001

Member, Board of Directors, National Audubon Society, 1992-1999

Member, Research Planning Committee, International Human Dimensions Program-Industrial Transformation (IHDP-IT) 1997-1999

Member, National Council, Federation of American Scientists, 1995-1999

Member, Project on the Long-Term Future for Nuclear Power, Atlantic Council of the United States, 1997-1999

Member, U.S. Team. Comparative Study of Environment and Development Values, Carnegie Council on Ethics and International Affairs, 1997-1998

Member, Asia Seminar (Seoul Korea) and Global Seminar (Cannes, France) on the Future of Nuclear Power, The Atlantic Council of the United States

Member, World Bank Energy and Environment Steering Committee, 1996-97

Member, Board of Directors, Harvard Club of Princeton, 1995-1997

Member, Panel on Public Affairs (POPA), American Physical Society, 1994-1996

Head, Energy and Environment Sub-Committee, Panel on Public Affairs (POPA), American Physical Society. 1994-1995

Chairman, Advisory Committee, Environmentally Conscious Design Strategic Initiative Group, National Center for Manufacturing Sciences, Ann Arbor, MI, 1993-1996

Co-editor-in-chief (with Forman Williams) book series "Physics of Energy and Environmental Issues" American Institute of Physics, 1994-1997

Member, Advisory Board, Center for Environmental Legal Studies, Pace University, White Plains, NY, 1995-1996

Member, Board of Directors, Harvard Club of Princeton, 1995-2000 (approx).

Member, Coordination Board, Center for Arms Control, Energy and Environment, Moscow Physical-Technical Institute, Moscow, Russia 1995-1996

Participant, Committee on the Human Dimensions of Global Change, National Research Council, 1995

Member, Fusion Review Panel, The President's Committee of Advisors on Science and Technology, 1994-1995

Participant, Research Series on China and the Environment, Council on Foreign Relations 1994?

Participant, Conference on Basic Research Needs for Vehicles of the Future, New Orleans, LA, January 5-7, 1995.

Member, U.S. Advisory Group to the U.S. Steering Committee, Project on Energy Policies for the Newly Independent States of the Former Soviet Union, The Atlantic Council, 1993-95

Chairman of the Board, American Council for an Energy-Efficient Economy, 1989-93; founding member, ca. 1980

Participant, Workshop on Environmental and Energy Implications of Raw Materials Choice for Industrial Use, Board on Agriculture, National Research Council, Washington, DC, December 1993.

Participant, (as chair of the Environmental Advisory Committee), Meeting of the Environmentally Conscious Manufacturing Planning Committee of the National Center for Manufacturing Sciences, Hartford, CT, December 1993.

Member, Advisory and Selection Committee, Pew Scholars Program in Conservation and Environment, 1989-92

Director, Global Change Institute, "Industrial Ecology and Global Change," Snowmass, CO, July 1992

Member of the Board, American Energy Assurance Council, 1989-92

Member, Long-Range Planning Committee, School of Engineering & Applied Science, 1987-1988

Participant, Energy Working Group, World Conference on the Changing Atmosphere: Implications for Global Security. June 27-30, 1988

Head, Energy Advisory Committee to the Executive Committee of the Board of the International Foundation for the Survival and Development of Humanity 1987-1988

Member, American Energy Assurance Council 1987-1988

Member, three-person delegation to Planning Meeting for the US-USSR Collaboration on Energy Conservation Research and Development, Moscow and Leningrad, March 28 - April 4, 1987

Member, Organizing Committee, 1988 Summer Study on Energy Efficiency in Buildings, convened by the American Council for an Energy-efficient Economy 1987-1988

Member, Organizing Committee, ACEEE 1984 and 1986 Summer Studies on Energy Efficiency in Buildings

Senior Participant, 4th Biennial Student Pugwash International Conference, "Science, Technology & Individual Responsibility" June 23-29, 1985, Princeton.

U.S. participant, 1983 Pugwash Conference on Science and World Affairs, Venice, Italy.

Panel Chairman, (Existing Residences). ACEEE 1982 Summer Study, "What Works? Documenting the Results of Energy Conservation in Buildings," Santa Cruz, California, August 21-28, 1982

Consultant to the Committee on Global Resources and Environment, Board of Directors, MacArthur Foundation, 1981-1982

Consultant, Corporate Planning, Royal Dutch Shell, London. 1981-1982

Visiting Scientist, Rocky Mountain Biological Laboratory, Gothic, Colorado (July 1983 &1984).

Fellow, American Physical Society

Associate Editor, *Annual Review of Energy* (Annual Review, Inc.)

Senior Investigator, Rocky Mountain Biological Laboratory, Gothic, Colorado (1983).

Member, Committee on Behavioral and Social Aspects of Energy Consumption and Production,

Founding Member, American Council on the Energy-Efficient Economy, 1981-1982

Member, Editorial Board, *Energy and Buildings* (Elsevier, a refereed journal begun in 1977) 1977- 1982

Member, Editorial Board, Energy and Resources (North-Holland), 1979-1982

Member, Managing Board, *Journal of Industrial Ecology,* 1982
Founding Member, American Council on the Energy-Efficient Economy 1980-1983

Member, Organizing Committee, Energy Retrofit Conference, Mid- Atlantic Solar Energy Association, 1980-1982

Reviewer, Cambridge University Press, 1980-1982

Reviewer, Science 80, 1980-1982

Reviewer, National Geographic, 1980-1982

Invitee, Round Table on the Energy Future of New Jersey, *New York Times,* 1980-1981

Member, Advisory Board, "Ethics and the Environment," project sponsored by the National Endowment for the Humanities at the Dept. of Philosophy, Bowling Green University, 1978-1980

Member, Buildings Steering Group, Energy Productivity Center, Carnegie-Mellon Institute of Research, Arlington, VA, 1978-1980

Consultant, Office of Technology Assessment, U.S. Congress, 1979-1980

Consultant, Solar Engineering Group, Princeton, N.J, 1979-1980

Founding Member, American Council on the Energy Efficient Economy (ACE-3), 1979-1980

Consultant, Energy Clinic Corporation, Westport, CT, 1979-1980

Member, National Energy Strategies Forum of Resources for the Future, 1977-1978

Member, Program Committee on "The Development of Ocean Resources," National Academy of Sciences, 1977-1978

Participant and Member of Steering Committee, Conference on Social Values and Technology Choice in an International Context, Wingspread, Racine, Wisconsin, June 1978

Member, Seminar Association of Columbia University, New York, Seminar on Technology and Social Change, 1977-1978

Member, Review Panel, Office of Technology Assessment, to review a draft report by OTA analyzing the impacts of the projected natural gas shortage in the 1975-76 winter. October 1975

Member, Overview Task Group, Office of Technology Assessment, to prepare an analysis of the ERDA plan and program. July- September 1975.

Consultant, Office of Technology Assessment on National Energy Policy. Consultant, State Energy Office, N.J. and Dept. of Labor & Industry, N.J. on energy policy in the northeast, 1976

Consultant, Resources for the Future and the Ford Foundation on nuclear energy, 1976

Consultant, Institute for Energy Analysis, Oak Ridge, TN, 1976

Consultant to the program to develop manuals on energy conservation, Center for Building Technology, National Bureau of Standards, 1976

Consultant in discussion of the proposal to develop the Blairstown site, Rockefeller Foundation, New York, March, 1976

General Consultant and Advisory Board Member, 1973 The Energy Policy Project, Ford Foundation

Publications

Books

Socolow, R.H. and Ross, M., eds., *Energy Conservation, Proceedings of the Soviet-American Symposium*, Moscow, June 1985, Moscow, Soviet Union, June 1985. US-Soviet Committee on Energy Conservation Research and Development, National Academy of Sciences. *Energy.* Special issue, Volume 12, Number 10/11, pp. 907-1195, Pergamon, 1987.

Stern, P.C., Dietz, T., Ruttan, V.W., Socolow, R.H., and J.L. Sweeney, Eds,(1997) Environmentally Significant Consumption, Committee on the Human Dimensions of Global Change, Commission on Behavioral and Social Sciences and Education, National Research Council, Washington, DC. National Academy Press.

Socolow, R.H., Andrews, C., Berkhout, F., and Thomas, V., Eds.(1994). *Industrial Ecology and Global Change*. Cambridge University Press. (Builds on the 1992 Global Change Institute summer study, Office of Interdisciplinary Earth Studies, University Corporation for Atmospheric Research, organized by Graedel, T., Moomaw, W., and Socolow, R.).

Socolow, R.H., Ed, (1978). *Saving Energy in the Home: Princeton's Experiments at Twin Rivers* Ballinger Press. Co-authors: L. Becker, Y. Benjamini, J. Beyea, J. Darley, G. Dutt, D. Harrje, N. Malik, L. Mayer, C. Seligman, F. Sinden, R. Sonderegger, T.Woteki.

Feiveson, H., Sinden, F., & Socolow, R.H., Eds.. (1976). *Boundaries of Analysis: An Inquiry into the Tocks Island Dam Controversy*. Ballinger Press. This volume is one of two prepared for the Human Values, Systems Analysis, and the Environment Project (Murray Gell-Mann, Chair), American Academy of Arts & Sciences.

Ford, K., Rochlin G., Socolow, R.H., Ross, M., Hartley, D.L., Hardesty, D.R., Lapp, M., Dooher, J., Dryer, F., Berman, S..M., Silverstein, S.D., (1975). *Efficient Use of Energy: The American Physical Society Studies on the Technical Aspects of the More Efficient Use of Energy*, Conference Proceedings No. 25, American Institute of Physics.

Harte, J., & Socolow, R.H. (Eds). (1971). *Patient Earth*. Holt, Rinehart and Winston.

Book chapters

Harte, J. & Socolow, R.H. (2020). Impatient Earth. In Tortell, P. (Ed.), *Earth 2020: An Insider's Guide to a Rapidly Changing Planet* (pp. 13–22). Open Book Publishers.

Socolow, R.H. & English, M.R. (2011). Living ethically in a greenhouse. In Arnold, D.G. (Ed.), *The Ethics of Global Climate Change* (pp. 170-191). Cambridge University Press.

Socolow, R.H. (2006). Stabilization wedges: an elaboration of the concept. In Schellnhuber, H.J., Cramer, W., Nakicenovic, N., Wigley, T., Yohe, G. (Eds.), *Avoiding Dangerous Climate Change* (Chap. 36), Cambridge University Press.

Socolow, R.H. (2002). The century-long challenge of fossil-carbon sequestration. In Riggs, J.A. (Ed.), *U.S. Policy on Climate Change: What's Next?* (pp. 97-107). The Aspen Institute.

Socolow, R.H. (2001). Scale, Awareness, and Conscience: The Moral Terrain of Ecological Vulnerability. In Galston, A.W., Shurr, E.G. (Eds.), *New Dimensions in Bioethics: Science, Ethics, and the Formulation of Public Policy* (pp. 65-78). Kluwer Academic

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223 "Supplemental Radon Diagnostics from the Piedmont Study," Proceedings of the Radon Diagnostic Workshop, April 13-14, 1987. Center for Energy and Environmental Studies Report #223 (with Hubbard, L, Lovell, T., Bohac, D., Decker, C., Gadsby, K., and Harrje, D.).

#209 "Princeton at Santa Cruz: American Council for an Energy Efficient Economy Summer Study on Energy Efficiency in Buildings," Santa Cruz, CA, August 1986 (Buildings Energy Research Group).

#203 "Progress Report: Monitoring the Energy Performance of the Enerplex Office Buildings: 155 Results for the First Year of Occupancy." December 1985 (with Norford, L., Rabl, A., and Augar 1980 (with Fels, M., Sean, D. and Spadaro, J.).

#202 "The Modular Retrofit Experiment: Design, Scorekeeping and Evaluation" July 1985 (with Dutt, G., Lavine, M., Levi, B.).

#201 "PRISM Applied to a Multi-family Building: The Lumley Homes Case Study" August 1985 (with DeCicco, J., Dutt, G. and Harrje, D.).

#196 "PRISM: A Conservation Scorekeeping Method Applied to Electrically Heated Homes" July 1985 (with Fels, M., Rachlin, J. and Stram, D.). Also distributed by Electric Power Research Institute as Report #EPRI EM-4358, December 1985.

#191 "Field Studies of Energy Savings in Buildings: A Tour of a Fourteen-Year Research Program at Princeton University" May 1985.

#190 "The Physicist's Role in Using Energy Efficiently: Reflections on the 1974 American Physical Society Summer Study and the Task Ahead," April 1985.

#173 "Pressurization Testing, Infiltration Reduction Energy Savings" January 1984 (with. Jacobson, D. and Dutt, G.).

#170 "Princeton at Santa Cruz: American Council for an Energy-Efficient Economy, Summer Study on Energy Efficiency in Buildings, Santa Cruz, CA," August 1984 (with Buildings Energy Research Group). Co-author of two papers in this report: "Measuring Solar Gains in Office Buildings" (with Norford, L. Rabl, A., and Ryan, L.), "Operating Rules for Office Buildings" (with Norford, L. and Rabl, A.).

#166 "Seasonality of Non-Heating Consumption: A Study Based on Submeter Data" June 1984 (with Rachlin, J. and Fels, M.).

#165 "The Effect of Burning Wood on Saving Electricity: An Exploratory Analysis" May 1984 (with Fels, M. and Stram, D.).

#160 "Monitoring Consumption in Electrically Heated Houses (Methodology Development: Phase I) August 1983 (with Fels, M., Stram, D., and Rachlin, J.).

#159 "Measurements of Performances of Solar Heated Office Buildings" December 1983 (with Norford, L. and Rabl, A.).

#157 "Resource-Efficient High Technology, Basic Human Needs, and the Convergence of North and South," April 1982.

#155 "Can a Simple Physically-Based Model Provide Accurate Scorekeeping of Electricity Savings in Houses?" August 1983 (with Fels, M., Stram, D., and Rachlin, J.).

#149 A Shortened version of #149.

#149 "The Ice Pond - Production and Seasonal Storage of Ice for Cooling" August 1982 (with Kirkpatrick, D., Masoero, M., Rabl, A., Roedder, C. and Taylor, T.).

#139 "Exploratory Analysis of Oil-Heated Houses," July 1983 (with Fels, M., Goldberg, M. and Lavine, M.).

#130 "The Modular Retrofit Experiment: Exploring the House Doctor Concept," February 1982 (with Dutt, G., Lavine, M., and Levi, B.).

#113 "Air Leakage Reduction and Energy Savings in the Modular Retrofit Experiment," February 1983 (with Dutt, G. and Jacobson, D.). 1990

#106 "Scorekeeping for Retrofits: Issues Pertinent to the Management of the 1000-House Pilot Project in Lakewood, NJ" August 1980 (with Darley, J., Fels, M., Goldberg, M. and Lavine, M.).

#78 "Twin Rivers Project Public Data Set Documentation," February 1979 (with Dutt, G. and Eichenberger, A.).

#51 "The Twin Rivers Program on Energy Conservation in Housing: A Summary for Policymakers," June 1977.

#32 "The Twin Rivers Program on Energy Conservation in Housing: Four-Year Summary Report," 1976 (with R. Sonderegger).

#26 "Energy Conservation in the Built Environment," February 1976.

#19 "Energy Conservation in Housing: Work in Progress and Plans for 1975-76," April 1975 (with Harrje, D., Mayer,L. and Seligman, C.).

#14 "Energy Conservation in Housing: The Design of the Omnibus Experiment," December 1974 (with Harrje, D., Mattingly, G., Mayer, L., and Seligman, C.).

#12A & 12B "Failures of Discourse: Obstacles to the Integration Environmental Values into Natural Resource Policy," November 1974.

#8 "Failures of Discourse: The Priority Research Problem in Integrating Environmental Values into Natural Resource Policy," April 1974.

#6 "Energy Conservation in Housing: First Annual Progress Report," 1973.

Center for Energy and Environmental Studies Working Papers, authored or co-authored.

The entire set of papers is at the Science History Institute in Philadelphia- see finding aid here.

#130 "Conversion to Electric Power Objectives of the Russian Production Lines for Gas Turbines for Military Aircraft - Notes from conversations in Moscow in April 1992 with Academicians Oleg Favorsky and Alexander Sheindlin," May 1992.

#117 "An Experimental Approach to Environment Respectful Global Development of the Energy System," May 1990.

#115 "Recapitulation of the Themes of the Buildings Sessions the Conference Energy, Technology, and the Environment in the Twenty-First Century - The Massachusetts Institute of Technology - Cambridge, MA, USA" May 1990.

#111 "Preliminary Investigation into Long-Term Behavior of Radon Progeny in Houses," (with Bolker, B., Reddy, T. A., Cavallo, A., Gadsby, K.), May 1990.

#101 "Energy Conservation in the Soviet Union: A Technical Perspective," November 1988.

#78 "The Urgency of a Comprehensive Test Ban," July 1985.

#60 "An Experimental Program to Study the Performance of Enerplex, Two State-of-Art Commercial Office Buildings," August 1982 (with Norford, L., Rabl, A., and Seroussi, R.

#56 "Resource-efficient High Technology, Basic Human Needs, and Convergence of North and South," April 1982.

#52 "Preliminary Results of the Modular Retrofit Experiment: Tests of the House Doctor Concept by New Jersey's Gas Utilities," December 1980.

#51 "Bounds on the Price of Heat," May 1978.

#50 "The Modular Retrofit Experiment Involving New Jersey Gas Utilities and Princeton University," (with Dutt, G. and Harrje, D.) December 1979.

#20 "A Model of Heat Flow in an Attic," May 1975.

#19 "Time-Series Models for the Energy Balance in a House," April 1975.

#16 "Investigations of the Applicability of Commercial Computer Programs to Residential Energy Consumption," April 1975 (with Feinberg, C., Mattingly, G., and Schrader, T.).

#13 "Energy Conservation in Housing: Concepts and Options," June 1974.

#12 "Preliminary Thoughts on the Potential Research Areas for a Summer Study on Technical Aspects of Energy Conservation," January 1974.

#11 "Conservation Research Results from a Statistical Analysis of Monthly Gas and Electric Consumption at Twin Rivers, N.J.," January 1974.

#7 "Energy Utilization in a Residential Community," February 1973.

#6 "New Tasks for the Energy Industries," November 1972.

#5 "Communicating with Environmentalists," November 1972.

#4 "Ruminations on The Limits to Growth and the Fractured Academy," November 1972.

Teaching

Advising, completed graduate student theses (advised or co-advised)

Department of Mechanical and Aerospace Engineering
H. Geller, MAE/MSE, 1979; B. Arnason, MAE, 1980; J. Ford, MAE, 1980; T. Hernandez, 1980; M. Masoero, MAE, 1982; L. Norford, MSE, 1982;, A, Persily, MAE, 1982; S. Hochgreb, MAE, A. Abbud-Madrid, MAE, J. DeCicco, MAE, Esther Hsieh, MSE, 1988; Thomas Norton, Ph.D., 1989; Scott Englander, MSE, 1990; Mark Fulmer, MSE, 1990; Alistair Lloyd, MSE, 1990; Stefano Consonni, Ph.D., 1992; Ryan Katofsky, MSE, 1993; Jeffrey Chen, MSE, 1994, G Terzian, MSE, l995; Laura Iwan, MSE, 1997; Wendy Hughes, Ph.D., 1998; Theodore Caplow,

MSE, 1998; Bruce Lin, MSE, 1999; Paul Henderick, MSE, 2000; Chao Chen, MSE, 2002; Christopher Yang, Ph.D., 2003; Wei Wang, MSE, 2004; David C. Denkenberger, MSE, 2005; Luca De Lorenzo, MSE, 2005; Zhong Zheng, MSE, 2014.

Other Departments
Bryan Mignone, Ph.D. (Geosciences), 2006; Samir Succar, Ph.D. (Electrical Engineering), 2008; Chi-Jen Yang, Ph.D. (Woodrow Wilson School), 2008; Jie Li, Ph.D. (Woodrow Wilson School), 2010; Yuan Xu (Woodrow Wilson School), 2010; Nicolas Lefevre-Marton, Ph.D. (Woodrow Wilson School) 2013; Phillip M. Hannam, Ph.D. (Woodrow Wilson School), 2016.

Sample course (slides for 12 lectures), Living in a Greenhouse: Technology and Policy (WWS 585b/MAE 580) Fall Term 2013.

Lecture Week 1: Introduction to the course and Climate science & IPCC

Lecture Week 2: Impacts and adaptation

Lecture Week 3: Primary energy, especially global oil

Lecture Week 4: Abundant hydrocarbons; The energy conversion system: key concepts

Lecture Week 5: Individual demand, footprints, and poverty

Lecture Week 6: Personal emissions, National and subnational policies, James Hansen visit

Lecture Week 7: International governance and cooperation

Lecture Week 8: Wedges; Achieving energy efficiency; Land use, food, and biocarbon

Week 8 Supplementary material

Lecture Week 9: Low-carbon fossil-fuel-based electricity; Natural gas and coal with CCS

Lecture Week 10: Renewable electricity

Lecture Week 11: Nuclear science and nuclear power

Lecture Week 12: Geoengineering/Summing up

Presentations (including guest lectures in courses at Princeton and elsewhere)

Presentations, 2021-2026

CBE 260/EGR 260, Ethics and Technology: Engineering in the Real World. Two or three lectures each year, in March, for course taught by Jay Benziger (2018-2020, Bruce Koel (2021-2024), Jean Tom (2025, 2026).

"Remembering Jerry Ostriker," A Day of Remembrance for Jeremiah P. Ostriker. Friend Center, Princeton University, October 26, 2025.

"Carbon Dioxide Capture from Air: Concluding Remarks," Seminar on Scaling-up Carbon Management, host, Marco Mazzotti. Eidgenössische Techniche Hochschule (ETH), Zurich, Switzerland, June 26, 2025.

A Climate Reset for the Age of Trump," talk at CEREAL breakfast group. Guyot Hall, Princeton University, April 8, 2025.

"Nuclear Power and Climate Change," remarks at the New York City fund-raiser for The Bulletin of the Atomic Scientists. April 29, 2025

"China Energy: Priorities for your Engagement," panelist's talk, Panel on our Collective Future: Decoding the Carbon Neutrality Era Princeton China Forum, Chinese Students Energy Association. Princeton University, April 19, 2025.

"Some Ethical Dimensions of Climate Change: two lectures," guest lecture in Bruce Koel's course, CBE 260/EGR 260, *Ethics and Technology: Engineering in the Real World*, March 18 and 20, 2025.

"Geoengineering: An Introduction," panelist's talk. Winter-Session Event organized by Harry Warren, Princeton University, January 17, 2025.

"Engineering Innovation and the Moral Frontier," Fireside Chat. The Defining Decade: Building a Sustainable Future, Princeton University Energy Association's Seventh Annual Student-Run Energy Conference, 100 Robertson Hall, Princeton University, September 28, 2024.

"Could Solar Geoengineering Ever Be Launched? If Launched, Could It Ever Be Abandoned?" Panelist's talk, Geoengineering in Crisis: The Princeton Workshop on Geoengineering Ethics and Governance, organized by Arthur Obst. Friend Center Convocation Room, Princeton University, September 21, 2024.

"Living Creatively on a Small Planet," keynote, Roads to Removal: Options for Carbon Dioxide Removal in the United States. University of Pennsylvania, September 18, 2024

"Remarks about the Early Days," Fiftieth Anniversary Event of the Science and Global Security Program, Prospect House, Princeton University, September 17, 2024.

"The Low-Carbon Future Creates its Own Needs for Climate Services," comment at the United States Global Change Research Program (USGCRP) Advisory Committee Meeting, Day One. Washington DC, April 17, 2024.

"Fossil Fuels in a Low-Carbon World," talk at CEREAL breakfast group. Guyot Hall, Princeton University, February 6, 2024.

"50 Years Forward and Back" The Oil Crisis: Causes and Consequences, Conference at the SPIA Center, Washington, DC, November 3, 2023.

"What Bubbles to the Top?" comments at the Worley-Princeton Summit, "From Ambition to Reality." Friend Center, Princeton University, September 27, 2023.

"Middle Building," comments at the Worley-Princeton Summit, "From Ambition to Reality." Friend Center, Princeton University, September 26, 2023.

"50 Years Forward and Back," lecture, Symposium on The Oil Crisis: Causes and Consequences. SPIA Center, Washington DC, November 3, 2023.

"Technology, Policy, and Values for Living in a Greenhouse, "Zoom talk for Chinese students and faculty organized by Tong KangKang. Lecture Series on China and Low-Carbon Policies, Shanghai, China, September 6, 2023.

"An Insider's View of Setting the Doomsday Clock," lecture, Annual Membership Gathering of the Coalition for Peace Action. Christ Congregation, Princeton NJ, March 26, 2023.

"The Time has Come for Middle-Building," a debate with Steve Koonin. The Steamboat Institute Campus Liberty Tour: Elevating the Debate, Cornell University, March 15, 2023.

"Middle-Building," Zoom discussion at Worley Group Executive Meeting, March 14, 2023

"The Bulletin Clock Announcement on January 24, 2023," Radio interview, WPKN (Bridgeport CN). January 30, 2023.

"Fifty Years of Environmentalism," Zoom presentation to Fieldston '55 classmates. March 8, 2023

"Be Good Accountants," Deloitte-Andlinger Leadership Roundtable Transformations of Chemicals and Advanced Materials in a Net-Zero World. Friend Center, Princeton University, December 6, 2022.

"The Daunting Quadrant," Deloitte-Andlinger Leadership Roundtable. Transformations of Chemicals and Advanced Materials in a Net-Zero World. Friend Center, Princeton University, December 5, 2022.

"Carnot in the Attic: Physics in the Service of Planetary Thinking." Department of Physics and Astronomy, University of Minnesota, September 29, 2022.

"Building the Middle," talk at the Simons Foundation Solar Geoengineering Workshop. Flatiron Institute, New York, NY, September 20, 2022.

"Life can only be understood by looking backward; but it must be lived looking forward" Einstein Climate Change Center (ECCC), Berlin, Germany, video interview, filmed June 4, 2022 and released August 4, 2022.

"When Values Conflict: Lessons after 50 Years of Environmental Governance," keynote, ECCC Science Symposium: The Public Policy of Human Settlements, Einstein Center for Climate Change, Berlin, Germany, June 3, 2022.

"Unjust Wedges and Dangerous Ones," talk at CEREAL breakfast group, Guyot Hall, Princeton University, May 10, 2022.

"Unjust Wedges," Climate Futures Initiative Reunion Workshop: Interdisciplinary Perspectives on Climate Change and Society. Princeton University, April 29, 2022.

"Geoengineering and Ethics," Jewish Ethics in the Age of Climate Change, A Jewish Learning Fellowship Center for Jewish Life, Princeton University, Aprill 13, 2022.
"Leapfrogging: Contending destinies for Amazonia" Comments on the talks by Clarissa Gandour and Beto Verissimo, Amazonian Futures Series, #3, Brazil Lab/Amazonia 2030, Princeton University, December 1, 2021

"Can wilderness values survive renewable energy?" Interdisciplinary Workshop on Climate and Biodiversity, *invited speaker*, organized by Marc Fleurbaey, Paris School of Economics, via Zoom, October 15, 2021

2021 Summer of Learning Symposium, moderator for "Transitioning to a New Energy Future," High Meadows Environmental Institute, Zoom, September 10, 2021

"How Are Your Industry Competitors Navigating the Energy Transition?" Moderated by Lee Nichols, Editor, Hydrocarbon Processing Magazine, June 30, 2021

"The Conditionalities of the Sustainable City, a short talk at *Cities Matter: Resilient Cities after Covid-19,* a virtual conference sponsored by UN-Habitat, the Consortium for Sustainable Urbanization (CSU), and the AIA New York Chapter, May 12, 2021.

"The Urgency and Pitfalls of Swapping the Current Energy System for a Low-Carbon One," speaker at webinar hosted by CMCC Foundation, Euro-Mediterranean Center on Climate Change and Ca' Foscari University of Venice (via Zoom), May 11, 2021.

Climate change solutions: a blending of technology and human values, Commentator, Princeton University, The 27th International Conference on the Unity of the Sciences (ICUS XXVII) Session 3: "The Promise of New Energy Technologies." April 24, 2021

"Energy and the Environment" *CBE 260/EGR 260 Ethics and Technology: Engineering in the Real World*, Bruce Koel's class, Princeton University, March 23, 2021

"The Urgency and Pitfalls of Swapping the Current Energy System for a Low-Carbon One," Spring 2021 EarthTalk, for the series, Energy and Climate Policy: How to Avoid a Global Hothouse, Penn State University (via Zoom), February 15, 2021.

"The Urgency and Pitfalls of Swapping the Current Energy System for a Low-Carbon One," Sustainability Institute Energy Symposium, Ohio State University (via Zoom), February 10, 2021.

Presentations, 2011-2020

"Chasing Ice," discussant for the film discussion on the work of James Balog, directed by Jeff Orlowski, hosted by the University Center for Human Values, November 23, 2020.

"Where will we go from here?" Presented at the Princeton Energy Conference 2020, Princeton University Energy Association, via Zoom, November 14, 2020.

"Carbon Capture Utilization and Storage. Can it make a difference? A deep dive." Presented to Bank of America Securities, via Zoom, November 12, 2020.

"First Things First: Thinking Globally in Pursuit of Low-Carbon." IGA 408A – Climate Disruption: Emerging Topics in Policy, Politics, and Technology of Climate Change Harvard University, Oct 13, 2020

"Fitting on the Earth: The challenge of climate change." Study Group, Gotham Chapter, Brandeis National Committee, July 8, 2020

"Parallels Between Covid-19 and Climate Change," panelist during the Andlinger Center for Energy and the Environment Reunions 2020 Panel, via Zoom, May 28, 2020.

"Nuclear Science and Technology," a two-day guest lecture in Dan Steingart's course, *Earth and Environmental Engineering 4002: Alternative Energy Resources,* Columbia University, April 28 and 30, 2020

"Managing atmospheric carbon dioxide on behalf of humanity's collective future," a guest lecture in Egemen Kolemen's course, *ENE 308 / GEO 308 / MAE 308*, February 26, 2020

"University's history with N.J. energy," a presentation at the Princeton University & New Jersey Board of Public Utilities Meeting, January 30, 2020

"Getting the Solutions Right: Scoping the Risks of Mitigating Climate Change," presented the Energy and Efficiency Institute, University of California, Davis, November 22, 2019

"What do we need to ask and tell each other? Reframing the problem," presented at *Understanding the Political Economy of Deep Decarbonization*, a conference organized by Robert Keohane, November 16, 2019.

"The Risks of Climate Solutions," presented at the Bulletin of the Atomic Scientists' Annual Meeting, November 7, 2019

2018 Summer of Learning Symposium *moderator*, Princeton Environmental Institute (renamed High Meadows Environmental Institute, October 2020), Campus Club, October 5, 2019.

"Getting the Solutions Right," panel moderator, presented during the *Princeton Environmental Forum*, October 25, 2019

"Introduction to Climate Change," presented at the Fieldston School Reunion, New York, NY, October 21, 2019

"Leapfrogging: Contending destinies for Amazonia," presented at *Amazonian Leapfrogging: Long-term Vision for Safeguarding the Amazon for Brazil and the Planet,* a conference organized by Joao Biehl, October 18, 2019

"Advocacy for the Middle: Questioning the strategies for communicating climate science to the public and professionals," presented jointly with Nadir Jeevanjee at CEREAL (Conversations on Energy, Environment, and Life), September 17, 2019

"Climate Change and Carbon Management," presented at the International Institute for Carbon-Neutral Energy Research (I2CNER), Kyushu University, Fukuoka, Japan, June 10, 2019

"How do FosCCS and AirCCS interact? (FOSsil Fuel Carbon Capture and Storage and AIR Carbon Capture and Storage, that is.), a lecture for the Princeton Energy and Climate Scholars, Guyot Hall, May 21, 2019

"FoCCS (Fossil-Fuel Carbon Dioxide Capture and Storage): Enabler or Distraction?" presented at Gordon Research Conference: Tackling the Carbon Dioxide Challenge for a Sustainable Future, Les Diablerets, Switzerland, May 9, 2019

"The Urgency of Energy Efficiency," Keynote, Rosenfeld Symposium on Energy-Efficient and Grid-Integrated Buildings, Lawrence Berkeley National Laboratory, Berkeley, CA, April 23, 2019

"Introduction to CMI-18," presented jointly with Steve Pacala at the 18th Annual Meeting of the Carbon Mitigation Initiative (CMI), Friend Center, Princeton University, April 16, 2019

"Concluding Remarks," *Destiny Studies for a Small Planet,"* a retirement symposium celebrating Robert Socolow's 48 years' commitment to environmental problem solving at Princeton, Maeder Hall, Princeton University, April 15, 2019.

"Rationale for the Symposium," introduction to *Destiny Studies for a Small Planet,"* a retirement symposium celebrating Robert Socolow's 48 years' commitment to environmental problem solving at Princeton, Maeder Hall, Princeton University, April 15, 2019.

"The Transition Challenge to Low Carbon Energy," guest lecture in ENE 372, Rapid Switch, February 11, 2019

"Climate Change and Planetary Problem-Solving," presented at the Moorestown Model United Nations, Moorestown, NJ, February 2, 2019

"ACEEE: A Founder Looks Forward," a presentation to the Board of the American Council for an Energy Efficient Economy, Washington, D.C., January 30, 2019

"The Emissions Problem," presented at *Breakthrough Energy Ventures, Princeton E-filliates Partnership*, Andlinger Center for Energy and the Environment, January 19, 2019

"How Long is a Lull? Supply and Demand Responses to Wind and Solar Variability," presented at Frank Kreith Memorial Symposium, American Society of Mechanical Engineers, International Mechanical Engineering Congress and Exposition, Pittsburgh, PA, November 12, 2018

"Perspectives" Past and Future," EES Symposium*: New Directions in Energy Research 10th Anniversary Celebration*, Cal Tech, Pasadena, CA, November 2, 2018

"Accelerating Climate Action in the United States," *moderator*, an Andlinger Center for Energy and the Environment workshop, Maeder Hall, September 20, 2018.

"Healing Our Wounded Climate: Torah, Science, & Hard Choices," presented jointly with Rabbi Arthur Waskow, Kallah 2018; Aleph: Alliance for Jewish Renewal, University of Massachusetts, Amherst, MA, July 3-6, 2018

"In a low-carbon future, where does fusion fit in?" Introductory Address at the *International Conference on Plasma Surface Interactions in Controlled Fusion Devices*, Richardson Auditorium, June 18, 2018.

"Witnessing Professionals and Climate Change," *Panel 1: Scientist*, a conference of the Climate Futures Initiative for Science, Values, and Policy, Marx Hall, May 12, 2018.

"Achieving a Low-Carbon Energy System in the Northeast," a Keynote at the Council of State Governments/Eastern Regional Conference, Northeastern Legislative Climate and Energy Summit: *Promoting the Environment, Public Health and a Sustainable Energy Future*, Andlinger Center for Energy and the Environment, May 11, 2018.

"Introduction to CMI-17," presented jointly with Steve Pacala at the 17th Annual Meeting of the Carbon Mitigation Initiative (CMI), BP Headquarters, St. James's Square, London, April 25, 2018.

"Gas, oil, climate: A view on the big picture," a Town Hall presentation, at the International Centre for Business and Technology, Sunbury, UK, April 23, 2018

"Stabilization Wedges Revisited," presented at Climate and Environmental Policy Forum, Andlinger Center for Energy and the Environment, April 17, 2018

"Paths to Low-carbon Energy," presented at the Princeton Plasma Physics Laboratory Colloquium, April 4, 2018

"A Cool View of Negative Emissions," presented as part of the seminar series *Climate Change Mitigation: Moving Beyond Carbon Neutral,* School for Environment and Sustainability, Erb Institute for Sustainable Enterprise, University of Michigan Energy Institute, Ann Arbor, MI, March 15, 2018

"Truths We Must Tell Ourselves to Manage Climate Change," an *Energy Technologies Area Seminar*, Lawrence Berkeley National Laboratory, Berkeley, CA, February 15, 2018.

"Truths We Must Tell Ourselves to Manage Climate Change," a Princeton Environmental Institute Faculty Seminar (renamed High Meadows Environmental Institute, October 2020), Guyot Hall, February 6, 2018.

"The Emissions Problem, Breakthrough Energy Ventures, Princeton E-ffiliates Partnership" Andlinger Center for Energy and the Environment, January 19, 2018

"The challenge of the carbon budget" ExxonMobil Longer Range Research Meeting, Lightning Rounds, Princeton Marriott, May 9, 2017

"Introduction to CMI-16," presented jointly with Steve Pacala at the 16th Annual Meeting of the Carbon Mitigation Initiative (CMI), Friend Center, Princeton University, April 4, 2017

A presentation of the Solar Distillate in its working state, a production of the Andlinger Center for Energy and the Environment, presented jointly with co-author Chuck Witt at *CEREAL* (Conversations on Environment, Responsible Energy, And Life), Eno Hall, Princeton University, February 7, 2017.

"Why Engage Policy Makers and the Interested Public?" A dinner presentation of The Bulletin of the Atomic Scientists' *Workshop on Communicating Science to Policy Leaders and the Interested Public*, Prospect House, Princeton University, February 23, 2017.

"The Challenge of Climate Change" A Town Hall at BP, Houston, with Steve Pacala, December 15, 2016

"Climate Change and Our Future Leaders," Panel Interview: Future Leadership in Climate Change and Low Carbon Transition, Tsinghua University, Beijing, November 16, 2016.

Low Carbon Energy Transition, Tsinghua University, Beijing, November 15, 2016

"Solar Power in Context" Guest Lecture, (WWS 591d) Policy Workshop: Valuation and Implementation of Community Solar State Renewables Policy, September 30, 2016

"Framing the Discussion of Carbon Dioxide Use and Negative Carbon Emissions" Input into the SEAB Committee Report, Department of Energy, August, 2016

"Energy 101" A conversation with the staff of Representative Bonnie Watson Coleman, Washington DC, July 14, 2016

"The Challenge of Climate Change," A Townhall at BP, Naperville, IL May 30, 2016.
"The Global Climate Challenge," Keynote Address at the International Seminar on China's

"Introduction to CMI-15," presented jointly with Steve Pacala at the 15th Annual Meeting of the Carbon Mitigation Initiative (CMI), BP, St. James's Square, London, April 13, 2016.

"Climate change, fossil fuels, and the implications of the Paris Agreement" Carbon Mitigation Initiative (CMI), Townhalls at Pangbourne and Sunbury, UK, April 11, 2016

"Numeracy for a Low-Carbon Energy Future" Plenary lecture, Spring Meeting, Eastern States section of the Combustion Institute, March 16, 2016

"Post-2035: Budgets, Biocarbon, and Beyond," presented at the 15th Annual Meeting of the Carbon Mitigation Initiative (CMI), BP, St. James's Square, London, April 14, 2016.
National Academy of Engineering Roundtable on the Communication and Use of Social and Behavioral Sciences, February 26, 2016.

"On Point," National Public Radio, invited speaker on mitigating the threat of sea level rise, April 4, 2016.

"Numeracy for a Low-Carbon Energy Future," Plenary lecture, Eastern States section of the Combustion Institute, Computer Science Building, Princeton University, March 16, 2016.

"Managing atmospheric carbon dioxide on behalf of humanity's collective future," Guest lecture: ENE 308/ GEO 308/MAE 308, Course taught by Egemen Kolemen, February 24, 2016

"Climate Change and Destiny Studies: Creating Our Near and Far Futures," presentation at the faculty dinner of the Princeton Energy and Climate Scholars, Prospect House, Princeton University, February 18, 2016.

"Fossil fuels and climate change- Lessening the damage from the collision," presented at the Conference of the Energy Exchange Series, Customs House, Brisbane, February 9, 2016.

"Truths we must tell ourselves to manage climate change," a UQ Energy Express Seminar, presented at The University of Queensland, Brisbane, February 9, 2016.

"Destiny Studies: Placing Climate Change and Nuclear Power in our Collective Future," a presentation at the Bulletin of the Atomic Scientists' 6th Annual Clock Symposium, Chicago, IL, November 16, 2015.

Forum panelist at the National Academy of Engineering 2015 Annual Meeting: "Grand Challenges for Engineering: Imperatives, Prospects, and Priorities," Washington, D.C., October 5, 2015

"Fitting on the Earth: Grand Challenges to Preserve the Habitability of the Planet," presented at The 2nd Global Grand Challenges Summit, Chinese Academy of Engineering, Beijing, September 15, 2015

"Can carbon capture and storage forge the unusual alliances that finally bend the global emissions trajectory?" presented at Gordon Research Conference, Stonehill College, Easton, MA, May 31, 2015

"Buttressing Sustainability with Solid and Durable Analysis: An Appreciation of Tom Graedel," Yale University, April 23, 2015

"Low-Carbon Technology; Carbon Budgets and Committed Emissions," presented at the 14th Annual Meeting of the Carbon Mitigation Initiative (CMI). A talk in Princeton presented jointly with Steve Pacala, Carl Fields Center, April 14, 2015

Chair, "Lessons from the Fifth Assessment Report of the Intergovernmental Panel on Climate Change," a Climate Futures Initiative seminar with Michael Oppenheimer, Marc Fleurbaey, and V. Ramaswamy, Richardson Hall, Princeton University, February 5, 2015

"CCS, Carbon Budgets, and Destiny Studies" A lecture for European graduate students visiting the Environmental Engineering program at Princeton University, January 14, 2015

"Innovative strategies to strengthen R&D for "clean" electric power—and other sectors," presented at the U.S. Department of Energy Cornerstone Workshop for the Quadrennial Technology Review, Arlington VA, December 4-5, 2014.

"Destiny Studies" Guest Lecture for EESCW4917: Earth Human System, Columbia University, November 19, 2014

"The Geoengineering Agenda" Guest Lecture for a course on the Carbon Cycle, Columbia University, November 19, 2014

"My wish list for Integrated Assessment Modeling" Compiled from Paris and Milan 2014 talks for a presentation to the Fleurbaey Group, November 17, 2014

"The EU Energy Challenge; Can innovation fill the gap?" Science|Business symposium, Brussels, November 14, 2014.

"Destiny Studies" presented to Carnegie Institution for Science, Stanford, CA, October 20, 2014

"Destiny Studies: A plausible element of the new Climate Futures Initiative at Princeton University," presented at the inaugural initiative-building lunch of the Climate Futures Initiative, Prospect House, October 2, 2014.

"Assuming wise terrestrial biocarbon solutions to climate change by well-crafted conditionality," presented at *Princeton Studies Food: A Conference Showcasing Food and Agricultural Systems Research and Interest at Princeton*, organized by Princeton Environmental Institute (renamed High Meadows Environmental Institute, October 2020), September 26, 2014

"Risks of Climate Change and Risks of Climate Change Solutions," invited speaker at Euro-Mediterranean Center for Climate Change, Bologna, July 18, 2014

"Risks of Climate Change and Risks of Climate Change Solutions," invited speaker at Workshop on Risk and Uncertainty Perception: Modeling and Climate Change Policy, RISICO Project, Bocconi University, Milan, July 15-16, 2014

Invited panelist at *Climate Change Panel*, Alumni Faculty Forum, McCormick Hall, May 30, 2014

Invited speaker at *Backwards and Forwards: The history and future of technical research in architecture and buildings at Princeton,* a workshop organized jointly by the School of Architecture and Andlinger Center for Energy and the Environment, Architectural Laboratory and Embodied Computation Lab, May 29, 2014

Remarks at the Mechanical and Aerospace Engineering celebration of election to the American Academy of Arts and Sciences, May 27, 2014

"An outsider dream of a new generation of IAM featuring transparency, cosmopolitanism, and a nimble treatment of time," invited speaker at the Workshop on Equity and Risk in Integrated Assessment Models, EquiRisk Project, Collège d'Études Mondiales, Paris, May 19-20, 2014

"Technology, Policy, and Values for Living in a Greenhouse" Princeton University, Rutgers Energy Institute, Ninth Annual Energy Symposium, May 6, 2014.

"Historicizing Climate Change," a workshop presented on behalf of the PIIRS research community, *Communicating Uncertainty: Science, Institutions, and Ethics in the Politics of Global Change*, organized jointly with Melissa Lane, Aaron Burr Hall, May 2-3, 2014

Prof. Melissa Lane's course, "Science and Democracy," May 1, 2014, Robertson Hall, Princeton University

"Advancing International Climate Change Cooperation, guest panelist at Columbia Earth Institute Workshop, Columbia University, April 18, 2014

A talk in Princeton, presented jointly with Steve Pacala, at the 13th Annual Meeting of the Carbon Mitigation Initiative (CMI), providing an overview of the project, Carl Fields Center, April 15, 2014

Homage to Frank von Hippel, Remarks at the dinner culminating the Woodrow Wilson School – Bulletin Symposium, *Speaking Knowledge to Power*, April 9, 2014

"Alumni Panel on Alternative Careers," Harvard Physics Alumni Reunion, Cambridge MA, April 4, 2014

"The road ahead for planetary environmentalism: An appreciation of Charles Weiss," guest lecture at Georgetown University, March 28, 2014

"Seeing 'Energy' through the Lens of "Carbon" Guest lecture in Environmental Implications of Energy Technologies (CEE 304) Princeton University, March 11, 2014

"*Why* are we here? Why are *we* here? Why are we *here*?" Invited speaker at *Pathways for Climate Solutions: Assessing Energy Technology and Policy Innovation,* a workshop at Aspen Global Change Institute, February 24-28, 2014

"Humanity's collective future animates environmentalism," a response to the lecture of Samuel Scheffler, PIIRS Communicating Uncertainty speaker, December 4, 2013.

"Mitigating Climate Change," guest lecture at *Global Environmental Change: Science, Technology, and Policy course,* November 11, 2013.

"The road ahead for planetary environmentalism: An appreciation of Bill Moomaw," The Fletcher School, Tufts University, October 18, 2013

"Mitigation and Adaptation, Risk and Equity," *Climate Change, Adaptation, and Urban Design* (ARC 519), October 9, 2013.

"Climate, poverty, and destiny," guest lecture at *Earth Human System* course, Columbia University, September 23, 2013.

"The Geoengineering Agenda," a briefing at the kickoff meeting of the Committee on Geoengineering Climate: Technical evaluation and discussion of impacts. National Academy of Sciences, July 16, 2013.

"Stabilization wedges and the polygame." Guest Lecture, Alta Scuola Politecnica in Belgirate, Italy, May 24, 2013.

"Truths we must tell ourselves to manage climate change," Guest Lecture, Institute for Environment and Sustainability, Joint Research Center, Ispra, Italy, May 23, 2013.

"Truths we must tell ourselves to manage climate change," Guest Lecture, CLAIRE Spring Seminar Series: Smart Energy Solutions in Urban Environment, Pracatinat, Italy, May 22, 2013.

"Carbon mitigation, energy challenges," Guest Lecture, The Energy Department of Politecnico de Torino, Torino Energy Week: Reconsidered Energy, Turino, Italy, May 21, 2013.

"A Message of Thanks," a personal statement to India in appreciation of the hospitality granted to the Princeton Energy & Climate Scholars during their 2013 summer trip, May 2013.

"Truths we must tell ourselves to manage climate change," Guest Lecture, Georgetown University Environment Initiative, Washington, D.C., April 25, 2013

A talk in Princeton, presented jointly with Steve Pacala, at the 12th Annual Meeting of the Carbon Mitigation Initiative (CMI), April 16, 2013, providing an overview of the project.

"Geoengineering and our Collective Future: New challenges for ethics," a workshop at Princeton on ethics of risk and climate change, April 13, 2013.

"Coming to Grips with Future Time," a lecture at Princeton on environmental humanities in a changing world, March 8, 2013.

"Truths we must tell ourselves to manage climate change," Guest Lecture, Princeton University MAE 328, Princeton, NJ, February 21, 2013

"Carbon Mitigation Initiative at Princeton and Climate Change," presentation to BP's Carbon Solutions team, St. James Square, London, January 18, 2013

"Mitigating Climate Change," guest lecture in "Global Environmental Change: Science, Technology, Policy" (Profs. Eric Wood and Justin Sheffield), November 26, 2012

Closing remarks for Yale Center for Environmental Law & Policy: "Global Climate Change Policy Without the United States: Thinking the Unthinkable" Yale Law School, New Haven, CT, November 9-10, 2012

Moderator "The Future of Nuclear Reactors: Large or Small?", Princeton Energy and Environment Corporate Affiliates Program and the Andlinger Center for Energy and the Environment, Synergize 2012 (Inaugural Annual Meeting) Princeton, NJ, November 13, 2012

Panelist "What's Next in Energy" Aspire Celebration, Princeton, NJ, October 19, 2012

Guest Speaker for "Session 02: What is Sustainability?" Sustainable Engineering and Development Scholars Program 2012-2013, a program of Engineers Without Borders, Princeton University, Princeton, NJ, October 18, 2012

Panelist "Considerations for Future Energy Systems" and Moderator "Science and Technology Policies Related to Sustainable Energy" National Research Council's Japan-U.S. Workshop on Sustainable Energy Futures, Washington, D.C., June 26, 2012

"Global change and sustainability," Alta Scuola Politecnica Spring School, Belgirate, Lago Maggiore, Italy, coordinated by Professor Gatto, May 18, 2012.

"What Would We Do If We Took Climate Change Seriously?" Student-initiated Pennergy Colloquium, University of Pennsylvania, Philadelphia, PA, April 23, 2012

"The Challenge of Climate Stabilization" and "What Would We Do If We Took Climate Change Seriously?" University of Oregon, Eugene, OR, April 9, 2012

"Air Capture – Introduction and Overview" and "The Cost of Air Capture" Panelist, Institute for Sustainable Energy, Environment, and Economy, University of Calgary, Direct Air Capture Summit, Calgary, Alberta, Canada, March 7-8, 2012

"Toward More Productive Thinking about Energy Supply and Demand" Supply and Demand: Barriers to a New Energy Future, Vanderbilt Law School Symposium, Vanderbilt University, February 24, 2012

"What would we do if we took climate seriously?" Energy and Resources Group Spring 2012 Colloquium Series, University of California Berkeley, February 15, 2012

"Combustion in a Global Environmental Context, Part One: Planetary Thinking" and "Combustion in a Global Environmental Context, Part Two: Stabilization Wedges" 2012 Princeton University-CEFRC Summer School on Combustion, Princeton, NJ, June 25, 2012

A conversation on "Wedges Reaffirmed," a short essay by Robert Socolow and "Ten solicited comments on the essay and High-consequence outcomes and internal disagreements: tell us more, please." An Astrophysics Department lunch seminar, Princeton, NJ, May 3, 2012

Discussant for Princeton Environmental Institute's seminar on Melissa Lane's book: Eco-Republic: What the Ancients Can Teach Us About Ethics, Virtue, and Sustainable Living, Princeton, NJ, May 3, 2012

"CMI Through Year 11" (with Stephen Pacala) CMI Eleventh Annual Meeting, Princeton, NJ, April 17, 2012

"Introduction to the PIIRS Communicating Uncertainty Project: Science, Institutions and Ethics in the Politics of Global Climate Change" Workshop on Climate Change and Water Cycle, and Communicating Uncertainty, Princeton, NJ, March 30-31, 2012

"Technology and Policy Responses to Mitigating Climate Change," guest speaker, Global Environmental Change: Science, Technology, Policy, a freshman seminar, Princeton University, Princeton, NJ, November 21, 2011

"A Conversation on the Science and Politics of Energy," a conversation with Bernard Hayel, Aspire Leadership Assembly, Princeton, NJ, November 11, 2011

Guest speaker, Environmental Affairs Forum, an undergraduate organization, Princeton University, Princeton, NJ, November 8, 2011

"Carbon-emissions Stabilization Wedges Reaffirmed," guest speaker, Green Business Club, Columbia Business School, New York, NY, October 17, 2011

"Wedges Reaffirmed" PEI Energy Group, Princeton University, October 14, 2011

"Freshening the climate change conversation by telling the story more completely" PIIRS Uncertainty Project, Princeton, October 13, 2011

Guest speaker, Engineers Without Borders-Princeton University: Sustainable Engineering and Development Scholars Program, Princeton, NJ, October 5, 2011

"Carbon-emissions Stabilization Wedges Reaffirmed," guest lecturer at Yale School of Forestry & Environmental Studies, October 4, 2011

Activation of CO_2 to Fuels Briefing for Issam Diaranieh, Rob Socolow and Tom Kreutz, Princeton University, Sept 26, 2011

"Negative Emissions: Comprehending Scale," International Workshop on Modeling and Policy of CO_2 Removal from the Atmosphere, Fondazione Eni Enrico Mattei (FEEM), Isola di San Giorgio Maggiore, Venice, Italy, May 31, 2011

"Negative Emissions from the Manipulation of Carbon Sinks: A Challenge to Land-Use Modelers," Land-Use Modeling Workshop, Geophysical Fluid Dynamics Laboratory, Princeton, NJ, May 17, 2011

"How Would We Act If We Took Climate Change Seriously?" Harvard Club, New York, NY, May 17, 2011

"How Would We Act If We Took Climate Change Seriously?" Kennedy School of Government, Harvard University, May 4, 2011

"Carbon Mitigation Initiative," guest lecturer, Stanford University School of Humanities & Sciences, Environmental Norms, Institutions, and Policies Workshop, Stanford, CA, April 28, 2011

"Direct Capture of CO_2 from Air with Chemicals: A Technology Assessment A Report of the American Physical Society" Briefing for the American Physical Society Executive Board, April 28, 2011

"The Challenge of Climate Stabilization," Our Future. Our Challenge, Princeton Day School, Princeton, NJ, April 16, 2011

"A Ten-Year View of CMI" and "Overview" (with Stephen Pacala) CMI Tenth Annual Meeting, April 12, 2011

"How Would We Act If We Took Climate Change Seriously?" Nanotechnology for Clean Energy IGERT, Princeton, NJ, April 5, 2011

"How Would We Act If We Took Climate Change Seriously?" Lawrence Berkeley National Laboratory, March 28, 2011

"How Would We Act If We Took Climate Change Seriously?" Florida Climate Institute and a co-venture between the University of Florida and Florida State University, March 22, 2011

"Direct Capture of CO_2 from Air with Chemicals: A Technology Assessment A Report of the American Physical Society" Panel on Public Affairs, American Physical Society, Washington, DC, February 4, 2011

Presentations, 2001-2010

Guest speaker, "CO2 capture from the air," Mathey Energy Table, co-sponsored by PEI, Mathey College and Rockefeller College, Princeton University, Princeton, NJ, December 16, 2010

"How Would We Act If We Took Climate Change Seriously," The David Bradford Seminars in Science, Technology, and Environmental Policy, Princeton University, Princeton, NJ, December 6, 2010.

Guest speaker, fund-raiser for Friends of the Princeton Public Library, December 5, 2010

"How Would We Act If We Took Climate Change Seriously?" Lamont Colloquium, Lamont Doherty Earth Observatory, Palisades, NY, December 3, 2010.

"One Billion High Emitters," Discussion of a paper at the Climate Change Colloquium, Princeton University, Princeton, NJ, November 30, 2010.
"The Carbon Mitigation Initiative at Princeton University," BP, Sunbury, UK, November 24, 2010.

"Smart, safe, and just: Goals for the Global Energy System," Denis Anderson Memorial Lecture, Imperial College, South Kensington Campus, London, UK, November 23, 2010.

"Introduction to the Carbon Mitigation Initiative," Presentation to Lamar McKay, BP, Princeton University, Princeton, NJ, November 17, 2010.

"Living Ethically in a Greenhouse," A conversation with Carl Ferenbach and the High Meadow Fellows, Princeton University, Princeton, NJ, November 16, 2010.

Guest speaker, Energy Panel, Collective Motion, a workshop of the Princeton chapter of Engineers without Borders, Princeton University, Princeton, NJ, November 12, 2010

"Safe and fair: The Daunting Goals of the Global Energy System," Towards a Sustainable Future: The Role of Long-Term Investment, Fondazione Eni Enrico Mattei (FEEM) and the Long Term Investor's Club (LTIC), Isola di San Clemente, Venice, Italy, October 28, 2010.

"Converting CO2 that Came from Where?" Workshop on Future Directions in CO2 Reduction Chemistry, Princeton University, Princeton, NJ, October 21, 2010.

Princeton faculty comment at the symposium, "The History of Oil in America: Before and After the Gulf Spill," sponsored by PEI and the Princeton History Department, Princeton University, Princeton, NJ, October 20, 2010

Participant, MISTRA Workshop on the Politics and Policy of Carbon Capture and Storage, organized by Michael Oppenheimer, Princeton NJ October 14-15, 2010

Guest speaker, Environmental Affairs Forum, an undergraduate organization, Princeton University, Princeton, NJ, October 13, 2010

"Introduction to the Carbon Mitigation Initiative," A presentation to John Morgan, Business Unit Leader for the Hydrogen Power and CCS Business Unit in Alternative Energy, Princeton University, Princeton, NJ, October 6, 2010

"Climate Change Mitigation Challenges and Opportunities for Coal Country," Global Warming Forum: Examining a Hot Topic, Purdue University, West Lafayette, IN, September 27, 2010.

Guest speaker, Global Warming Debate (with Fred Singer and Isaac Held), hosted by FUSION, an undergraduate organization, Princeton University, Princeton, NJ, September 23, 2010

"America's Climate Choices, Highlights of a National Academies Project and Personal Thoughts," Forum on Climate Change Science and Consequences, American Chemical Society National Meeting, Boston, MA, August 23, 2010.

"Technology, Policy, and Values for Living in a Greenhouse," World Bank Retreat, St. Michaels, MD, June 24, 2010.

Acceptance Speech, Keystone Environment Award, Washington, DC, June 10, 2010.
"Science, Climate Change, and the Country's Need," Rush Holt Fundraiser, Terhune Farms, Princeton, NJ, June 6, 2010.

Direct Capture of CO_2 from Air with Chemicals: A Technology Assessment Panel on Public Affairs American Physical Society, Washington, DC, June 4, 2010

"Fitting on the Earth and the Need for Integrative Analysis," ARPA-E, Washington, DC, June 3, 2010.

"Technology, Policy, and Values for Living in a Greenhouse," Millennial Precept, Reunions 2010, Princeton University, Princeton, NJ, May 28, 2010.

"Technology, Policy, and Values for Living in a Greenhouse," Duke University, Durham, NC, April 16, 2010.

"Summary of the Meeting," The Asilomar International Conference on Climate Intervention Technologies, Pacific Grove, CA, March 25, 2010.

"Direct Capture of CO_2 from Air with Chemicals," The Asilomar International Conference on Climate Intervention Technologies, Pacific Grove, CA, March 23, 2010.

"Technology, Policy, & Values for Living in a Greenhouse," Alumni Association and the Princeton Club of Southwest Florida, Naples, Florida, February 20, 2010.

"Direct Air Capture of CO_2: Update on an APS-POPA study," Panel on Public Affairs, American Physical Society, Washington, DC, February 5, 2010.

"Technology, Policy, and Values for Living in a Greenhouse", IMAGINE Sustainability Conference, Morning Keynote, Princeton University, Princeton, NJ, February 12, 2010.

"Hello, Hard Core; Goodbye, Annex I, An Overview of "Integration" research," Ninth Annual Meeting, Carbon Mitigation Initiative, Princeton University, Princeton, NJ, February 9, 2010.

"Technology, Policy, and Values for Living in a Greenhouse" Madrid, Spain, December 1, 2009

"Nuclear Power in Context," Workshop on Nuclear Power and Climate, Princeton University, November 19, 2009.

"Technology, Policy, and Values for Living in a Greenhouse," Advanced Energy Systems Division Reception 2009 International Mechanical Engineering Congress and Exposition, American Society of Mechanical Engineers, November 17, 2009

"One Billion High Emitters: A Conceptual Framework for Living in a Greenhouse," Xynteo Global Leadership & Technology Exchange, Alexandria, VA, November 11, 2009.

"Carbon Dioxide Capture and Storage in Context," The ICON Group, Calgary, Alberta, Canada, October 30, 2009.

"Technology, Policy, and Values for Living in a Greenhouse," 2009-2010 ISEEE Distinguished Speaker Series "North American Energy Systems 2030+", Institute for Sustainable Energy, Environment, and Economy University of Calgary, Calgary, Alberta, Canada, October 29, 2009.

"The APS-POPA study on direct air capture," Brief midcourse report, POPA Meeting, Washington DC, October 2, 2009.

"Wedges, Technology, and Climate Policy," ECN-IVM Symposium, Technology: The Key to a Copenhagen Agreement? Held on the occasion of Heleen de Coninck's PhD thesis defense, Amsterdam, The Netherlands, September 18, 2009.

"Sharing Global CO_2 Emission Reductions Among One Billion High Emitters," with Laurence Tubiana, Chaire développement durable de Sciences Po, Special Conference à Sciences Po, September 21, 2009.

"Sharing Global CO_2 Emission Reductions Among One Billion High Emitters," Institute for Environmental Studies (IVM), VU University, Amsterdam, The Netherlands, September 17, 2009.

"Sharing Global CO_2 Emission Reductions Among One Billion High Emitters," The World Bank, Washington, DC, September 14, 2009.

Launch of the Berkeley Workshop: "Study of Direct Capture of CO_2 from the atmosphere and post-combustion CO_2 capture from flue gases," Panel on Public Affairs, American Physical Society, Berkeley, CA, August 4-5, 2009

"Technology, Policy, and Values for Living in a Greenhouse," Director's Distinguished Lecture, Lawrence Livermore National Laboratory, Berkeley, CA, August 3, 2009.

"Overview of CMI," Robert Socolow and Steve Pacala, Briefing for David Nagel, Princeton University, July 24, 2009.

"Technology and Policy for Living in a Greenhouse" Politecnico di Milano, July 20, 2009

"A Physicist's View of WG III" with Thomas Bruckner, Elmar Kriegler, Diana Ürge-Vorsatz. Scoping Meeting for the IPCC Fifth Assessment Report for Working Group III, Venice, July 14, 2009

"Climate Change and the Industrial Ecology of Carbon," by video conference. Transitions Toward Sustainability Fifth International Conference on Industrial Ecology, Calouste Gulbenkian Foundation, Lisbon, Portugal, June 23, 2009.

"Reactions and Perspectives on Geoengineering." Moderator's introduction, "Geoengineering Options to Respond to Climate Change: Steps to Establish a Research Agenda," A workshop of the America's Climate Choices project of the National Academies, Washington, DC, June 15-16, 2009.
"Living in a Greenhouse," Harvard 50th Reunion, Harvard University, June 2, 2009

"Living in a Greenhouse," A talk to 55 PLUS, Jewish Center, Princeton, NJ, May 21, 2009.

"Low-Carbon Energy," A briefing for MissionPoint, Norwalk, CN, April 24, 2009.

"Pretending to Reduce Emissions is Unethical!" Ethics and Climate Change Lecture Series. Discussant for the talk, "The ethics of carbon trading," by Robyn Eckersley, Princeton University, April 21, 2009.

"Low-Carbon Energy," Summit on America's Climate Choices: Developing the Framework for a National Response to Climate Change: Keynote Perspectives on Climate Change, Washington, D.C., March 30, 2009.

"Stabilization Wedges – Five Years Later," Taking the Carbon out of Energy, Aspen Environmental Forum, March 27, 2009.

"Study of Direct Capture of CO_2 from the atmosphere and post combustion CO_2 capture from flue gases Panel on Public Affairs," American Physical Society, First workshop, March 23-25, 2009, Princeton, NJ.

"Stabilization Wedges: Implications for U.S. Climate Change Mitigation Policy," A briefing for Congressman Henry Waxman, Washington DC, March 16, 2009.

"Technology, Policy, and Values for Living in a Greenhouse," The Ronald F. Probstein Lecture in Engineering Science, Department of Mechanical Engineering, M.I.T., March 13, 2009.

"Grand Challenges for Energy and the Environment," Summit on the National Academy of Engineering Grand Challenges, Duke University, March 2, 2009.

"Renewal in CMI, Princeton University, and the United States," Eighth Annual Meeting Carbon Mitigation Initiative, Princeton University, February 10, 2009.

"From the Carbon Mitigation Initiative to the Sustainable Aviation Initiative, presentation to Netjets Princeton Review Group, December 16, 2008

"The Challenge of Climate Stabilization," Hun School, Princeton, New Jersey, December 5, 2008.

"The Challenge of Climate Stabilization," URI Honors Colloquium, University of Rhode Island, Kingston, Rhode Island, December 2, 2008.

"Efficiency through Technology," Panel on Product Design and Engineering, Re-Imagining Cities: Urban Design After the Age of Oil, Penn Institute for Urban Research, University of Pennsylvania, Philadelphia, Pennsylvania, November 7, 2008.

"Place-based Mitigation of Climate Change" Conference keynote, Re-Imagining Cities: Urban Design After the Age of Oil, Penn Institute for Urban Research, University of Pennsylvania, Philadelphia, Pennsylvania, November 6, 2008.

"Geoengineering: The Looming Challenge," SEAS-GFDL Workshop, Princeton University, October 29, 2008.

"Prospicience (The Art and Science of Looking Ahead) and Geoengineering: What If We Can Dial Our Future?" Ethics and Climate Change Lecture Series, Princeton University, October 14, 2008.

"The Challenge of Climate Stabilization," Guest lecture, EGR 495: Special Topics in Entrepreneurship: Ventures to Address Global Challenges, October 6, 2008

"Setting the Stage," Future of Nuclear Energy Conference, Chicago, Illinois, September 25-26, 2008.

"Climate Policy: Based on Individual Emissions," Princeton Energy and Environment Scholars Lecture, September 23, 2008

"Technologies for Living in a Greenhouse," Energy Leadership Lecture Series (co-hosts: Institute for Energy Efficiency and Kavli Institute for Theoretical Physics), University of Santa Barbara, California, August 12, 2008.

"Carbon Mitigation Initiative: How Fast Can We Go If We Really Spend Some Money? What Will It Take to Get Us There?" Aspen Ideas Festival, Aspen, Colorado, June 30-July 6, 2008.

"Toward an American Solution," Conference on the American Response to Climate Change, Wild Center - Tupper Lake, NY, June 25, 2008.

"Living Ethically in a Greenhouse," Biofuels Workshop, Princeton University, June 19-20, 2008.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Annual Meeting, MissionPoint Capital Partners, Norwalk, CT, May 21, 2008

"Sustainable Princeton: Toward Town Targets?", sponsored by Princeton Future, Princeton Public Library, Princeton, NJ, May 3, 2008

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Guest lecture**,** EGR194-MAT194-PHY194 (EMP-1), April 24, 2008

"Lessons Learned," Conference on China and the Environment: The Challenges Ahead, Solutions and Future Research, April 19, 2008

Invited remarks (three-member panel), "What is the Right Economic Approach to Global Warming?", McKinsey Executive Roundtable Series in International Economics, Council on Foreign Relations, New York, NY, April 14, 2008.

"Living Ethically in a Greenhouse," Conference keynote, Energy and Responsibility: A Conference on Ethics and the Environment, University of Tennessee, Knoxville, Tennessee, April 10, 2008.

"Technology and Policy for Living in a Greenhouse," Maclean House Alumni Lecture Series, Princeton University, April 8, 2008.

"Living in a Greenhouse with the Help of Stabilization Wedges: A talk for researchers and teachers," American Institute of Physics Governing Board, Washington, D.C., March 28, 2008

"Living in a Greenhouse with the Help of Stabilization Wedges," National Academy of Engineering Regional Meeting, Friend Center, Princeton University, March 4, 2008.

"Putting CO2 Capture and Sequestration into First Gear," Global Task Force on Carbon Capture and Storage, Earth Institute, Columbia University, February 14, 2008.

"Technology and Tough Global Targets," *Invited, Lehman Brothers Climate Change Workshop*, New York, NY, December 6-7, 2007.

"Policy and Technology for Living in a Greenhouse," Invited, Presentation for ENV FRS 175 Seminar: Signals, Yardsticks and Tipping Points of Global Warming, Princeton University, December 6, 2007.

"Policy and Technology for Living in a Greenhouse," *Invited,* Guest Lecturer in Class: *Physics 104, Energy, Environment, and Man, Rider University,* Lawrenceville, NJ, November 19, 2007.

"Strategic Opportunities for MAE in Energy," *Invited, MAE Retreat,* Cherry Valley Country Club, November 1, 2007.

Chair, Academic Review Panel, *Invited Comment, McKinsey & Company:* Reducing U.S. Greenhouse Gas Emissions *How Much At What Cost?*, New York, NY December 4, 2007.

"Climate Change Mitigation under Strong Carbon Constraints," *Invited, 50th Anniversary of the Global CO2 Record Symposium and Celebration,* Kona, Hawaii, November 28-30, 2007.

"The Stratospheric Aerosol Injection Wedge: Competitive, Transient, Distracting, and Scary," *Invited Comment, Climate Engineering Workshop, Harvard University,* Cambridge, MA, November 8-9, 2007.

"Policy and Technology for Living in a Greenhouse," *Invited, P8 Summit of Trustees of Major Pension Funds,* London, UK, November 5, 2007.

"Tackling Carbon by Using Electricity Efficiently," *Invited, Greenplug Alliance Conference,* San Francisco, CA, October 29, 2007.

"U.S. Carbon Challenge: Policy and Technology," *Keynote*, *Sanford C. Bernstein 2007 Carbon Symposium,* Investment in the Carbon Chain from Producer to Purchaser, New York, NY, October 9, 2007.

Invited Participant for the October 5 Working Lunch on US-China Climate Change Initiative at the Asia Society, New York, NY, October 5, 2007.

"Energy and the Global Environment for the Physicist as Researcher and Teacher," *Invited, Department of Physics, Yale University,* September 28, 2007.

"Ethics and the Greenhouse," *Invited,* Bioethics Seminar, *Yale University,* September 27, 2007.
"Technology and Policy for Global Carbon Mitigation," *Keynote, Vinson & Elkins Climate Change Program,* Washington, D.C., September 24, 2007.

"Options for Mitigation," *Invited, World Bank Executive Directors Colloquium 2007*: Climate Change: Implications for the Bank's Mission for Sustainable Development, Washington, DC, September 20-21, 2007.

"Energy Security Wedges," *Invited Participant, BP Discussion Group,* New York, NY, September 10-11, 2007.

"The Critical Role of Energy Efficiency in Mitigating Global Warming," *Keynote,* Housing into the Future: Stepping toward Carbon Neutrality: A seminar of the Household Energy End-Use Project (HEEP). *Victoria University of Wellington, Wellington, New Zealand*, by video-conference, August 28, 2007.

"'Equitable Climate Change Mitigation: A New Formulation," *Invited, Informal Thematic Debate of the UN General Assembly on Climate Change as a Global Challenge* Panel on Mitigation Strategies in the context of Sustainable Development, UN, July 31, 2007.

"The Critical Role of Energy Efficiency in Mitigating Global Warming," *Keynote, Public Service Commission, State of New York*. Albany Law School, Albany, NY, July 19, 2007.

"Wedges, Global Warming Mitigation, and Business Opportunity," *Invited, Mission Point Capital Partners*, Norwalk, CN, July 18, 2007.

"Solving the Carbon Problem," *Invited, Texas Pacific Group,* Retreat, Aspen, CO, June 26, 2007.

"Mitigating Global Scorching: Getting Real!" *Invited, Shalom Center,* Philadelphia, PA, June 18, 2007.

"Building Capacity for Living in a Greenhouse," *Invited, Founders' Societies Meeting, SEAS,* Princeton University, June 20, 2007.

"Mitigating Global Warming: Getting Real!" *Invited, Millennial Class of '00 Reunions Lecture,* Princeton University, June 2, 2007.

"Stabilization Wedges: A Concept and a Game for Teaching about Cutting Carbon Emissions," *Invited,* Meeting for Supporters, *Stony Brook Millstone Watershed Association,* Pennington, NJ May 17, 2007.

"Wedges and How We Can Best Combat Global Climate Change," *Invited, New Jersey Meadowlands Commission (NJMC) Symposium,* Lyndhurst, NJ, May 15-17, 2007.

"Energy Security and Climate Change: Drivers of transformation for the global energy system," *Invited, Conference on Saudi Arabia: Oil, Energy, and Middle East,* Princeton University, May 11, 2007.

"Climate Change Mitigation: A New Source of Wealth and Jobs," *Keynote, North American Labor Assembly on Climate Crisis,"* New York, NY, May 7, 2007.

"Scouting the carbon management frontier: Technology, policy, and economics," *Keynote,* Washington Energy Conference, *School of Advanced International Studies, Johns Hopkins University,* Baltimore, MD, April 20, 2007.

"Stabilization Wedges and the Management of Global Carbon for the Next 50 Years: A Primer for the Physicist as Researcher and Teacher," *Invited, Fermi National Accelerator Laboratory,* Batavia, IL, April 18, 2007.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," *Invited, Guest lecture for EGR194-MAT194-PHY194 (EMP-One)* An Integrated Introduction to Engineering, Mathematics, Physics, Princeton University, April 26, 2007.

"Strategies for mitigating climate change: Enabling the stabilization wedges," *Invited, Science, Technology and Environmental Policy (David Bradford) Seminar,* Princeton University, April 16, 2007.

Invited Remarks for Princeton Community Climate-Change Rally, Scudder Plaza, Princeton University, April 14, 2007.

"Getting Serious about Carbon Mitigation," *Invited,* Remarks to Dow Chemical visitors. Princeton University, April 4, 2007.

"Getting Serious about Carbon Mitigation," *Invited, Conference on States and Climate Change,* Sponsored by the Policy Research Institute for the Region (Princeton University) and Environmental Defense, Princeton University, March 30, 2007.

"U.S. Climate Policy: Avoiding Mitigation Lite," *Invited, Testimony to the Finance Committee, U.S. Senate,* Washington, DC, February 27, 2007.

"A Review of CMI," *Contributed, CMI 6th Annual Meeting,* Princeton University, February 20, 2007.

"Stabilization Wedges: A Concept and a Game for Teaching about Cutting Carbon Emissions," *Keynote, 2007 AAAS Annual Meeting,* Town Hall: Climate-Change Special Session SE-109, Communicating and Learning about Global Climate Change: An Event for Teachers, Students, and other Communicators and Learners, San Francisco, CA, February 18, 2007 (with Roberta Hotinski).

"Energy, Climate, and the Activist Student," *Invited, PEI Advisory Committee,* Princeton University, February 9, 2007.

"Climate Change: Globe, Region, and Educational Opportunities," *Invited,* Environmental Education: Bringing the Lessons Home. The 22nd Annual New Jersey Environmental Education Conference *Alliance for New Jersey Environmental Education.* Mid-Day Plenary Panel. Princeton University, February 2, 2007 (with Roberta Hotinski).

"Living in a Greenhouse," *Invited*, *Rockefeller College Seminar,* Princeton University, December 7, 2006.

"The Carbon Mitigation Initiative and the Urgency of CCS," *Invited*, *Presentation to BP Executives,* Tony Hayward and Vivienne Cox, Princeton University, November 17, 2006.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," *Invited*, *Seminar for AOS graduate students,* Princeton University, November 9, 2006.

"Brazilian and Petrobras Leadership in Carbon Management," *Invited*, *Petrobras Business Committee*, Rio de Janeiro, Brazil, October 26, 2006.

"Carbon Sequestration: A Source of Promising 'Stabilization Wedges' for Solving the Climate Problem," *Keynote*, International Seminar on Carbon Sequestration and Climate Change – hosted by *Petrobras,* Rio de Janeiro, Brazil, October 24, 2006.

"Technology for Living in a Greenhouse," *Invited*, *MAE Departmental Colloquium,* Princeton University, October 13, 2006.

"Energy and the Global Environment for the Physicist as Researcher and Teacher," *Invited*, *Rutgers University,* Physics Department, New Brunswick, NJ, October 11, 2006.

Participant in the "Global Warming" panel moderated by Elizabeth Kolbert, *Invited*, *New Yorker (Magazine) Festival,* October 7, 2006.

"The Carbon Mitigation Initiative at Princeton," *Invited*, *DuPont visit/PRISM Meeting,* Princeton University, October 5, 2006.

"Carbon Capture and Storage," *Invited*, *National Petroleum Council Meeting,* hosted by Princeton University, October 4, 2006.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," *Invited*, *WWS Policy Task Force 401c – A Worldwide Phase-Out of Nuclear Power,* Princeton University, September 26, 2006.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," *Invited*, *World Economic Forum, Industry Partnership Meeting for Energy,* New York, NY, 9/28/2006.

"A Plan to Keep Carbon in Check," *Invited*, US Congress - Briefing and presentation for *US Senate Staff*, Washington, DC, September 21, 2006.

"Climate Change Technology: Do we need a Manhattan project for the Environment?" *Invited*, US Congress - *Testimony for US House of Representatives,* Committee on Government Reform, Washington, DC, September 21, 2006.

"Carbon Dioxide Capture and Storage and Future U.S. Fuel," *Invited*, *Defense Science Board, Task Force on DOD Energy Strategy,* Arlington, VA, September 6, 2006.

"The world's climate and energy challenges: A global perspective on innovation and incentives," *Keynote*, ISIS *(International Sustainability Innovation Council of Switzerland)*, Zurich, Switzerland, September 1-2, 2006.

"The BP-Ford-Princeton Carbon Mitigation Initiative and the Wedge Model," *Invited*, *Carson Refinery Visit/BP Visit,* Carson, CA, July 18, 2006

"Carbon Dioxide Capture and Storage: The New Kid on the Block," *Invited*, *Solar 2006* – Alternative Future Scenarios for Tackling Climate Change, Denver, CO, July 12, 2006.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," *Keynote*, *Solar 2006* - Climate Change Action II*,* Denver, CO, July 12, 2006.

"Energy and the Environment for the Physicist as Researcher and Teacher," *Invited*, Energy Forum, *Aspen Center for Physics,* Aspen, CO, July 10, 2006.

"Confronting Climate Constraints – Sustainable Cities and Ecosystems," *Invited*, *Aspen Ideas Festival,* Aspen, CO, July 3-9, 2006.

Remarks on "National Intelligence Council Workshop on Global Scenarios Relating to Global Climate Change," *Invited*, *Woodrow Wilson School,* Princeton University, June 7, 2006.

Remarks on "Rising Above the Gathering Storm: Technological Leadership for the 21st Century," *Invited*, *Princeton Reunions Panel,* Princeton University, June 2, 2006.

"A Tribute to Amulya Reddy" and "A Global View of Energy Challenges," Invited speaker and Chair. InterAcademy Energy Workshop, *InterAcademy Council and Indian National Science Academy,* New Delhi, May 30-31, 2006.

"Technological Options to Stabilize Global CO2 Emissions up to 2050," *Keynote*, First Regional Symposium on Carbon Management, *Saudi Aramco, Dhahran, Saudi Arabia,* May 22, 2006.

"The Urgency of Carbon Mitigation," *Invited, U.S. Senate,* Department of Environmental Forestry and Rural Affairs, Washington, DC, May 10, 2006.

"The Urgency of Carbon Mitigation," *Invited, J.P. Morgan,* New York City, May 9, 2006.

"The Urgency of Energy Efficiency," *Invited*, Rosenfeld Energy Symposium *University of California, Berkeley, CA,* April 28, 2006.

"Science and Technology of Alternative Energy Sources," *Invited*, *Energy, Security, and the Middle East,* Princeton University, April 21, 2006.

"Stabilization Wedges and the Management of Global Carbon for the Next 50 Years," *Keynote, The Royal Society, London,* UK, April 10, 2006.

Discussant at "Bridging Disciplines, Spanning the World: Approaches to Development, Diversity and Democracy," *Invited*, *PIIRS Graduate Student Conference 2006,* Princeton University, NJ, April 7, 2006.

"Stabilization Wedges and the Management of Global Carbon for the Next 50 Years," *Invited*, Future of Energy Series, *Harvard University Center for the Environment,* Cambridge, MA, April 5, 2006.

"Stabilization Wedges and the Management of Global Carbon for the Next 50 Years," *Invited*, *Los Alamos National Laboratory,* Los Alamos, NM, March 23, 2006.

"Living in a Greenhouse: How Far Can Technology Take Us?" *Invited*, *Harvard Club of Princeton,* Princeton, NJ, March, 12, 2006.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," *Keynote*, World Bank Energy Week, *World Bank,* Washington, DC, March 6, 2006.

"The Carbon Mitigation Initiative: Five Years Back and Five Years Forward," *Contributed, CMI 5th Annual Meeting,* Princeton University, March 2, 2006.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," *Invited*, *EGR194-MAT 194-PHY194 - EMP*–One (P. Debenedetti's course,), Princeton University, February 27, 2006.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," *Invited*, *WWS Policy Task Force 402d* – Energy for Sustainable Development (D. Mauzerall's course), Princeton University, February 15, 2006.

"Some Highlights from the Carbon Mitigation Initiative," *Invited*, *BP Joint University Meeting* – Thought and Leadership in Energy, Cambridge, UK, February 22, 2006.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," *Invited*, WWF Energy Task Force, *World Wildlife Fund, London,* February 20, 2006.

"Stabilization Wedges: A Challenge to the Social Sciences," *Invited*, *Center for Advanced Study in the Behavioral Sciences,* Palo Alto, CA, January 9, 2006.

"Stabilization Wedges and the Importance of R&D on Near-Term Options for Carbon Mitigation," *Invited*, InterAcademy Council Energy Workshop, *Lawrence Berkeley National Laboratory,* January 6, 2006.

Stabilization Wedges and the Management of Carbon for the Next 50 Years," Invited talk, Royal Swedish Academy of Engineering Sciences (IVA), Stockholm, Sweden, December 1, 2005.

"Stabilization Wedges and the Future of Coal" Presentation to Tony Hayward
Princeton NJ, November 21, 2005

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Keynote address, Workshop on the Global Roundtable on Climate Change, Earth Institute, Columbia University, New York City, November 14, 2005.

"Stabilization Wedges and the Urgency of Scale-Up," Invited talk, National Commission on Energy Policy, Washington, DC, November 9, 2005.

"Emission-Free Options for Energy from Fossil Fuels: The Issues for CO_2 Sequestration," Invited talk, CMI Leakage Workshop, Princeton University, Princeton, NJ, November 3, 2005.

"Stabilization Wedges and the Urgency of Scale-Up," Keynote address, SEFI Roundtable, New York City, October 27, 2005.

"Can We Bury Global Warming?" Invited talk, Central Jersey AIChE (Chapter of the American Institute of Chemical Engineers), Princeton, NJ, October 18, 2005.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Invited presentation, World Conservation Union and WWF International, Gland, Switzerland (video), October 15, 2005.

"Emission-Free Options for Energy from Fossil Fuels: The Issues for CO_2 Sequestration," Invited talk, Geological Society, Burlington House, London, United Kingdom, October 12, 2005.

Stabilization Wedges: Mitigation Tools for the Next Half-Century, CEO Informal Meeting
World Conservation Union and WWF International, Gland, Switzerland (by teleconference)
October 5, 2005

"Anything a Physicist is Interested In," by Robert Socolow, Remarks at the 75th anniversary celebration of the School of Natural Sciences, Institute for Advanced Study, September 24, 2005

"The Stabilization of CO_2 Emissions in the Coming 50 Years," Keynote address, Institut Français du Pétrole, Paris, France, September 15, 2005.

"The IEA's WEO-2004 Alternative Policies Scenario and Demiwedges" CMI Research Group, June 2, 2005

"Contributions from the University's Carbon Mitigation Initiative," Invited presentation, Alumni Panel: *Solving the Carbon Crisis*, Princeton University, Princeton, NJ, May 27, 2005.

"The WEO-2004 Alternative Scenario and Demi wedges: Sustaining the Momentum," Keynote address, IEA Workshop, *Policies to Shape an Alternative Energy Future*, Paris, France, May 25, 2005.

"Developing Potential Paths Forward Based on the Knowledge, Science, and Experience to Date," Contributed presentation, Fourth Annual Conference on Carbon Capture and Sequestration, NETL Washington, DC, May 3, 2005.

"Mobilizing the World for Climate Stabilization," Invited talk, Atlantic Council, Washington, DC, May 2, 2005.

"The In Salah Gas Project" talk based on 48 hours at the project in Algeria, April 20-22, 2005

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Invited talk, BP/DF&S Strategy Workshop, Petersham Hotel, Richmond, United Kingdom, April 18-19, 2005.

"Physics for the Earth," Invited talk, Einstein meeting for American Association of Physics Teachers, New Jersey Section, Princeton, NJ, March 11, 2005.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Invited presentation, WWF Climate Change Program in Istanbul, Turkey (phone presentation) February 21, 2005.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Invited presentation, WWS Climate Change Program (H. Feiveson's course, "Beyond Kyoto") February 21, 2005.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Invited presentation, Belgian Federal Council for Sustainable Development (video presentation), February 18, 2005.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Invited talk, BP Corporate Headquarters, London, United Kingdom, February 7, 2005.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Keynote address, BP Energy and Environmental Ministerial Roundtable Preparatory Meeting, London, United Kingdom, February 4, 2005.

"Stabilization Wedges: Mitigation Tools for the Next Half-Century," Keynote address, Met Office Symposium, *Avoiding Dangerous Climate Change*, Exeter, United Kingdom, February 3, 2005.

"2004 Highlights: Integration and Carbon Capture," Contributed presentation, Carbon Mitigation Initiative Annual Meeting, Princeton University, Princeton, NJ, January 12, 2005.

"Stabilization Wedges: Solving the Climate Problem for the Next 50 Year with Current Technologies" United Nations COP 10/Buenos Aires Climate Change Conference, Buenos Aires, Argentina, December 9, 2004

"Stabilization Wedges: Solving the Climate Problem for the Next 50 Year with Current Technologies" World Resources Institute Seminar, November 15, 2004

"Stabilization Wedges: Solving the Climate Problem for the Next Half-Century with Current Technologies" Ford Motor Company, Dearborn, MI, October 29, 2004

"Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies" Centre de Recherches IPGP, Schlumberger, at Institut de Physique du Globe, October 12, 2004.

"Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies" IEA, Paris, France, October 11, 2004

"Stabilization Wedges: Solving the Climate Problem for the Next Half-Century with Technologies Available Today, 3rd API Conference on The Oil and Natural Gas Industry's Voluntary Actions to Address Climate Change, Co-sponsored by USDOE, Washington, DC September 29, 2004

"The Capture and Storage of Carbon Dioxide and the Future of Coal" Energy Policy Forum Aspen Institute July 5, 2004

"Stabilization Wedges: A Way to Visualize the Heroic Task of Managing Global Carbon" Sustainable Mobility Project, World Business Council for Sustainable Development Princeton, NJ, May 12, 2004

"Building an Architecture to Facilitate the Development of Consensus on Strategies and Programs to Reduce Carbon Intensity" Third Annual Conference on Carbon Sequestration Arlington, VA, May 4, 2004

"Slices and Wedges: Useful Words to Describe the Daunting Challenge of Managing Global Carbon" University of Virginia, April 22, 2004 (Earth Day)

"Slices and Wedges: Useful Words to Describe the Daunting Challenge of Managing Global Carbon" Presentation for Brian Anderson, Princeton, NJ, April 21, 2004

"Slices and Wedges: Useful Words to Describe the Daunting Challenge of Managing Global Carbon" BP Sunbury, March12, 2004

"Slices and Wedges: Useful Words to Capture the Daunting Task of Managing Global Carbon" PEI Associated Faculty Forum, Princeton University, March 9, 2004

"Financing and Deploying IGCC Technology in this Decade" IGCC Development Workshop at the JFK School, Harvard University, Cambridge, MA, February 11, 2004

Talk during 3rd Annual CMI Meeting, Princeton, NJ January 20-21, 2004

"Capturing and Storing Fossil-Fuel Carbon" Emilio Segre Lecture, Department of Physics University of California at Berkeley, November 24, 2003

"Capturing and Storing Fossil-Fuel Carbon" Princeton University, Princeton Plasma Physics Laboratory Colloquium, September 17, 2003

"Introduction to the Carbon Mitigation Initiative" Visit of Stephen Kleespie and Mark Davies, Rio Tinto to Princeton University, August 6, 2003

"Introduction to the Carbon Mitigation Initiative" Visit of David Conover and Larisa Dobriansky Princeton University, Princeton, NJ, July 22, 2003

"Introduction to the Carbon Mitigation Initiative" Visit of Prof. Ennio Macchi and collaborators Princeton University, June 20, 2003, Princeton, NJ.

"Introduction to the Carbon Mitigation Initiative", Presentation to Philippe Lacour-Gayet, T. Zimmerman, and T.S. Ramakrishnan, Schlumberger, Ltd. May 27, 2003

"Introduction to the Carbon Mitigation Initiative", Joint Global Change Research Institute, PNNL, Princeton, NJ, May 28, 2003

"The Future of Hydrogen," The Carbon Roundtable: Roundtable II, Arden Homestead**,** May 16, 2003

Overarching Issues and the Future of Hydrogen, Committee on Alternatives and Strategies for Future Hydrogen Production and Use, National Research Council
Washington, DC, April 24, 2003

Global Carbon Management and the Role of Hydrogen, GCEP Hydrogen Conference, Stanford University, April 14, 2003

"Energy equals Managing Carbon Cleanly" APS Spring Meeting talk given as recipient of Leo Szilard Lectureship Award, Philadelphia, PA, April 5-8, 2003

Global Carbon Management, BP Sunbury, UK, March 17, 2003

Global Carbon Management, Science and Global Security Guest Lecture, Princeton University February 12, 2003

Carbon Management in a Greenhouse Constrained World: The Case for Hydrogen, Committee on Alternative Strategies for Hydrogen Production and Use. National Research Council, Washington, DC, January 22, 2003

Kreutz, T.G., R.H. Williams, Socolow, R.H., P. Chiesa and G. Lozza. (2002). Production of Hydrogen and Electricity from Coal with CO2 Capture. Prepared for 6th Greenhouse Gas Control Technologies Conference, Kyoto, Japan (presented by a co-author).

"Solution Science: A New Challenge for Forestry" SCOPE Workshop, Forest Conservation and Management in an Information Age. Woods Hole, MA, December 17, 2002

"Coal and Carbon: Toward a 21st Century Synthesis" *Future of Coal Workshop.* Queenstown, MD, December 8, 2002

"Stabilizing Greenhouse Gases in the Earth's Atmosphere: Opportunities for Technology and Innovation" US Climate Change Science Program Planning Workshop, December 4, 2002

"Solving the Carbon Problem" GFDL, November 14, 2002

"Rearranging the Earth's Carbon and Solving the Carbon Problem" NOAA Senior Research Council Meeting, GFDL, Princeton, NJ November 13, 2002

"Rearranging the Earth's Carbon" Tsinghua University. October 28, 2002.

"Rearranging the Earth's Carbon" Roundtable, Arden House, October 11, 2002.

"The Carbon Mitigation Initiative at Princeton University" LERDWG Meeting, Washington, DC October 9, 2002.

"CO2 Capture: The Long-Term View" *NGO Focus Group Meeting CO2 Capture Project.* Washington, DC. September 25, 2002.

"The Carbon Mitigation Initiative at Princeton University" Suncor, Ft. Murray Alberta, Canada. July 22, 2002.

"The Carbon Mitigation Initiative at Princeton University" *CO2 Capture and Storage Technology Workshop.* Runnymede, UK, July 1, 2002.

"The Century-Scale Challenge of Carbon Management" at Vehicle Technology and Long-Range Corporate Planning meeting at Ford Motor Company, Dearborn, MI June 24-26, 2002

"Carbon Mitigation Initiative at Princeton University" BEES, Washington, DC June 20, 2002

"The Century-Scale Challenge of Carbon Management" Special Session on Carbon Management, Technologies, Feasibility, Impacts, Risks and Economics. American Geophysical Union Spring Meeting. Washington, DC. May 29, 2002.

"The Century-Scale Challenge of Carbon Management" at Energy Futures Roundtable UN Foundation, Washington, DC, May 22, 2002

"The Carbon Mitigation Initiative at Princeton" Energy Research Programs Workshop. Princeton, NJ. April 29, 2002.

"The Century-Scale Challenge of Carbon Management" Greenhouse Gas Emissions Trading Braintrust, Center for Clear Air Policy meeting, Airlee House, Warrenton, VA, April 26, 2002

"The Century-Scale Challenge of Carbon Management" National Academy of Engineering Symposium, Complements to Kyoto: Technologies for Controlling CO2 Emissions, Washington, DC April 23-25, 2002

"Fossil Carbon Sequestration" talk for EPA Clean Air Act Advisory Committee (CAAAC) Washington, DC, March 4, 2002

"Reinventing Materials: The Environmental Context" Workshop with V. Thomas, Princeton, February 23-25, 2002

"The Carbon Mitigation Initiative at Princeton" BP Tsinghua and BP Lurgi Discussions. Princeton, NJ. February 6-7, 2002

"The Ethical Implications of Global Environmental Problem Solving" invited talk with Princeton Theological Seminary, Princeton, NJ February 2, 2002

"Managing Carbon in a Greenhouse-Constrained World" A talk to the Old Guard, Princeton University. December 12, 2001.

"The Carbon Mitigation Initiative at Princeton University" MAE Thermal Sciences Review, November 8, 2001

"Low-Carbon" Fuel via Fossil-Carbon Sequestration" IPIECA Symposium on Long Term Carbon Management and Energy Supply. Cambridge, MA, October 15-16, 2001

"Toward Coherence Across Energy and Agriculture" Second International Nitrogen Conference. Potomac MD, October 14-18, 2001

"Managing Carbon in a Greenhouse-Constrained World." BP Anchorage, September 4, 2001

"The Carbon Mitigation Initiative at Princeton University" The National Energy Technology Laboratory, July 18, 2001

"Managing Carbon in a Greenhouse-Constrained World." Princeton Plasma Physics Laboratory Colloquium, April 18, 2001

"Carbon Mitigation Initiative Introduction" BP-Princeton with Steven Pacala, Houston, TX. February 27-28, 2001

Presentations, 1991-2000

"Fertilize Locally, Think Globally" at Forum on Physics and Society during American Physical Society, Program to Celebrate a Century of Physics, March 20-26, 1999.

"The Hard Work Ahead to Understand Materials Flows and Their Consequences." IHDP-IT East Asia Workshop, Kita Kyushu, Japan, June 24, 1998.

"Human Impacts on the Grand Cycles." Gordon Research Conference on Industrial Ecology, Colby-Sawyer College, New London, New Hampshire, June 7, 1998.

"Fossil Carbon Sequestration: A Rival Greenhouse Mitigation Strategy." Global Seminar on the Future of Nuclear Power, Atlantic Council of the United States, Cannes, France, May 11, 1998.

Session Chair, "Linking Industrial Ecology to Public Policy," an NSF-sponsored workshop, White House Conference Center, Washington, DC, April 30, 1998.

"The Urgency of Innovation." Session on Technological Change, South Asia Workshop, Industrial Transformation Project of the International Human Dimensions Program. Tata Energy Research Institute, Delhi, India, April 4, 1998.

"Industrial Pollution." Workshop on Understanding Values: A Comparative Study of Values in Environmental Policy Making in China, India, Japan, and the United States, Carnegie Council on Ethics and International Affairs, New York City, April 24-25, 1998.

Discussions with leaders of the Chinese office of Agenda 21, national headquarters, Beijing, China, March 11, 1998 (a.m.).

Dialog with Ma Zhong, Beijing Environment and Development Institute (BEDI), Renmin University, Beijing, China, March 11, 1998 (p.m.)

Talk on research opportunities in energy and environment, General Research Institute for Non-Ferrous Metals (GRINM), Beijing, China, March 12, 1998 (a.m.).

Talk on research opportunities in energy and environment, Institute of Nuclear Energy Technology, Tsinghua University, Beijing, China, March 12, 1998 (p.m.).

Dialog with researchers at the Center for American Studies, Fudan University, Shanghai, China, March 16-17, 1998.

Talk on research opportunities in energy and environment, Northwestern Polytechnical University, Xian, China, March 19, 1998 (a.m.).

Talk on research opportunities in energy and environment, Jiaotong University, Xian, China, March 19, 1998 (p.m.)

Talk on research opportunities in energy and environment, China Academy of Engineering Physics, Mian Yang, Sichuan, China, March 22, 1998.

Speaker, meeting on the future of fusion energy, Plasma Physics Laboratory, Princeton University, February 26, 1998.

Convenor and speaker, Board of Directors Meeting on Energy, W. Alton Jones Foundation, Jupiter, Florida, February 5-7, 1998.

"Industrial Ecology: A Framework for Identifying Environmentally Responsive Technology." Department of Earth and Environmental Engineering, Columbia University, New York, NY, November 25, 1997.

"The PhD+: Enhanced Graduate Training for Scientists and Engineers" (Co-convenor). PEI-RISE Workshop, Princeton, NJ, November 20-21, 1997.

"The Lead Battery: A Case Study in Industrial Ecology." Indian Institute of Technology, Bombay, India, November 7, 1997.

"Safer Fossil: Carbon Sequestration and the Hydrogen Economy." Indian Institute of Technology, Bombay, India, November 6, 1997.

"Safer Fossil: Carbon Sequestration and the Hydrogen Economy." Indian Institute of Science, Bangalore, India, November 4, 1997.

"Nitrogen Fertilizer and the Lead Battery: Two Case Studies in Industrial Ecology?" Tata Energy Research Institute, New Delhi, India, October 28, 1997.

"Safer Fossil: Carbon Sequestration and the Hydrogen Economy." Tata Energy Research Institute, New Delhi, India, October 27, 1997.

"Safer Fossil: Carbon Sequestration and the Hydrogen Economy." Moscow Physico-Technical Institute, Moscow, Russia, October 21, 1997.

"Safer Fossil: Carbon Sequestration and the Hydrogen Economy." Institute for High Temperatures, Moscow, Russia, October 21, 1997.

"Safer Fossil: Carbon Sequestration and the Hydrogen Economy." Kurchatov Institute, Moscow, Russia, October 20. 1997.

"Carbon Sequestration and the Hydrogen Economy." Energy and Resources Group, University of California, Berkeley, CA, September 25, 1997.

"A New Greenhouse Gas Mitigation Policy: Carbon Sequestration and the Hydrogen Economy." The Udall Center, The University of Arizona, Tucson, Arizona, September 15, 1997.

"Safer Fossil: Carbon Sequestration and the Hydrogen Economy." Lamont-Doherty Earth Observatory's Earth Science Colloquium, Columbia University, Palisades, NY, September 5, 1997.

Participant, Radio interview with Peter Berle, "The Environment Show," Public Radio, August 16, 1997.

Workshop on Technological Opportunities for Fuels Decarbonization and Carbon Sequestration" (Director, Chair, Speaker) Sponsored by the U.S. Department of Energy, Washington, DC, July 28-30, 1997.

"An energy system responsive to greenhouse constraints: Is carbon sequestration a real option?" Third Carbon Center Modeling Center Meeting, Geophysical Fluid Dynamics Laboratory, Princeton, NJ, July 23, 1997.

"Industrial Ecology: An Integrative Approach to the Control of Energy and Materials Flows Through Human Society." Seoul National University, Seoul, Korea, June 27, 1997

"The Weapons Shadow Over Nuclear Power." The Atlantic Council of the United States Asia Seminar on the Future of Nuclear Power, Seoul, Korea, June 24, 1997.

"Environmentally Significant Consumption." Session on Consumption as a Cause of Environmental Degradation." 1997 Open Meeting of the Human Dimensions of Global Environmental Change Research Community, IIASA, Laxenburg, Austria, June 12, 1997.

"Will Addressing Climate Change Require a Major Technology Revolution in Both Energy Supply and Demand," The World Bank Group, Washington, DC, 5-6 June 1997.

"Defining and implementing clean recycling: The industrial ecology of the lead battery." Industrial Ecology Symposium, Lucent Technologies, Murray Hill, NJ, June 3, 1997.

"Energy and Development." Session on Technology, Environment and Energy: Opportunities for Cooperation. Conference co-sponsored by Princeton University, Center of International Studies; and the Foreign Policy Research Institute, Philadelphia, entitled "A Broader Definition of Security: 50 Years of United States Relations with India and with Pakistan," Princeton, NJ, May 4, 1997.

"Policy-relevant research on substance flows and materials management." Conference on Sustainable Sustainability, Free University, Amsterdam, The Netherlands, February 21, 1997.

"Fulfilling the Promise of Industrial Ecology: We are Moving It-Do We Like Where We're Putting It?" Penn State Seminar, Case Studies in Industrial Ecology, College of Earth and Mineral Sciences, State College, PA, January 28, 1997.

"Turning Fossil Fuels into Hydrogen and Sequestered Carbon Dioxide: A Transition Technologies Program, Lawrence Livermore National Laboratory, Livermore, CA., Strategy for the Hydrogen Economy." Energy, Manufacturing and Transportation January 15, 1997.

"The Industrial Ecology of Lead and Electric Vehicles." Plenary Session: Transportation and Technological Development in the Global Environment, World Car Conference, Riverside Convention Center, Riverside, CA, January 19-22, 1997.

"Roles for Fossil Fuels in a Greenhouse Constrained World." Laboratory Energy R&D Working Group (LERDWG) of the U.S. DOE, Washington, DC, December 13,1996.

"The Outlook for New Energy Technologies in the 21st Century." ARIES Low-A Kickoff Meeting, Princeton Plasma Physics Laboratory, December 9, 1996.

“Pasteur’s Quadrant and Fusion,” commentary on a presentation by Donald Stokes, Princeton Society of Fellows of the Woodrow Wilson Foundation, June 22, 1996.

"The Future of Industrial Ecology," AT&T Industrial Ecology Symposium, Murray Hill, NJ, June 4, 1996.

"Living in a Greenhouse," Princeton Friends of Open Space, Princeton, NJ, March 17, 1996.

"Energy-Environment Interactions." Week-long U.S. visit of a group of senior managers of Framatome (organized by the Centre de Perfectionnement aux Affairs, Paris), New York City, April 19, 1996.

"Natural Resources and the Environment: Issues for the 21st Century," School of Natural Resources and the Environment, University of Michigan, Ann Arbor, MI, April 3, 1996.

"Energy R&D Priorities," Office of Kathleen McGinty, Executive Office of the President, Washington, DC, February 2, 1996.

"Technology and Policy for Life in a Greenhouse," Bioethics and Public Policy Symposium, Institute for Social and Policy Studies, Yale University, New Haven, CT, January 18, 1996.

"Consumption and the Concept of Industrial Ecology," Workshop on Consumption, Committee on the Human Dimensions of Global Change, National Research Council, Washington DC, November 8, 1995.

"The 1995 Fusion Report of the President's Council on Science and Technology," Center for Energy and Environmental Studies Tuesday Seminar Series, Princeton University, Princeton, NJ, 24 October 1995.

"Industrial Ecology: A Framework for Thinking About Environmental Impact," Granville Sewell Memorial Lecture, School of Public Health, Columbia University, New York, NY, October 18, 1995.
"Living in a Greenhouse: A Challenge to all Disciplines," Princeton Society of Fellows of the Woodrow Wilson Foundation, September 18, 1995.

"Technological Innovation and Environmental Policy," Spring 1995 Center for Economic Policy Studies Symposium, New Directions in Environmental Policy, Princeton, NJ, May 13, 1995.

"Thermodynamics and Climate Change," Guest Evening Lecture, Mechanical and Aerospace Engineering 221 (Thermodynamics), Princeton University, Princeton, NJ, March 6, 1995.

"Threatening the Future of Our Environment," Harvard Club of Princeton, Princeton, NJ, February 26, 1995.

"Thermodynamics and Climate Change," Guest Evening Lecture, Mechanical and Aerospace Engineering 221 (Thermodynamics), Princeton University, Princeton, NJ, September 26, 1994.

"Soft and Hard Solar: A Challenge to Conceptualization," World-Bank-sponsored meeting:

"Brainstorming Session on the World Bank's Solar Initiative," Princeton University, Princeton, NJ, September 8, 1994.

Participant, Meeting on the "Energy for Peace" Initiative of the W. Alton Jones Foundation, Washington, DC, June 21-22, 1994.

Participant and Group Leader, Workshop on Research on the Human Dimensions of Global Change, National Academy of Sciences, Washington, DC, June 13-14, 1994.

Participant, Steering Committee and National Advisory Group on Energy Policy in Russia and the Ukraine of the Atlantic Council, Moscow, Russia, June 1-3, 1994.

Participant, Fissile Cut-off Workshop, Princeton, NJ, May 16-17, 1994.

Invited talk, "Implications of Industrial Ecology for Environmentally Conscious Manufacturing," 1994 Annual Meeting and Conference of the National Center for Manufacturing Sciences, Anaheim, CA, May 9, 1994.

Participant, Development Meeting of the Princeton Environmental Institute, Princeton, NJ, April 16, 1994. Hill

Participant, "Turning up the Heat: Next Steps for Medium-Term Results on Climate Change," Rockefeller Brothers Fund Workshop on Climate Change, Pocantico, NY, April 7-8, 1994.

Invited informal talk, "Roles for the Science Advisory Committee," Pollution Prevention Conference of the National Center for Manufacturing Sciences, Dearborn, MI, March 29, 1994.

Participant, Meeting of the Board of the American Council for an Energy Efficient Economy, Washington, DC, February 25, 1994.

Co-Leader, Science Funding and Policy Discussion, Princeton Chapter of Sigma XI, November 1993.

Guest Lecturer, "Industrial Ecology, "Sociology 530: Social Process: Environment, November 1993.

"Industrial Ecology," Sociology 280 ("Sociology of the Environment," taught by Steven Brechin). Date uncertain, probably Fall, 1993.

"The Weapons Shadow over the Future of Nuclear Power," 2nd Massachusetts Institute of Technology International Conference on the Next Generation of Nuclear Power Technology, Cambridge, MA, October 1993.

Participant, Discussion Group on Systems Modeling, National Research Council Board on Global Change, Washington, DC, August 1993.

Participant and Speaker, The United National University Symposium on Eco- Restructuring, Tokyo, Japan, July 1993.

Participant, Fifth International Summer Symposium on Science and World Affairs, Massachusetts Institute of Technology, Cambridge, MA, July 1993.

"Frontiers of Environmental Science", Speaker, 4th Annual Harold R. Medina Seminar for State and Federal Judges on the Art of Judging: Enduring Principles Amidst Diversity, Princeton University, June 1993.

"Cooperation Among Actors, Panel Leader, Electricity & Federalism Symposium, Princeton University, Princeton, NJ, June 1993.

Participant, Meetings of the Study Group on Energy and Environment: the International Policy Issues, Council on Foreign Relations, New York, NY, March and April, 1993.

Plenary Speaker, Science Coordinator, Kyoto Global Forum on Value Change for Global Survival, Global Forum, Kyoto, Japan, April 1993.

Convenor of a Workshop on Industrial Ecology, Washington, DC, June 1993.

"Industrial Ecology and Global Change," Talk given at the AAAS Science and Education for the Future, Boston, MA, February, 1993.

"Energy and Environmental Technology Transfer to Central and Eastern Europe," Meeting of the Advisory Panel for the OTA Assessment, Washington, DC, January, 1993.

Participant, Meeting on Gas Turbines for Russia, World Bank, Washington, DC, January, 1993
"The Next Hundred Years of Fusion and Fission Energy," Workshop on Generation of Electricity from Renewable Sources, American Physical Society, Swarthmore College, November 1992.

"Industrial Ecology," Public Affairs 401 (policy conference taught by Prof Marc Levy), October 1992.

"Energy and the Environment," Speaker, Environmental Policy Seminar (for Democratic Party donors), Washington, DC, October 1992.

"Thoughts on Rio and Next Steps," Princeton Environmental Action, September 1992.
Session Leader and Participant, Sigma Xi Colloquium on Environmental Research and Education, Raleigh, NC, September 1992.

"Industrial Ecology," Workshop on Economics and the Global Environment, Princeton University, August 1992.
"What Really Went on in Rio," (with Alison Jolly), Department of Ecology and Evolutionary Biology, July 1992.

"Industrial Ecology: Blending Insights from Industrial Innovation and Environmental Science," Global Change Institute on Industrial Ecology and Global Change, Snowmass, CO, July 1992.

"Environment-Respectful Global Development of the Energy System," Round Table No. 8, "Energy and Environment," Scientific Programme, Forum de Ciencia e Cultura do Rio de Janeiro, June 4, 1992.

"Global Environmental Constraints as a Stimulus to Innovation in Energy Technology," Smithsonian's Conference on U.S. Economic Opportunities in Global Environmental Agreements, Washington, DC, March 6-7, 1992.

"Energy for the Next 100 Years," Princeton Plasma Physics Laboratory 40th Anniversary Celebration, Princeton, November 1, 1991.

Presentations, 1981-1990

Socolow, R.H., Report from the Scientific Miniforum II during the Global Forum on Environment and Development for Survival, Moscow, USSR, January 15-19, 1990.

"Progress report on the collaboration in the buildings area," workshop on U.S.-Soviet collaboration in energy conservation research and development, Atlanta, GA, March 21, 1988

"Soviet-American collaboration in research on energy conservation in the buildings sector." Annual meeting of the American Association for the Advancement of Science, Boston, February 14, 1988.

"Energy Conservation: A Research Frontier," invited talk, Institute of Applied Energy, Tokyo, December 18, 1987.

US-USSR Collaboration on Energy Conservation Research and Development, Participant, planning meeting of National Research Council Committee on Washington, D.C., November 11, 1987, and related discussion with Assistant Secretary for Conservation and Renewables, Washington, D.C., November 12, 1987.

Participant, Science, Engineering, and Public Policy Workshop, JFK School of Government, Harvard University, Cambridge, MA, October 23-25, 1987.

"Is There a Physicist in the House?" given at a Symposium in Honor of George T. Reynolds 70th Birthday, Physics Dept. Princeton University, May 22, 1987.

"Perspectives on Indoor Radon," Lawrence Berkeley Laboratory, Berkeley, CA, July 1, 1987.

Chairman, Roundtable on Energy and the Environment, Alumni College, "America's Borders: Canada, U.S., Mexico," Princeton, N.J., June 13, 1986.

Participant, Review of sponsored research on radon at Camp Dresser and McGee (invited by the Dept. of Environmental Protection, State of N.J.), Edison, N.J., May 12, 1987.

"The Radon Problem," seminar at Woodrow Wilson School, Princeton University, September 19, 1986.

"Soviet-American Collaboration on Energy Conservation Research," 55-Plus Group, Princeton, N.J., September 17, 1986.

"US-Soviet Cooperation on Energy Efficiency," (with R. Williams) Center for Energy and Environmental Studies Tuesday Seminar, December 2, 1986.

"Research at the Center for Energy and Environmental Studies," talk to Jamaican authorities on energy, Kingston, Jamaica, October 3, 1986.

Participant, planning meetings for the 1986 US-Soviet Symposium on Energy Conservation Research and Development. Princeton University, Princeton, N.J., and Electric Power Research Institute, Palo Alto, California, February 17-21, 1986.

"The American Home," Symposium on the New Face of Demand, Cambridge Energy Research Associates Executive Conference, Houston, Texas, January 28, 1986.

"Low Energy Futures," Center for Energy and Environmental Studies, Princeton University, October 1, 1985.

"The Urgency of a Comprehensive Test Ban," State House, Trenton, N.J., July 16, 1985.

"Field Studies of Energy Savings in Buildings: A Tour of a Fourteen-Year Research Program at Princeton University," Soviet- American Symposium on Energy Conservation, Moscow, USSR, June 11, 1985.

"The Physicist's Role in Using Energy Efficiently: Reflections on the 1974 American Physical Society Summer Study and the Task Ahead," American Physical Society Short Course on Energy Conservation, April 27, 1985.

Participant, Workshop on Biomass Energy Systems: Building Blocks for Sustainable Agriculture, Airlie House, Virginia, January 29-31, 1985.

Presented "Introduction to the Series" on the future role of biomass as an energy source, with emphasis on new technology, end use efficiency, and the coupling to economic development in LDCs, School of Forestry and Environmental Studies, Yale University, New Haven, January 15, 1985.

"Psychological Aspects of Energy Conservation," radio interview (with John Darley), November 15, 1984.

"Energy Conservation and the Soviet Connection," WHWH Radio interview: Sayen at Scanticon, November 11, 1984.

"Energy Conservation: A Research Frontier," Colloquium, Dept. of Physics, Swarthmore College, November 8, 1984.

"Report from the Soviet Union: Joint CEES/Soviet Studies on Nuclear Arms Control and Energy Research," Center for Energy and Environmental Studies, Princeton University, September 25, 1984.

Participant, Center for Energy and Environmental Studies delegation to the Soviet Union, guests of the Soviet Academy of Sciences, to discuss collaboration research in energy conservation and arms control, September 1-10, 1984.

"Global Reasons for Aggressive U.S. Energy Conservation," keynote speech, ACEEE 1984 Summer Study on Energy Efficiency in Buildings, August 20, 1984.

Presentation to N.J. Utilities, June 1984.

"International Research at Center for Energy and Environmental Studies," Center for Energy and Environmental Studies, September 27, 1983.

"Modeling of Residential Electricity Consumption," seminar and pr review (with M. Fels) EPRI, August 24, 1983.

"Energy Conservation Research at Princeton," invited talk, Lawrence Berkeley Laboratory, August 22, 1983.

Invited talk: "Princeton Project: An Update," at the press seminar, "The Natural Gas Dilemma: Supply vs Price, A New Jersey Perspective," Jamesburg, N.J., March 25, 1983.
Guest Lecture, ” The Second Law of Thermodynamics,” in Physics 112, Contemporary Physics, March 2, 1983.

Guest Lecture, “The Physics Core of the Energy-Environment Interaction,” Physics Department Colloquium, Princeton University, February 17, 1983.

Invited participant, Buildings Energy Workshop (convened by the Committee on Science and Technology, U.S. House of Representatives), Carmel, California, January 12-14, 1983.

Speaker, "Monitoring Energy Use in Buildings: Overview of Results," Workshop on How to Achieve Building Envelope Efficiency, Center for Insulation Technology, Drexel University, Philadelphia, Pa., December 1, 1982.
Speaker, "Research at the Center for Energy and Environmental Studies," presentation to a delegation from Exxon, Engineering School, Princeton University, November 16, 1982.

Speaker, "Energy Conservation in Buildings," Graduate Seminar on Energy Management and Policy, Energy Center, University of Pennsylvania, Philadelphia, October 14, 1982.

Speaker, "Princeton Research on Energy Conservation in Buildings," Center for Energy and Environmental Studies Seminar Series, Princeton University, September 28, 1982.

"Panel Chairman (Existing Residences) ACEEE 1982 Summer Study, "What Works? Documenting the Results of Energy Conservation' in Buildings," Santa Cruz, California, August 21-28, 1982.

Speaker, "Global Energy Use in the Context of Conservation- Intensive Technology," Seminar in Technology and Social Change. Georgia Tech., Atlanta, July 28, 1982.

Speaker, “The Uses of Awkward Questions,” Program on Energy and Environmental Policy and Disciplinary Research at Princeton,” May 18, 1981.

Chairman and speaker, "Ten Years of Energy and Environmental Studies at Princeton University," Symposium of the American Physical Society Forum on Physics and Society, New York City, January 29, 1981.

Participant, Seminars on Energy Conservation for Congressional Staff, U.S. House and Senate, Washington, D.C., March 23 and 24, 1981.

Discussant, "Saturday at the University: Social Imperatives and the Development of Science, Technology, and Medicine," Program on the Courts and the Public: Policy Decisions about High Technology and Risk, University of Pennsylvania, Philadelphia, PA, April 4, 1981.

Keynote speaker, "Cogeneration Overview," Energy Forum: Cogeneration, Hartford, Connecticut, April 9, 1981.

Speaker, "House Doctors," Energy Efficiency in Buildings, Symposium of the American Physical Society, Forum on Baltimore, Maryland, April 20, 1981.

Participant, First Workshop on Ice Storage for Cooling Applications, Argonne Laboratory, Argonne, Illinois, June 4, 1981.

Presentations, 1971-1980

Speaker, "Energy Consumption in Urban Housing," Woodrow Wilson School Lecture Series in Urban Planning, Princeton, November 12, 1980.

Participant, Round Table on the Energy Future of New Jersey, *The New York Times*, November 11, 1980.

Speaker, "Lakewood Project," I.E.A., Annex III, Evaluation of Energy Conservation in Residential Buildings, Princeton, October 30, 1980.

Participant, "Conference on Housing and Energy in the 1980s," Brookings Institution, Washington, D.C., October 23, 1980.

Speaker, "The Retrofit Enterprise," National Conference on Energy Conservation in Residences, Wye Plantation, Aspen Institute, October 3–7, 1980.

Speaker, "Current Activities of the Center for Energy and Environmental Studies," Woodrow Wilson Mid-career Fellows Program luncheon series, October 10, 1980.

Lecturer, "Energy and the Environment: Conversion, Resources, Conservation," Princeton Adult School, lecture in the series *Technology Update*, October 9, 1980.

Report on the Santa Cruz Meeting," Center for Energy and Environmental Studies, Princeton University, Princeton, N.J., September 16, 1980.

Speaker, chairman, and member of Steering Committee, Summer Study on Building Energy Efficiency, Santa Cruz, California, August 11–22, 1980.

Speaker, Oregon State Department of Energy House Doctor Seminar, State Capitol Building, Salem, Oregon, August 18, 1980.

Lecturer, "The House Doctor," Northwest Public Power Association Conference, Portland, Oregon, August 18, 1980.

Keynote speaker and panelist, Energy Retrofit Conference, Mid-Atlantic Solar Energy Association, Princeton, N.J., June 19–20, 1980.

Panelist, Faculty–Alumni Forum, "Energy: Prospects for the 80s," Department of Chemical Engineering 50th Anniversary Celebration, Princeton, N.J., June 7, 1980.

"Beyond Twin Rivers: Energy Analysis and the House Doctor," Harrje, D., Dutt, G., Socolow, R. H., Gadsby, K., and Linteris, G., presented at the *Opening and Closing the Envelope Retrofit Conference*, sponsored by the Mid-Atlantic Solar Energy Association, Princeton, N.J., June 1980.

Lecturer, "Preliminary Results of the Princeton Project," *Conference on Natural Gas in the 80s: A New Jersey Perspective*, Neptune, N.J., April 29, 1980.

Panelist, "Understanding the Energy Crisis," 20th Congressional District Community Conference, sponsored by Congressman Ted Weiss, Cathedral of St. John the Divine, New York City, April 12, 1980.

Lecturer, "The Challenge of Retrofit," Sixth Annual Spring Conference, New Jersey Society of Architects, Princeton, N.J., March 22, 1980.

Speaker, "Research at the Center for Energy and Environmental Studies," Board of Trustees, Princeton Education Center at Blairstown, Princeton, N.J., March 14, 1980.

Invited speaker, Energy Sensitive Land Development Conference, sponsored by Rutgers University Center for Urban Policy Research and U.S. Department of Housing and Urban Development, Washington, D.C., December 3–4, 1979.

Speaker and host, visit of members of the Energy Conservation Team (Japan) to the U.S.A., coordinated by the Japan Productivity Center, Princeton, N.J., November 13, 1979.

Invited speaker, dinner meeting of the New Jersey Section of the American Association of Physics Teachers, New Brunswick, October 25, 1979.

Technical adviser and participant, Dunbarton Oaks Symposium, *The Dynamics of Energy Efficiency*, sponsored by the Alliance To Save Energy and Harvard University, October 17–18, 1979.

Lecturer, "Energy Conservation," First Oxford Energy Seminar, St. Catherine's College, Oxford University, September 4–11, 1979.

Reviews of research on conservation in housing with White House Staff, Washington, D.C., August 21 and August 28, 1979.

Participant, Governor Byrne's New Jersey Energy Summit, Chauncey Conference Center, August 17–18, 1979.

"The Coming Age of Conservation" Speaker and Panel Chairman, Alumni College, Princeton University, June 1978.

Guest Lecturer, Baetjer Colloquium, Department of Aerospace and Mechanical Sciences, Princeton University, February 2, 1978.

Moderator, Panel on "Alternative Coastal Energy Facility Siting Strategies: Experience to Date and Problems Ahead" in the Princeton University Conference (No. 141), *The Urban Coast and Energy Alternatives*, May 1978.

Speaker, Jewish Center Men's Club, Princeton, New Jersey, December 18, 1977.

"The Prospects and Potential for Long-run Energy Conservation" Speaker, Research Seminar on Energy Policy (Course 15.923), Alfred P. Sloan School of Management, MIT, Cambridge, Massachusetts, November 2, 1977.

"Four Anxieties About a Vigorous National Conservation Program." Speaker, Workshop/Conference on Conservation of Energy Resources, New York Academy of Sciences, New York, New York, October 15, 1977.

Guest Lecturer in Professor M. White's *Physics of Energy* Seminar: "An Overview of the Energy Dilemma" and "Energy Conservation," October 1977.

Five Lectures on Energy, College of Science Distinguished Guest Lecture Series, Utah State University, Logan, Utah, June 1976.
"Energy Conservation in Existing Residences: Your Home Deserves a House Call" — Lecturer and Participant, Conference on Energy Efficiency as a National Priority, sponsored by Ralph Nader's Public Citizen, Inc., Washington, D.C., May 1976.

"Activities at the Center for Environmental Studies." talk to visitors from Exxon Corporation, April 1976.

"Environment and Ethics" Participant, Evening Symposium of the American Academy of Arts & Sciences, Boston, Massachusetts, December 1975.

"Energy Conservation" and "Issues in a Fission Economy" Talks to the Princeton University–Colorado School of Mines Alumni College, Golden, Colorado, October 1975.

"Energy Programs at Princeton," participant in briefing for Exxon, July 1975.

"End Use Efficiency, A New Kind of Frontier for Technology" Symposium on Technology and Values, American Association for the Advancement of Science, Boston, Massachusetts, 1975.

"Energy Conservation in Housing, the Twin Rivers Project," with Harrje, D. Presentation at the NSF/RANN Conference on Energy Conservation Research, February 18–20, 1974.

"Technological Response to the Environmental Challenge," Columbia University Seminar on Technology and Social Change, April 6, 1972.

"Jamaica Bay and the Big Cypress Swamp: Two 'Victories' for Conservation," *On Wilderness* (Colloquium Series), Princeton University,1972.

"The Pertinence of the Physics Teacher," the Tutorial on Physics and the Environment, AAPT Summer Meeting, Beloit, WI, June 19, 1971

Footprint

Stabilization Wedges Game, and other online resources

R. Hotinski, S. Pacala and R. Socolow, March, 2016. Online/interactive resource and game, *The Stabilization Wedges Game is a team-based exercise that teaches players about the scale of the greenhouse gas problem, plus technologies that already exist to dramatically reduce our carbon emissions and get us off the path toward dramatic and damaging climate change.*

Seven Ways to Reduce Carbon song, *This song, written by Glenn Wolkenfeld to the tune of Paul Simon's "50 Ways to Leave Your Lover," teaches about carbon reduction and stabilization wedges. The song highlights ideas developed by Stephen Pacala and Robert Socolow at Princeton's Carbon Mitigation Institute.*

Books and articles written about Robert Socolow's work

Books

Aines, R.D., & Aines, A.L. (2019). *Championing Science: Communicating your ideas to decision makers*. University of California Press. On pp. 23-26, the authors present the stabilization wedge diagram as an example of how Socolow communicates science effectively.

Bulkin, B. (2019). *Solving Chemistry: A Scientist's Journey*. Whitefox Publishing. On pp. 207-214, the author discusses the selection of Princeton for BP's Carbon Mitigation Initiative.

Davidson, M. (2003). "Portrait of Innovation: Robert Socolow." In Molella, A.P., & Bedi, J. (Eds.). (2005). *Inventing for the Environment.* MIT Press. pp 373-382. The author writes a brief biography, based on an extensive interview.

Gore, A. (2006). *An Inconvenient Truth*. Rodale. The Stabilization Wedges Model is presented on pp. 280-281, for the U.S. rather than for the world.

Horlock, J.H. (2009). "Energy: Resources, Utilisation, and Policies." Krieger Publishing Company 2009. Socolow's and Lam's work on "Good enough tools" is discussed in Section 7.2 and Appendix B. Socolow's and Pacala's work on "Stabilization Wedges" is discussed in Section 9.6.

Kolbert, E. (2006). *Field Notes from a Catastrophe: Man, Nature, and Climate Change*. Bloomsbury USA. The author, in Chapter 7, "Business as Usual," discusses stabilization wedges, based on an interview with Socolow. Originally published in the *New Yorker* in the last of Kolbert's three articles, May 9, 2005.

McPhee, J (1985). "Ice pond," a chapter in *Table of Contents*, Farrar, Straus & Giroux. The chapter is a reprint of McPhee's article with the same title in *The New Yorker*, July 13, 1981, p. 92. It tells the story of Princeton's experiments and features McPhee's friend, Ted Taylor.

McPhee, J (2023). "Not that one," a brief chapter in *Tabula Rasa Volume 1*, Farrar Straus & Giroux, pp 132-133. The chapter is a reprint of McPhee's brief article with the same title in *The New Yorker*, February 7, 2022. McPhee recounts the lecture by Edward Abbey in the Princeton's *On Wilderness* series in 1972.

Nadgorny, E. (2021). *Life without Parole: A Steep Path to Freedom*. The author recounts his, his wife's, and his son's battle to emigrate from the Soviet Union: Socolow's role is discussed on pp. 217, 233, and 257.

Speth, J. G. (2014). *Angels by the River: A Memoir*. Chelsea Green. The author, on pp, 140-143, tells how Socolow introduced him to Murray Gell-Mann in 1981, leading to the launching of the World Resources Institute with funding from the MacArthur Foundation.

News and magazine articles

Henson, B. (March 5, 2026) "Six trillion ways to solve climate change" Yale Climate Connections

Cohen, B.R. (January 13, 2026). "By all measures" *Longreads*

Princeton University (May 2013) "Thirty-two faculty members transfer to emeritus status"

Emery, C. (2010, Winter). Keeping tabs on a small crowded planet. *EQuad News*. Princeton University School of Engineering. Interview with R. Socolow

New York Times, (May 2011). "Physicist Group's Study Raises Doubts on Capturing Carbon Dioxide from Air" J.Rudolf

Interview: Discussion of Wedges "Wie der mount everest lasst sich auch das komplexe klimaproblem nur uber etapin bezwingen" (Translation: Like Mount Everest, the complex climate problem can only be conquered in steps) in *Der Spiegel,* March 31, 2008 p. 10-11. Also appears in: Süddeutsche zeitung No 77, p. 7 April 2 2008

Lemonick, M. D. (2007, April 2). Robert Socolow and Stephen Pacala. *Time Magazine*.

Science et Vie. (2006, February). *Quinze pistes pour sortir du piege climatique.* Science et Vie, (1061), 64–68.

Hileman, B. (2002, May). How to reduce greenhouse gases. *Chemical & Engineering News*, 80(21).

Hileman, B. (1997). Fossil fuels in a greenhouse world. *Chemical & Engineering News, 75*(33), 34

Hileman, B. (1992). Industrial ecology: Route to slow global change proposed. *Chemical & Engineering News, 70*(34), 7–14.

Borys, K., "Prudential's Enerplex: A Landmark of Energy Efficiency" *Buildings* 77. 100-106*,* November, 1983

Scientists Seek Energy Conservation Methods, The Daily Princetonian, Vol CIII, No. 84, Sept, 1979.

Ross, M. (1973). The Scientist's Bookshelf: [Book review of *Patient Earth]. American Scientist*, 61, p. 76.

Bird, D. (1973, May 27). "Energy in the home being tested at Twin Rivers" *The New York Times,* pp. 49 & 65

Berry, R.S. (1973). Environmental management [Book review of *Patient Earth*]. *Bulletin of the Atomic Scientists*, 29(1), 48–49.

Gollub, J.P. (1972, May). *Patient Earth* [Book review]. *American Journal of Physics*, 40, 786.

Interview in 1970 on the "Day of Reflection" at Yale held on March 4, 1969

Some books and articles written by staff/visitors at least partially while at CEES (incomplete list)

Baldwin, S. (1987). *Biomass stoves: Engineering design, development and dissemination.* Volunteers in Technical Assistance (VITA).

Becker, L. J., & Seligman, C. (1981). *Welcome to the energy crisis.* Journal of Social Issues, 37(2), 1–7.

Cherry, L. (1985). *Harriet and William and the terrible creature* (Illustrator). Dutton, E. P..

Cherry, L. (1999). *The armadillo from Amarillo*. Clarion Books.

Deudney, D. (1990). *Dark skies: Space expansionism, planetary geopolitics, and the ends of humanity*. Oxford University Press.

Feiveson, H. A. (Ed.). (2010). *The nuclear turning point: A blueprint for deep cuts and de-alerting of nuclear weapons*. Brookings Institution Press.

Feiveson, H. A., Glaser, A., Mian, Z., & von Hippel, F. N. (2014). *Unmaking the bomb: A fissile material approach to nuclear disarmament and nonproliferation*. MIT Press.

Geller, H. S. (2003). *Energy revolution: Policies for a sustainable future*. Island Press.

Goldemberg, J., Johansson, T. B., Reddy, A. K. N., & Williams, R. H. (1988). *Energy for a sustainable world*. Wiley. (Preliminary study prepared for the World Resources Institute, 1987)

Goldemberg, J., & Lucon, O. (Eds.). (1996). *Energy, environment, and development*. Earthscan.

Johansson, T. B., Bodlund, B., & Williams, R. H. (1989). *Electricity*. Lund University Press.

Kempton, W., & Neiman, M. (Eds.). (1987). *Energy efficiency: Perspectives on individual behavior*. Pergamon Press.

Messing, J., Friesema, H., & Morell, D. (1979). *Centralized power*. OG&H.

Morell, D., & Magorian, C. (1982). *Siting hazardous waste facilities: Local opposition and the myth of preemption*. Ballinger Publishing Company.

Morell, D., & Singer, G. (1980). *Refining the waterfront: Alternative energy facility siting policies for urban coastal areas*. OG&H.

Morrison, B., & Kempton, W. (Eds.). (1983). *Families and energy: Coping with uncertainty* (Conference proceedings, October 9–11, 1983, Kellogg Center, Michigan State University).

Ogden, J., & Williams, R. H. (1989). *Solar hydrogen*. World Resources Institute.

Rabl, A. (1985). *Active solar collectors and their applications*. Oxford University Press.

Ramana, M. V. (2012). *The power of promise: Examining nuclear energy in India*. Viking.

Reddy, A. K. N., Williams, R. H., & Johansson, T. B. (1997). *Energy after Rio: Prospects and challenges*. United Nations Development Programme.

Ross, R., & Williams, R. H. (1981). *Our energy: Regaining control*. McGraw-Hill.

Sinden, F. W. (2022). *The flight of the Gossamer Albatross and other essays*. Self-published via Blurb

Von Hippel, F. N. (1991). *Citizen scientist: Collected essays of Frank von Hippel* (Masters of Modern Physics). American Institute of Physics.

Von Hippel, F. N. (2024). *Ending the nuclear arms race: A physicist's quest*. Lynne Rienner Publishers.

Von Hippel, F. N., & Sagdeev, R. Z. (Eds.). (1990). *Reversing the arms race: How to achieve and verify deep reductions in the nuclear arsenals*. Gordon and Breach.

Von Hippel, F. N., Takubo, M., & Kang, J. (2019). *Plutonium: How nuclear power's dream fuel became a nightmare*. Springer Nature Singapore.

Williams, R. H. (1978). *Toward a solar civilization*. MIT Press.

Yang, C. (2009). *Belief-based energy technology development in the United States*. Cambria Press.

Journals launched or fostered (all journals are ongoing)

Founding editorial board member: *Energy and Environmental Science* (Royal Society of Chemistry), 2008.

Founding editorial board member: *Journal of Industrial Ecology*. 1997. On editorial board until 2005

Editor: *Annual Review of Energy and the Environment*, Vol 18 (1993) through Vol 27 (2002). Associate editor, Volumes 14-17, 1989-1992. (Renamed, *Annual Review of Environment and Resources.*)

Founding editorial board member*, Energy in Buildings,* 1977.

Energy for Sustainable Development, launched by Robert Williams and Eric Larson, colleagues at the Center for Energy and Environmental Studies, without my direct involvement, 1994.

Science and Global Security, launched by Frank von Hippel and Harold Feiveson, colleagues at the Center for Energy and Environmental Studies, without my direct involvement, 1989,

Four Career Throughlines

A few representative papers and talks show four throughlines in Socolow's research. All items here are also listed by categories (books, refereed publications, etc.) in earlier sections of this CV.

The four throughlines are 1) physical reasoning and the physics community; 2) environmental values and the climate discourse; 3) global and international scope; and 4) novel frameworks for sustainable technology. The technology throughline is shown in five parts: a) energy efficiency and consumption; b) industrial ecology and the circular economy for carbon (CO_2 capture and storage) and nitrogen; c) nuclear power and solar geoengineering; d) the Andlinger Center distillates (multi-disciplinary explorations of five low-carbon strategies, namely battery storage, nuclear fission, nuclear fusion, solar power, and wind power) and e) stabilization wedges to mitigate climate change.

Physical reasoning and the physics community

Schneider, T., Jeevanjee, N. & Socolow, R.H. (2021), "Accelerating progress in climate science." *Physics Today*, 74(6), 44–51.

Socolow, R. H., "A Physicist's Journey," *Inference*, 6(3), October, 2021, and associated letters.

Socolow, R.H., "To POPA: A Former Chair's Farewell," The Back Page, *APS News*, February 2012, Volume 21, No. 2. First delivered to the Panel on Public Affairs (POPA) of the American Physical Society (APS).

Socolow, R.H. "High-consequence outcomes and internal disagreements: tell us more, please," *Climatic Change*. **108**, 775-790 (2011).

Socolow, R.H.(co-author), *Grand Challenges for Engineering*, National Academy of Engineering of the National Academies, 2008

Socolow, R. H. & Lam, S. H., "Good Enough Tools for Global Warming Policy Making," *Philosophical Transactions of the Royal Society*, February 2007

Socolow, R.H., Reflections on the 1974 APS energy study," *Physics Today*, 39(1), January 1986, 60-68.

Ford, K., Rochlin G., Socolow, R.H., Ross, M., Hartley, D.L., Hardesty, D.R., Lapp, M., Dooher, J., Dryer, F., Berman, S..M., Silverstein, S.D., *Efficient Use of Energy: The American Physical Society Studies on the Technical Aspects of the More Efficient Use of Energy*, Conference Proceedings No. 25, American Institute of Physics, 1975.

Socolow, R.H. "Teaching and the environmental challenge," *Physics Today* 24(12), December 1971, pp. 32–34.

Socolow, R.H., "The Mood of Scientists," *VISTA*, United Nations Association of the United States of America, Inc., New York, NY, Volume 4, Number 4, January-February 1968, pp. 56-61.

Glashow, S.L. and Socolow, R.H., "Decay Modes of Spin-Two Mesons," *Physical Review Letters*, Volume 15, Number 7, August 16, 1965

Environmental values and the climate discourse

Harte, J. & Socolow, R.H. (2020). "Impatient Earth," in Tortell, P. (Ed.), *Earth 2020: An Insider's Guide to a Rapidly Changing Planet* (pp. 13–22). Open Book Publishers.

Socolow, R. H., Contending with climate change: The next 25 years, *Bulletin of the Atomic Scientists*, Volume 76, Issue 6, December 2020. Also appears in Now, Then and the Future: The Bulletin Turns 75, Mecklin, J., Ed., and appears translated into Russian in Ekonomika i Ekologiya, A Russian translation is found in the journal, Ekonomist, 2021, No. 6, pp 18-29. The translator was Sergey Gubanov, editor-in-chief of Ekonomist.

Socolow, R.H., "Witnessing for the Middle to Depolarize the Climate Change Conversation, in the issue, "Witnessing Climate Change," Nancy Rosenblum, ed., *Daedalus*, Fall 2020, 149(4), 46-66.

Socolow, R.H.,"Truths We Must Tell Ourselves to Manage Climate Change", *Vanderbilt Law Review*, November 2012, 65(6), 1455-1478.

Tilman, D., Socolow, R.H. Foley, J.A., Hill, J., Larson, E., Lynd, L. R., Stephen W. Pacala, J. Reilly, Timothy Searchinger, C. Sommerville, and Robert H. Williams, "Beneficial Biofuels – The Food, Energy, and Environment Trilemma," *Science*, Vol. 325. no. 5938, pp. 270-271, July 17, 2009. See also, "Response to Letters to the Editor," L. Rist, J. Lee and L. Koh, Science, Vol. 326, 1344 (2009).

Socolow, R.H., "Scale, Awareness and Conscience: the Moral Terrain of Ecological Vulnerability," in *New Dimensions in Bioethics, Science, Ethics and the Formulation of Public Policy*, pp. 65-78. Edited by Arthur W. Galston and Emily G. Shurr, Kluwer Academic Publishers, 2001.

Ross, M.H. and Socolow. R.H., "Fulfilling the Promise of Environmental Technology," *Issues in Science and Technology*, Volume VII, No. 3, pp. 61-66, Spring 1991

Socolow, R.H., "Failures of Discourse: Obstacles to the Integration of Environmental Values into Natural Resource Policy. A Reading of the Controversy Surrounding the Proposed Tocks Island Dam on the Delaware River," a chapter in the paired publications of an American Academy of Arts and Sciences project: 1) *When Values Conflict: Essays on Environmental Analysis, Discourse, and Decision*, edited by Tribe, L., Schelling, C. and Voss, J. pp.1-33) and 2) *Boundaries of Analysis: An Inquiry into the Tocks Island Dam Controversy*, edited by Feiveson, H., Sinden, F., and Socolow, R.H. pp.9-40. Ballinger Press, 1976.

Feiveson, H., Sinden, F., Socolow, R.H., (Eds.), *Boundaries of Analysis: An Inquiry into the Tocks Island Dam Controversy*. Ballinger Press, 1976.

Harte, J. and Socolow, R.H., Patient Earth, co-editors. Holt, Rinehart and Winston, 1971.

Environmental Problems in South Florida: Report of the Environmental Study Group to the Environmental Studies Board, Part II, National Academy of Sciences and National Academy of Engineering, Washington, D.C., 1970. (Goldberger, M.L. and MacDonald, G.J.F., co-chairs; Socolow, R.H., full-time group member).

Institutions for the Effective Management of the Environment: Report of the Environmental Study Group to the Environmental Studies Board, Part I. National Academy of Sciences and National Academy of Engineering, Washington, D.C., 1970. (Goldberger, M.L. and MacDonald, G.J.F. co-chairs; Socolow, R.H., full-time group member).

Socolow, R.H., "Statement on the Environmental Crisis," in Positions and Projections: Views from the Yale Community on Issues in Ecology, *Yale Alumni Magazine*, May 1970, p. 53-54.

Global and international scope

"Life can only be understood by looking backward; but it must be lived looking forward" Einstein Climate Change Center (ECCC), Berlin, Germany, video interview, filmed June 4, 2022 and released August 4, 2022.

Tavoni, M. Chakravarty, S., and Socolow, R.H. Safe vs. Fair: A Formidable Trade-off in Tackling Climate Change., *Sustainability* **4**(2), 210-226 (2012).

Chakravarty, S., Chikkatur, A., de Coninck, H., Pacala, S.W. Socolow, R.H. and Tavoni, M.. Sharing Global CO2 Emission Reductions Among One Billion High Emitters, *Proceedings of the National Academy of Sciences of the United States of America*, 2009: 106(29), doi: 10.1073/pnas.0905232106 11884-11888

Chakravarty, S., Socolow, R.H., and Tavoni, M., "A Focus on Individuals can Guide Nations towards a Low Carbon World," *Climate Science and Policy*, November 13, 2009

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