

America's Climate Choices: Panel on Limiting the Magnitude of Future Climate Change

Committee

Robert W. Fri

Chair

Robert Fri is a visiting scholar and senior fellow emeritus at Resources for the Future, a nonprofit organization that studies natural resource and environmental issues. He has served as director of the National Museum of Natural History, president of Resources for the Future, and deputy administrator of both the Environmental Protection Agency and the Energy Research and Development Administration. Fri has been a director of American Electric Power Company and vice-chair and a director of the Electric Power Research Institute. He is a trustee and vice-chair of Society for Science and the Public, and a member of the National Petroleum Council. He is active with the National Academies, where he is National Associate, vice-chair of the Board on Energy and Environmental Systems, and a member of the Advisory Board of the Marion E. Koshland Science Museum. He has chaired studies for the National Research Council on the health standards for the Yucca Mountain repository, on estimating the benefits of applied research programs at the Department of Energy, and on evaluating the nuclear energy research program at DOE. Fri received his B.A. in physics from Rice University and his M.B.A. from Harvard University, and is a member of Phi Beta Kappa and Sigma Xi.

Marilyn A. Brown

Vice Chair

Dr. Marilyn A. Brown is an endowed Professor of Energy and Climate Policy in the School of Public Policy at the Georgia Institute of Technology, which she joined in 2006 after a distinguished career at the U.S. Department of Energy's Oak Ridge National Laboratory. At ORNL, she held various leadership positions and led several national energy technology and policy scenario studies. Her research interests encompass the design of energy and climate policies, issues surrounding the commercialization of new technologies, and methods for evaluating sustainable energy programs and policies. Dr. Brown has authored more than 200 publications including recently published book on Energy and American Society: Thirteen Myths, special issues of Energy Policy and Energy and Buildings, and a forthcoming book, Climate Change and Energy Security. Dr. Brown has been an expert witness in hearings before Committees of both the U.S. House of Representatives and the U.S. Senate. She serves on the board of directors of the Southeast Energy Efficiency Alliance, the American Council for an Energy-Efficient Economy, and the Alliance to Save Energy; she is on the editorial boards of several journals; she is a member of the National Commission on Energy Policy; and she participates on several National Academies Boards and Committees. Dr. Brown has a Ph.D. in Geography from the Ohio State University, a Masters Degree in Resource Planning from the University of Massachusetts and is a Certified Energy Manager.

Doug Arent

Member

Dr. Arent is the Director of Strategic Energy Analysis with the National Renewable Energy Laboratory (NREL). He specializes in strategic planning and financial analysis competencies; clean energy technologies and energy and water issues; and international and government policies. Dr. Arent also has expertise in strategic market management, product planning, and risk portfolio management. In addition to his NREL responsibilities, Dr. Arent is on the Board of of E+Co, a public purpose investment company that supports sustainable development across the globe. He is also on the Advisory Board of the Energy and Environmental Security Institute at the University of Colorado and is the chair of the Quantitative Work Group in support of the Clean and Diversified Energy Advisory Council of the Western Governors' Association. Dr. Arent supports education efforts through coaching and judging science competitions and is a judge for the Net Impact national case study competition, where M.B.A. teams present possible solutions with corporate social responsibility and best business practices guidelines. Prior to joining NREL, he was a management consultant to clean energy companies, providing strategy, development, and market counsel. Previous positions held include: director of strategic marketing and business development at Network Photonics; director of media gateway products and strategic planning manager at Lucent Technologies; and vice president of business development for Amonix, Inc. Dr. Arent holds a Ph.D. from Princeton University, an M.B.A. from Regis University, and a B.S. from Harvey Mudd College in California.

Ann Carlson

Member

Ann Carlson is Professor of Law and the inaugural Faculty Director of the Emmett Center on Climate Change and the Environment at UCLA School of Law. She is also on the faculty of the UCLA Institute of the Environment. Professor Carlson's scholarship in environmental law focuses on climate change law and policy, federalism and the role social norms play in affecting environmentally cooperative behavior. Her recent work involves analyzing unusual models of environmental federalism, with a focus on the unique role California plays in regulating mobile source emissions, including greenhouse gas emissions, under the Clean Air Act. She has also written on the legal and political obstacles utilities will face in cutting greenhouse gas emissions and on the threat of heat waves and climate change. She is a frequent commentator and speaker on environmental issues, particularly on climate change. Professor Carlson's article *Takings on the Ground* was selected in 2003 by the *Land Use and Environmental Law Review* as one of the top ten environmental articles of the year. She is co-author (with Daniel Farber and Jody Freeman) of *Environmental Law* (7th Ed.). Professor Carlson teaches Property, Environmental Law and Climate Change Law and Policy and was the recipient of the 2006 Rutter Award for Excellence in Teaching. She served as the law school's academic associate dean from 2004-2006. Carlson received her J.D. magna cum laude from Harvard Law School in 1989 and her B.A., magna cum laude, from the University of California at Santa Barbara in 1982.

Majora Carter

Member

From 2001-2008, Ms. Carter was the Founder and Executive Director of Sustainable South Bronx (SSBx), a non-profit environmental justice solutions corporation that designs and implements economically viable and innovative projects that are informed by community needs.

She recently moved on from SSBx to form the Majora Carter Group LLC, a green collar economic consulting firm. Carter led efforts to create the South Bronx Greenway - 11 miles of alternative transport, local economic development, low-impact storm-water management, and recreational space; as well as a highly successful efforts to create intensive urban forestation, green roofing/walls, and water permeable open spaces. In 2003, SSBx started the Bronx Environmental Stewardship Training program: one of the nation's first urban green-collar job training and placement systems. Her local and global environmental solutions rest on poverty alleviation through green economic development, and empowering communities to resist the bad environmental decisions that have led to both public health and global atmospheric problems. She is a 2006 MacArthur "genius" Fellow, one of *Essence Magazine's* 25 most influential African-Americans for 2007, co-host of the *Green* on the Sundance Channel, and currently recording a Corporation for Public Broadcast special series called, *The Promised Land* for 2009 release.

Leon Clarke

Member

Dr. Leon Clarke is a Senior Research Economist at the Pacific Northwest National Laboratory (PNNL), and he is a staff member of the Joint Global Change Research Institute (JGCRI), a collaboration between PNNL and the University of Maryland at College Park. Dr. Clarke's current research focuses on the role of technology in addressing climate change, scenario analysis, and integrated assessment model development. Dr. Clarke coordinated the U.S. Climate Change Science Program's emissions scenario development process, and he was a contributing author on the Working Group III contribution to the IPCC's Fourth Assessment Report. Prior to joining PNNL, Dr. Clarke worked for RCG/Hagler, Bailly, Inc. (1990-1992), Pacific Gas & Electric Company (1992-1996), and Lawrence Livermore National Laboratory (2002-2003). He was also a research assistant at Stanford's Energy Modeling Forum (1999-2002), where he worked on issues related to technological change and integrated assessment modeling. Dr. Clarke received B.S. and M.S. degrees in Mechanical Engineering from U.C. Berkeley and M.S. and Ph.D. degrees in Engineering Economic Systems and Operations Research at Stanford University.

Francisco C. de la Chesnaye

Member

Francisco de la Chesnaye is Senior Project Manager at the Electric Power Research Institute. He was previously Chief of the Climate Economics Branch at the U.S. EPA., responsible for developing and applying EPA's economic models for developing GHG emission projections, conducting mitigation analysis, and assessing issues related to long-term scenarios of economic development, GHG emissions, and climate change. He is an expert in emissions and mitigation analysis of non-CO2 greenhouse gases (NCGGs) including methane, nitrous oxide, and various fluorinated compounds. His expertise covers engineering-economic (bottom-up) modeling, working with climate economic and integrated assessment modelers to incorporate NCGGs and sinks into their analyses, and developing long-term emission scenarios. Internationally, Mr. de la Chesnaye has furthered the study of climate change mitigation by coordinating efforts to advance the analysis of multi-sector and multi-gas mitigation, including serving as co-chairman for the Stanford Energy Modeling Forum's study on Multigas Mitigation (EMF-21) which was published in The Energy Journal. Mr. de la Chesnaye also co-edited a book titled Human-Induced Climate Change: An Interdisciplinary Assessment (2007). Mr. de la Chesnaye also was a Lead Author for Working Group III of the IPCC's Fourth Assessment Report. He holds graduate degrees in Environmental Science from Johns Hopkins University and in Economics from American University.

George C. Eads

Member

Dr. George C. Eads, is a Senior Consultant of CRA International. Prior to joining CRA in 1995, he held several positions at General Motors (GM) Corporation, including Vice President and Chief Economist; Vice President, Worldwide Economic and Market Analysis Staff; and Vice President, Product Planning and Economics Staff. Before joining GM, Dr. Eads was Dean of the School of Public Affairs at the University of Maryland, College Park, where he also was a Professor. Before that, he served as a Member of President Carter's Council of Economic Advisors. He has been involved in numerous projects concerning transport and energy. In 1994 and 1995, he was a member of President Clinton's policy dialogue on reducing greenhouse gas emissions from personal motor vehicles. He co-authored the World Energy Council's 1998 Report, Global Transport and Energy Development -- The Scope for Change. Over the past four years, Dr. Eads devoted most of his time to the World Business Council for Sustainable Development's Sustainable Mobility Project, a project funded and carried out by 12 leading international automotive and energy companies. Dr. Eads is a member of the Presidents' Circle at the National Academies. He is an at-large Director of the National Bureau of Economic Research. He received a Ph.D. degree in economics from Yale University. He is currently participating in TRB study on "Potential Greenhouse Gas Reductions from Transportation" and recently completed service on the TRB study on "Climate Change and U.S. Transportation".

Genevieve Giuliano

Member

Genevieve Giuliano is Professor and Senior Associate Dean of Research and Technology in the School of Policy, Planning, and Development, University of Southern California, and Director of the METTRANS joint USC and California State University Long Beach Transportation Center. She also holds courtesy appointments in Civil Engineering and Geography. Professor Giuliano's research focus areas include relationships between land use and transportation, transportation policy analysis, and information technology applications in transportation. She has published over 130 papers, and has presented her research at numerous conferences both within the US and abroad. She serves on the Editorial Boards of Urban Studies and Journal of Transport Policy. She is a past member and Chair of the Executive Committee of the Transportation Research Board. She was named a National Associate of the National Academy of Sciences in 2003, received the TRB William Carey Award for Distinguished Service in 2006, and was awarded the Deen Lectureship in 2007. She has participated in several National Research Council policy studies; currently she is on the Committee for Global Climate Change and Transportation. She was recently appointed Chair of the California Research and Technology Advisory Panel, which will advise both Caltrans and the Department of Business, Housing and Transportation on the implementation of the Growth Management Plan.

Andrew J. Hoffman

Member

Dr. Andrew Hoffman is the Holcim (US) Professor of Sustainable Enterprise; Associate Professor of Management & Organizations; Associate Professor of Natural Resources; and Associate-Director of the Erb Institute for Global Sustainable Enterprise, at the University of Michigan. He studies organizational culture, values, and behavior, with a particular emphasis on corporate strategies for addressing climate change. Previously, he was Associate Professor of Organizational Behavior at the Boston University School of Management; was a Senior Fellow at the Meridian Institute working on promoting discussion among senior industry, government and NGO representatives; and developing a training program for senior chemical industry executives on constructive engagement with external stakeholders. He also served previously as an analyst for the Amoco Oil Company, modeling the expected costs and potential strategies for dealing with the Clean Air Act Amendments and other environmental statutes. Dr. Hoffman has written numerous books and articles about corporate strategies for addressing climate change, and has organized and moderated conferences on Corporate Strategies that Address Climate Change; Reframing the Climate Change Debate; and Senior Level Dialogues on Climate Change Policy; bringing together senior executives from business, government and the environmental community to discuss the scientific, strategic and policy implications of controls on greenhouse gas emissions. He has a PhD (interdepartmental degree) from MIT from the Alfred P. Sloan School of Management and the Department of Civil and Environmental Engineering.

Robert O. Keohane

Member

Dr. Robert Keohane is Professor of International Affairs, Princeton University. He is the author of *After Hegemony: Cooperation and Discord in the World Political Economy* (1984) and *Power and Governance in a Partially Globalized World* (2002). He is co-author of *Power and Interdependence*, and of *Designing Social Inquiry* (1994). He has served as the editor of the journal *International Organization* and as president of the International Studies Association and the American Political Science Association. He is a member of the American Academy of Arts and Sciences, the American Philosophical Society, and the National Academy of Sciences. He has received honorary degrees from the University of Aarhus, Denmark, and Science Po in Paris, and is a Fellow of the American Academy of Political and Social Science. His recent work has involved political analyses of 'post-Kyoto' climate change architecture. He earned the BA from Shimer College in 1961 and a PhD from Harvard in 1966.

Loren Lutzenhiser

Member

Dr. Loren Lutzenhiser is Professor of Urban Studies and Planning. He has a Ph.D. in sociology. Dr. Lutzenhiser's teaching interests include environmental policy and practice, energy behavior and climate, technological change, urban environmental sustainability, and social research methods. His research focuses on the environmental impacts of socio-technical systems, particularly how urban energy/resource use is linked to global environmental change. Particular studies have considered variations across households in energy consumption practices, how energy-using goods are procured by government agencies, how commercial real estate markets work to develop both poorly-performing and environmentally exceptional buildings, and how the "greening" of business, may be influenced by local sustainability movements and business actors. He recently completed a major study for the California Energy Commission reporting on the behavior of households, businesses and governments in the aftermath of that state's 2001 electricity deregulation crisis. He is currently exploring the relationships between household natural gas, electricity, gasoline, and water usage.

Bruce McCarl

Member

Dr. Bruce McCarl is Regents Professor of Agricultural Economics at Texas A&M University. He has a Ph.D. in Management Science from Pennsylvania State University. His research efforts involve policy analysis in climate change, climate change mitigation, ENSO analysis and water resource issues, as well as the proper application of quantitative methods to such analyses. Dr. McCarl began work on the agricultural and forestry effects of climate change in the 1980s, including the role agriculture and forestry could play in mitigating climate change through sequestration, GHG emission offsets or emission reduction. Dr. McCarl has also been addressing agriculture and bioenergy since the late 1970's. He developed the first sector wide economic appraisal of bioenergy prospects from agriculture, and led OTA analyses of corn and cellulosic ethanol, well in advance of today's activity. Recently McCarl has highlighted greenhouse gas implications of producing biodiesel, ethanol, cellulosic ethanol and biofeedstock fueled electric power. McCarl's research has also encompassed water resources, including groundwater management, irrigation concerns in agricultural sector and climate change analyses. He served as a lead author Intergovernmental panel on Climate Change, Agricultural Mitigation, Working Group III.

Mack McFarland

Member

Dr. Mack McFarland is an Environmental Fellow for DuPont Fluoroproducts. He received a Ph.D. in Chemical Physics from the University of Colorado, was a Post-Doctoral Fellow at York University and then a research scientist at the NOAA Aeronomy Laboratory. Mack planned, conducted and interpreted field experiments designed to probe the cycles that control atmospheric ozone concentrations. These studies included measurements of gases and processes important to the global climate change issue. In late 1983, Mack joined the DuPont Company. His primary responsibilities have been in the areas of coordination of research programs and assessment and interpretation of scientific information on stratospheric ozone depletion and global climate change. During 1995 and 1996, Mack was on loan to the Atmosphere Unit of the United Nations Environment Programme and in 1997 he was on loan to the Intergovernmental Panel on Climate Change (IPCC) Working Group II Technical Support Unit. The value of his contributions to DuPont has been recognized through a C&P Flagship Award, Environmental Respect Awards, and Environmental Excellence Awards. In 1999, Mack was awarded an individual Climate Protection Award by the US Environmental Protection Agency for his contributions in providing understandable, reliable information to decision makers.

Mary D. Nichols

Member

Mary D. Nichols was appointed by Governor Arnold Schwarzenegger as Chairman of the California Air Resources Board in July 2007. She returns to the Air Board 30 years after serving as the Chairman under Governor Jerry Brown from 1978 to 1983. Nichols has devoted her entire career in public and private, not-for-profit service to advocating for the environment and public health. In addition to her work at the Air Board, she has held a number of positions, including: assistant administrator for the U.S. Environmental Protection Agency's Air and Radiation program under the Clinton Administration, Secretary for California's Resources Agency from 1999 to 2003, and Director of the University of California, Los Angeles Institute of the Environment. As one of California's first environmental lawyers, she initiated precedent-setting test cases under the Federal Clean Air Act and California air quality laws while practicing as a staff attorney for the Center for Law in the Public Interest. Nichols holds a Juris Doctorate degree from Yale Law School and a Bachelor of Arts degree from Cornell University.

Edward S. Rubin

Member

Dr. Edward Rubin is a professor in the Departments of Engineering and Public Policy, and Mechanical Engineering, at Carnegie Mellon University. He holds a chair as The Alumni Professor of Environmental Engineering and Science, and was founding director of the university's Center for Energy and Environmental Studies and the Environmental Institute. His teaching and research are in the areas of energy utilization, environmental control, technology innovation, and technology-policy interactions, with a particular focus on issues related to coal utilization, carbon sequestration, and global climate change. He is the author of over 200 technical publications and a textbook on, "Introduction to Engineering and the Environment." He is a Fellow Member of ASME, a past chairman of its Environmental Control Division, and recipient of the Air & Waste Management Association Lyman A. Ripperton Award for distinguished achievements as an educator, and the Distinguished Professor of Engineering Award from Carnegie Mellon University. He has served as an advisor to government agencies including the U.S. Department of Energy and the U.S. Environmental Protection Agency, and on various committees of the National Academies, including the Board on Energy and Environmental Systems, the 1992 study of "Policy Implications of Global Warming" and recent studies of coal R&D needs and the potential for hydrogen-powered vehicles. He was also a coordinating lead author of the Intergovernmental Panel on Climate Change (IPCC) Special Report on Carbon Dioxide Capture and Storage. Dr. Rubin received his bachelor's degree in mechanical engineering from the City College of New York and his Masters and Ph.D. degrees from Stanford University.

Thomas H. Tietenberg

Member

Dr. Thomas Tietenberg recently retired as the Mitchell Family Professor of Economics at Colby College. Specializing in environmental and natural resource economics, his areas of expertise include emissions trading, climate change policy, and economic incentives for pollution control. He is the author or editor of eleven books (including Environmental and Natural Resource Economics, one of the most widely used textbooks in the field), as well as over one hundred articles and essays on environmental and natural resource economics. Former President and current Fellow of the Association of Environmental and Resource Economists, he has consulted on environmental policy with a number of international organizations as well as several state and foreign governments. Dr. Tietenberg is currently serving as one of three appointed trustees for the Energy and Carbon Savings Trust, an organization that receives all Maine revenues from the sale of carbon allowances in the Northeast's Regional Greenhouse Gas Initiative and uses them to promote energy efficiency in the state.

James A. Trainham, III

Member

Dr. James A. Trainham III is Vice President of Strategic Energy Initiatives for RTI International with a joint appointment to NC State University. His focus is the research and development of Solar Fuels. Most recently (2008-2010), Trainham led the successful pilot demonstration of the first Solar Thermal Biomass gasifier as Sundrop Fuels, Inc. Senior Vice President Engineering with responsibility for R&D, Engineering Design, scale-up, and commercialization of Sundrop Fuels unique solar gasification technology. Previously, he served as Vice-President of Science and Technology for PPG Industries, one of the world's leading coatings and materials manufacturing companies. He also served as global technology director of the DuPont Company, responsible for R&D for new products, new processes, and fundamental and end-use research carried out in five laboratories, and intellectual property management. A member of management since 1983, Dr. Trainham remains a technology innovator with over 40 patents and publications. He was elected to the NAE in 1997, and was recently honored by the American Institute of Chemical Engineers as "One Hundred Chemical Engineers of the Modern Era" for his leadership in Sustainability. Dr. Trainham received his B.S. and Ph.D. degrees in chemical engineering from the University of California, Berkeley, and an M.S. degree in chemical engineering from the University of Wisconsin, Madison. He recently chaired an NRC Committee on Grand Challenges for Sustainability in the Chemical Industry.