



RESOURCES  
FOR THE FUTURE

2014

RESOURCES FOR THE FUTURE  
**DIRECTORY OF EXPERTS**  
FOR POLICYMAKERS AND THE MEDIA

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## RESOURCES FOR THE FUTURE

Resources for the Future (RFF) is an independent, nonpartisan organization that, through its social science research, enables policymakers and stakeholders to make better, more informed decisions about energy, environmental, and natural resource issues. Located in Washington, DC, its research scope comprises programs in nations around the world.

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# 2014 RFF DIRECTORY OF EXPERTS FOR POLICYMAKERS AND THE MEDIA

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## ABOUT THE DIRECTORY

This directory highlights the work of experts at Resources for the Future (RFF) on energy, environmental, and natural resource issues for policymakers and the media.

The *Areas of Expertise and Index* section details key areas of current research at RFF and lists experts who can address those issues.

The *RFF Experts* section includes profiles and contact information for each expert, in alphabetical order. All of the experts' profiles, in addition to their current work, video interviews, curriculum vitae, and other information, are available online at [www.rff.org/researchers](http://www.rff.org/researchers).

The titles *senior fellow*, *fellow*, and *resident scholar* refer to full-time staff research positions at RFF. *Visiting scholars* are experts who are in residence for a limited time to collaborate on RFF research. *Nonresident fellows* are established experts affiliated with other institutions with relevant expertise in particular disciplines. *Center fellows* are experts who are closely affiliated with a particular RFF center and who work exclusively on its research. *University fellows* are outstanding scholars at universities around the world who are appointed to establish closer working relationships between RFF and the wider academic community.

As an independent, nonpartisan, and nonprofit institution, RFF shares the results of its research and analysis with all interested parties. Most RFF publications are available for download at [www.rff.org](http://www.rff.org). RFF takes no institutional positions on policy matters. Views expressed by the staff and experts are their own and should not be attributed to RFF, its Board of Directors, or its officers.

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# AREAS OF EXPERTISE

## **Air Quality**

- Air Pollution
- Clean Air Act

## **Climate**

- Cap and Trade
- Carbon Pricing
- Carbon Sequestration
- Clean Air Act
- Climate Adaptation
- Climate Change
- Climate Mitigation
- Forest Carbon
- Global Trade
- Greenhouse Gases
- Satellites
- State and US Regional Policies

## **Development and Environment**

- Coffee
- Deforestation
- Global Trade
- Sustainable Development

## **Ecosystems**

- Biodiversity
- Clean Water Act
- Coastal Resources
- Deforestation

## **Ecosystem Management**

- Ecosystem Services
- Endangered Species Act
- Fisheries and Fishing
- Forest Conservation
- Green Infrastructure
- Invasive Species
- Oceans
- Wetlands
- Wildlife

## **Electricity**

- Electricity Markets and Regulation
- Energy Efficiency
- Renewable and Clean Energy

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- Coal
- Energy Efficiency
- Energy Security
- Natural Gas
- Nuclear Energy
- Oil
- R&D Technology
- Renewable and Clean Energy
- Shale Gas

## **Food and Agriculture**

Agricultural Land Use

Coffee

Food Safety

## **Forests**

Biomass and Plant Biofuels

Deforestation

Forest Carbon

Forest Conservation

Global Forest Monitoring

Timber and Forest Product Markets

Tree Biotechnology

Wildfire Management

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Asia

Central America

China

Europe

India

Mexico

South America

## **Land Use**

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Green Infrastructure

Mining

Outdoor Recreation

Parks, Refuges, and Wildernesses

Public Lands

Urban Sprawl

## **Policy and Analysis**

Benefit–Cost Analysis

Cap and Trade

Discounting

Emissions Pricing

Environmental Accounting

Fees and Rebates

Green GDP

Incentives

Information Disclosure

Markets

Regulation

State and US Regional Policies

Subsidies

Taxes

Valuation

Value of Statistical Life

Voluntary Programs

## **Risk Management**

Disasters

Extreme Events

Liability

Risk Analysis

Risk Regulation

Uncertainty

## **Space**

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Satellites

Space Debris

## **Transportation**

Alternative Fuels and Vehicles

Auto Insurance

CAFE Standards

Fuel Taxes

Gasoline

Heavy-Duty Vehicles

Public Transit

Traffic Congestion

Vehicle Pollution

## **Waste Management**

Solid Waste and Recycling

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Waste Regulation

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### EXPERTISE

#### **Air Quality:**

Air Pollution

#### **Climate:**

Cap and Trade,  
Carbon Pricing,  
Climate Change,  
Climate Mitigation

#### **Energy:**

Energy Efficiency,  
Renewable and  
Clean Energy

#### **Policy and Analysis:**

Regulation,  
Subsidies, Taxes

Joe Aldy is an assistant professor of public policy at Harvard's Kennedy School. His research focuses on climate change policy, energy policy, and mortality risk valuation. Aldy also currently serves as the faculty chair of the Regulatory Policy Program at the Harvard Kennedy School. In 2009–2010, he served as the special assistant to the president for energy and the environment, reporting through both the White House National Economic Council and the Office of Energy and Climate Change.

### EDUCATION

- PhD in economics, Harvard University, 2005
- Master of Environmental Management, Nicholas School of the Environment, Duke University, 1995
- BA in water resources (independently designed curriculum), Duke University, 1993

### SELECTED PUBLICATIONS

Environmental Risk and Uncertainty (with W.K. Viscusi), in *Handbook of the Economics of Risk and Uncertainty*, M.J. Machina and W.K. Viscusi (eds.), Elsevier, Winter 2013.

A Preliminary Assessment of the American Recovery and Reinvestment Act's Clean Energy Package, *Review of Environmental Economics and Policy*, Winter 2013.

Climate Negotiators Create an Opportunity for Scholars (with R.N. Stavins), *Science*, Aug. 2012.

Willingness to Pay and Political Support for a US National Clean Energy Standard (with M.J. Kotchen and A.A. Leiserwitz), *Nature Climate Change*, May 2012.

Real-Time Economic Analysis and Policy Development during the BP Deepwater Horizon Oil Spill, *Vanderbilt Law Review*, Nov. 2011.

Designing Climate Mitigation Policy (with A. Krupnick, R. Newell, I. Parry, and W. Pizer), *Journal of Economic Literature*, Dec. 2010.



## ALLEN BLACKMAN

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### EXPERTISE

#### Climate:

Forest Carbon,  
Satellites

#### Development and Environment:

Coffee,  
Deforestation,  
Sustainable  
Development

#### Ecosystems:

Biodiversity,  
Deforestation,  
Ecosystem  
Services, Forest  
Conservation

#### Food and

#### Agriculture:

Agricultural Land  
Use, Coffee

#### International:

Central America,  
Mexico, South  
America

#### Policy and

#### Analysis:

Incentives,  
Information  
Disclosure,  
Voluntary  
Programs

An expert on environmental and natural resource policy in developing countries, Allen Blackman focuses principally on tropical deforestation, agroforestry, and industrial pollution control in Latin America and Asia. Much of his research evaluates environmental management strategies that aim to overcome barriers to conventional regulation in developing countries, including weak institutions and missing infrastructure. He coordinates RFF's participation in the Environment for Development (EfD) initiative and is a research fellow at the EfD Center for Central America. He serves on scientific and advisory committees for the InterAmerican Development Bank, NASA, and the Latin American and Caribbean Environmental Economics Program.

### EDUCATION

- PhD in economics, University of Texas, Austin, 1993
- BA in political science and international relations, University of Pennsylvania, 1983

### SELECTED PUBLICATIONS

Evaluating Forest Conservation Policies in Developing Countries Using Remote Sensing Data: An Introduction and Practical Guide, *Forest Policy and Economics*, 2013.

Land Cover Change in Agroforestry: Shade Coffee in El Salvador (with B. Ávalos-Sartorio and J. Chow), *Land Economics*, 2012.

Producer-Level Benefits of Sustainability Certification (with J. Rivera), *Conservation Biology*, 2011.

Voluntary Regulation in Developing Countries: Mexico's Clean Industry Program (with B. Lahiri, B. Pizer, M. Rivera Planter, and C. Muñoz Piña), *Journal of Environmental Economics and Management*, 2010.



## JAMES W. BOYD

*Senior Fellow and Director,  
Center for the Management of Ecological Wealth  
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### EXPERTISE

#### **Ecosystems:**

Biodiversity,  
Ecosystem  
Management,  
Ecosystem  
Services, Green  
Infrastructure

#### **Land Use:**

Green  
Infrastructure,  
Public Lands

#### **Policy and Analysis:**

Environmental  
Accounting,  
Green GDP,  
Incentives,  
Regulation,  
Valuation

Jim Boyd's research lies at the intersection of economics, ecology, and law, with a particular focus on the measurement and management of ecosystem goods and services. Boyd emphasizes the need to better coordinate economic and ecological research to improve the practical performance of green incentives, markets, and investments. He advocates and works on the practical design of a "green GDP"—national environmental accounts to capture and track the status of environmental public goods and services.

Boyd is director of RFF's Center for the Management of Ecological Wealth, which was created to work with practitioners, scholars, and policymakers to incorporate ecological science into public policies to protect, enhance, and manage the social wealth arising from natural systems. He is also the director of social science and policy at the National Science Foundation's SocioEnvironmental Synthesis Center (SESYNC).

### EDUCATION

- PhD in applied microeconomics, the Wharton School, University of Pennsylvania, 1993
- BA in history, University of Michigan, 1986

### SELECTED PUBLICATIONS

Conservation Return on Investment Analysis: A Review of Results, Methods, and New Directions (with R. Epanchin-Niell and J.V. Siikamäki), RFF Discussion Paper 12-01, Jan. 2012.

What Are Ecosystem Services? The Need for Standardized Environmental Accounting Units (with S. Banzhaf), *Ecological Economics*, 2007.



## TIMOTHY J. BRENNAN

*Senior Fellow*

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### EXPERTISE

#### **Climate:**

Climate Change

#### **Electricity:**

Electricity Markets  
and Regulation,  
Renewable and  
Clean Energy

#### **Energy:**

Energy Efficiency

#### **Policy and**

#### **Analysis:**

Benefit–Cost  
Analysis,  
Discounting,  
Fees and Rebates,  
Incentives,  
Markets,  
Regulation, State  
and US Regional  
Policies, Subsidies,  
Taxes, Value of  
Statistical Life

#### **Space:**

Satellites

Tim Brennan focuses on public policies involving monopolies and market power, energy use externalities, and assessing methods for policy evaluation, particularly when consumers are thought to make mistakes. A principal area of his research is competition, pricing, reliability, and energy policy interventions in the electricity sector. Specific topics in recent publications include energy efficiency, utility involvement in competitive markets, and valuing information.

### EDUCATION

- PhD in economics, University of Wisconsin, Madison, 1978
- MA in economics, University of Wisconsin, Madison, 1976
- MA in mathematics, University of Wisconsin, Madison, 1975
- BA in mathematics, University of Maryland, 1973

### SELECTED PUBLICATIONS

Energy Efficiency Resource Standards: Economics and Policy (with K. Palmer), *Utilities Policy*, 2013.

Energy Efficiency Policy Puzzles, *Energy Journal*, 2013.

Should Utilities Be in the Energy Efficiency Business? *IAEE Energy Forum*, 2013.

Valuing Information, Ascertain Risk, and Setting the Target, in *The Value of Information: Methodological Frontiers and New Applications in Environment and Health*, M. Macauley and R. Laxminarayan (eds.), Springer, 2012.

The Challenges of Climate Policy, *Australian Economic Review*, 2010.

Decoupling in Electric Utilities, *Journal of Regulatory Economics*, 2010.



## STEPHEN P.A. BROWN

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### EXPERTISE

#### Energy:

Coal, Energy  
Security, Natural  
Gas, Oil, Shale  
Gas

#### Policy and Analysis:

Markets, State  
and US Regional  
Policies, Subsidies

Steve Brown, who joined RFF in 2009 as its first nonresident fellow, has conducted inquiries into domestic and international energy markets, energy security policies, climate policy, public finance, government performance, and regional economic growth. Prior to joining RFF, Brown had 27-year career at the Federal Reserve Bank of Dallas, where he retired as director of energy economics and microeconomic policy analysis. In addition to being a nonresident fellow at RFF, Brown is a professor of economics at the University of Nevada, Las Vegas.

### EDUCATION

- PhD in economics, University of Maryland, 1979
- MA in economics, University of Maryland, 1977
- BS in economics, California Polytechnic State University, San Luis Obispo, 1972

### SELECTED PUBLICATIONS

Assessing the US Oil Security Premium (with H.G. Huntington), *Energy Economics*, July 2013.

Energy and Natural Resources (with J. Darmstadter), in *Megatrends in Global Interaction*, 1st edition, Bertelsmann Foundation (ed.), 2012.

Energy Security and Climate Change Protection: Complementarity or Tradeoff? (with H.G. Huntington), *Energy Policy*, Sep. 2008.

Deliverability and Regional Pricing in US Natural Gas Markets (with M.K. Yücel), *Energy Economics*, Sep. 2008.

The Private Sector Impact of State and Local Government: Has More Become Bad? (with L.L. Taylor), *Contemporary Economic Policy*, 2006.



## DALLAS BURTRAW

*Darius Gaskins Senior Fellow and Associate  
Director, Center for Climate and Electricity Policy  
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### EXPERTISE

#### **Air Quality:**

Clean Air Act

#### **Climate:**

Cap and Trade,  
Carbon Pricing,  
Climate  
Mitigation, State  
and US Regional  
Policies

#### **Electricity:**

Electricity Markets  
and Regulation

#### **International:**

Europe

#### **Policy and**

#### **Analysis:**

Benefit–Cost  
Analysis,  
Incentives

Dallas Burtraw is one of the nation's foremost experts on environmental regulation in the electricity sector. For two decades, he has worked on creating a more efficient and politically rational method for controlling air pollution. He also studies electricity restructuring, competition, and economic deregulation. He is particularly interested in incentive-based approaches for environmental regulation, the most notable of which is a tradable permit system, and recently has studied ways to introduce greater cost-effectiveness into regulation under the Clean Air Act.

### EDUCATION

- PhD in economics, University of Michigan, 1989
- MPP in public policy, University of Michigan, 1986
- BS in community economic development, University of California, Davis, 1980

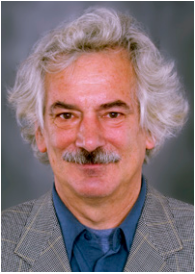
### SELECTED PUBLICATIONS

Economic Ideas for a Complex Climate Policy Regime (with M. Woerman), *Energy Economics*, 2013.

Flexible Mandates for Investment in New Technology (with D. Patino Echeverri and K. Palmer), *Journal of Regulatory Economics*, 2013.

The Institutional Blind Spot in Environmental Economics, *Daedalus*, 2013.

Soft and Hard Price Collars in a Cap-and-Trade System: A Comparative Analysis (with H. Fell, R.D. Morgenstern, and K.L. Palmer), *Journal of Environmental Economics and Management*, 2012.



## ROGER M. COOKE

*Chauncey Starr Senior Fellow*

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### EXPERTISE

#### Climate:

Climate Change

#### Risk

#### Management:

Disasters,  
Extreme Events,  
Liability, Risk  
Analysis, Risk  
Regulation,  
Uncertainty

#### Water:

Flooding

Roger Cooke joined RFF in 2005 as the first appointee to the Chauncey Starr Chair in Risk Analysis. His research has widely influenced risk assessment methodology, particularly in the areas of expert judgment and uncertainty analysis. He is recognized as one of the world's leading authorities on mathematical modeling of risk and uncertainty. His recent research has encompassed health risks from oil fires in Kuwait following the first Gulf War, chemical weapons disposal, nuclear risk, invasive species, nitrogen oxide emissions, and microbiological risk. Climate change is a current focus area for Cooke. His Vine-Copula method for high dimensional dependence modeling is having increasing impact in financial mathematics. His current work focuses on implementing uncertainty analysis in policy-related decisionmaking.

### EDUCATION

- PhD in philosophy and mathematics, Yale University, 1974
- BA in philosophy and mathematics, Yale University, 1968

### SELECTED PUBLICATIONS

Uncertainty Analysis Comes to Integrated Assessment Models for Climate Change ... and Conversely, *Climatic Change*, forthcoming.

Explaining the Failure to Insure Catastrophic Risks (with C. Kousky), *The Geneva Papers*, 2012.

Ship-Borne Nonindigenous Species Diminish Great Lakes Ecosystem Services (with J.D. Rothlisberger, D.C. Finnoff, and D.M. Lodge), *Ecosystems*, 2012, doi: 10.1007/s10021-012-9522-6.

Heavy Tailed Distributions: Data, Diagnostics and New Developments (with D. Nieboer and J. Misiewicz), RFF Discussion Paper 11-19, Mar. 2011.



## MAUREEN CROPPER

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### EXPERTISE

**Air Quality:**

Air Pollution

**Development and Environment:**

Sustainable Development

**Energy:**

Coal

**International:**

China, India, South America

**Policy and Analysis:**

Incentives, Regulation, Valuation

**Transportation:**

Vehicle Pollution

Maureen Cropper, a professor of economics at the University of Maryland and a former lead economist at the World Bank, returned to RFF in 2008 as a senior fellow, a position she held from 1990 to 1993. Cropper has made major contributions to environmental policy through her research, teaching, and public service. Her research has focused on valuing environmental amenities, estimating consumer preferences for health and longevity improvements, and the trade-offs implicit in environmental regulations. Previously, at the World Bank, her work focused on improving policy choices in developing countries through studies of deforestation, road safety, urban slums, and health valuation. She is currently studying the externalities associated with pandemic flu control, the impact of reforms in the electric power sector in India, and the demand for fuel economy in the Indian car market.

### EDUCATION

- PhD in economics, Cornell University, 1973
- MA in economics, Cornell University, 1972
- BA in economics, Bryn Mawr College, 1969

### SELECTED PUBLICATIONS

The Health Effects of Coal Electricity Generation in India (with S. Gamkhar, K. Malik, A. Limonov, and I. Partridge), RFF Discussion Paper 12-25, Jun. 2012.

The Cost of Fuel Economy in the Indian Passenger Vehicle Market (with R. Chugh and U. Narain), *Energy Policy*, Nov. 2011.

The Political Economy of Health Services Provision in Brazil (with A. Mobarak and A.S. Rajkumar), *Economic Development and Cultural Change*, Jul. 2011.



## JOEL DARMSTADTER

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### EXPERTISE

#### **Climate:**

Carbon Pricing,  
Climate Mitigation

#### **Development and Environment:**

Global Trade,  
Sustainable  
Development

#### **Electricity:**

Electricity  
Markets and  
Regulation,  
Renewable and  
Clean Energy

#### **Energy:**

Energy Security,  
Natural Gas,  
Nuclear Energy,  
Oil, R&D  
Technology,  
Renewable and  
Clean Energy

#### **Policy and**

#### **Analysis:**

Environmental  
Accounting,  
Regulation,  
Subsidies

In his four decades at RFF, Joel Darmstadter has conducted research centered on energy resources and policy. His recent work addresses issues of energy security and trade, renewable resources, and climate change. Darmstadter has served on numerous National Research Council bodies and provided expert testimony at congressional hearings. His career has included serving as an adjunct faculty member at the School of Advanced International Studies at Johns Hopkins University, an editorial committee member of the *Annual Review of Energy*, and a contributing editor of *Environment* magazine.

### EDUCATION

- MA in economics, New School for Social Research, 1952
- AB in economics, George Washington University, 1950

### SELECTED PUBLICATIONS

*The Supply Chain and Industrial Organization of Rare Earth Materials: Implications for the US Wind Energy Sector* (with J.S. Shih, J. Linn, T.J. Brennan, and M.K. Macauley), RFF Report, Feb. 2012.

Meeting the World's Natural Resource Needs: Confrontation Ahead? RFF Issue Brief 11-07, Jun. 2011.

Unconventional Fossil-Based Fuels: Economic and Environmental Trade-Offs (with M. Toman et al.), RAND Corporation, 2008.

*Global Development and the Environment: Perspectives on Sustainability* (ed.), RFF Press, 1992.

*How Industrial Societies Use Energy: A Comparative Analysis* (with J. Dunkerley and J. Alterman), RFF Press by Johns Hopkins University Press, 1977.



## J. CLARENCE (TERRY) DAVIES

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### EXPERTISE

**Policy and  
Analysis:**  
Regulation

Terry Davies is a political scientist who has extensively analyzed environmental policy during the past 40 years, writing several books and numerous articles on the government's environmental mandates. He chaired the National Academy of Sciences Committee on Decisionmaking for Regulating Chemicals in the Environment. While serving as a consultant to the President's Advisory Council on Executive Organization, he coauthored the reorganization plan that created the US Environmental Protection Agency (EPA). Davies is currently serving as a senior advisor to the Woodrow Wilson International Center for Scholars, advising the center on managing the adverse effects of nanotechnology.

### EDUCATION

- PhD in American government, Columbia University, 1965
- BA in American government, Dartmouth College, 1959

### SELECTED PUBLICATIONS

Nanotechnology and Risk, *Resources* 172, Summer 2009.

Oversight of Next Generation Nanotechnology, Woodrow Wilson International Center for Scholars, Apr. 2009.



## REBECCA EPANCHIN-NIELL

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### EXPERTISE

#### Climate:

Climate  
Adaptation,  
Climate Change

#### Ecosystems:

Biodiversity,  
Coastal  
Resources,  
Ecosystem  
Management,  
Ecosystem  
Services,  
Endangered  
Species Act,  
Invasive Species

#### Land Use:

Green  
Infrastructure,  
Public Lands

#### Policy and

#### Analysis:

Benefit–Cost  
Analysis

#### Risk

#### Management:

Risk Analysis,  
Uncertainty

Becky Epanchin-Niell's research focuses on ecosystem management, including design of cost-effective conservation investment strategies and analysis of policies and private incentives on ecological resources. Much of her work focuses on invasive species, including strategies to control established invaders, improved monitoring and surveillance strategies, and cross-jurisdictional management. Her research also evaluates implementation of the US Endangered Species Act and application of adaptive management and ecosystem services approaches to natural resource management. She draws on bioeconomic modeling, optimization, and econometric methods and often addresses spatial aspects of resource movement and use.

### EDUCATION

- PhD in agricultural and resource economics, University of California, Davis, 2009
- MS in applied economics and statistics, University of Nevada, Reno, 2003
- MS in biology, University of Nevada, Reno, 2001
- BS in Earth systems, Stanford University, 1997

### SELECTED PUBLICATIONS

Optimal Surveillance and Eradication of Invasive Species in Heterogeneous Landscapes (with R. Haight, L. Berec, J. Kean, and A. Liebhold), *Ecology Letters*, 2012.

Optimal Spatial Control of Biological Invasions (with J. Wilen), *Journal of Environmental Economics and Management*, Mar. 2012.

Conservation Return on Investment Analysis: A Review of Results, Methods, and New Directions (with J.W. Boyd and J.V. Siikamäki), RFF Discussion Paper 12-01, Jan. 2012.

Controlling Invasive Species in Complex Social Landscapes (with M. Hufford, C. Aslan, J. Sexton, J. Port, and T. Waring), *Frontiers in Ecology and the Environment*, 2010.



## CAROLYN FISCHER

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### EXPERTISE

#### Climate:

Carbon Pricing,  
Climate Change,  
Climate Mitigation,  
Global Trade

#### Development and Environment:

Sustainable  
Development

#### Ecosystems:

Invasive Species,  
Wildlife

#### Energy:

CAFE Standards,  
R&D Technology,  
Renewable and  
Clean Energy

#### International:

Europe

#### Policy and

#### Analysis:

Emissions Pricing,  
Fees and Rebates,  
Subsidies, Taxes

Carolyn Fischer works primarily on policy mechanisms and modeling tools that cut across environmental issues, from allowance allocation in emissions trading schemes to wildlife management in Zimbabwe. In the areas of climate change and energy policy, she has published articles on designing cap-and-trade programs, fuel economy standards, renewable portfolio standards, energy efficiency programs, technology policies, the Clean Development Mechanism, and the evaluation of international climate policy commitments. A current focus of her research is the interplay between international trade and climate policy, options for avoiding carbon leakage, and the implications for energy-intensive, trade-exposed sectors. In areas of natural resource management, her research addresses issues of wildlife conservation, invasive species, and biotechnology, with particular emphasis on the opportunities and challenges posed by international trade.

### EDUCATION

- PhD in economics, University of Michigan, 1997
- BA in international relations and economics, University of Pennsylvania, 1990

### SELECTED PUBLICATIONS

Comparing Policies to Combat Emissions Leakage: Border Carbon Adjustments versus Rebates (with A.K. Fox), *Journal of Environmental Economics and Management*, Sep. 2012.

Emissions Targets and the Real Business Cycle (with M. Springborn), *Journal of Environmental Economics and Management*, Nov. 2011.

The Role of Trade and Competitiveness Measures in US Climate Policy (with A.K. Fox), *American Economic Review*, May 2011.



## BRIAN FLANNERY

*Center Fellow*

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*flannery@rff.org*

### EXPERTISE

#### Climate:

Cap and Trade,  
Carbon  
Sequestration,  
Climate  
Adaptation,  
Climate  
Change, Climate  
Mitigation,  
Greenhouse  
Gases

#### Development and Environment:

Global Trade,  
Sustainable  
Development

#### Energy:

Energy Efficiency,  
Natural Gas, Oil,  
R&D Technology,  
Shale Gas

#### Policy and Analysis:

Green GDP,  
Subsidies, Taxes

In semi-retirement, Brian Flannery collaborates with scientists at the Joint Global Change Research Institute and as a center fellow at RFF's Center for Climate and Electricity Policy. He also continues to participate in the international climate and energy arena, serving as chair of the Business Engagement Task Force of the Major Economies Business Forum and of the Green Economies Dialogue project. He received degrees in astrophysics from Princeton and the University of California, Santa Cruz, and pursued research at the Institute for Advanced Study and as a professor at Harvard University. He is coauthor of the widely used reference *Numerical Recipes: The Art of Scientific Computing*.

### EDUCATION

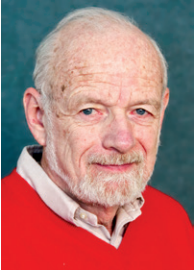
- PhD in astrophysics, University of California, Santa Cruz, 1974
- AB in astrophysics, Princeton University, 1970

### SELECTED PUBLICATIONS

Perspectives from the Abundant Gas Workshop (with L. Clarke and J. Edmonds), Joint Global Change Research Institute, 2013.

United Nations Framework Convention on Climate Change (UNFCCC): Doha COP 18/CMP 8; presentation at the NARUC Winter Meeting Subcommittee on Clean Coal and Carbon Sequestration, 2013.

Global Long-Term Implications of Abundant Natural Gas (with L. Clarke, J. Edmonds, and H. McJeon); presentation at RFF seminar, Informing the Next Generation of Natural Gas Research, 2013.



## ARTHUR G. FRAAS

*Visiting Scholar*  
202.328.5164  
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### EXPERTISE

#### **Air Quality:**

Air Pollution,  
Clean Air Act

#### **Climate:**

Greenhouse  
Gases

#### **Policy and**

#### **Analysis:**

Benefit–Cost  
Analysis,  
Regulation

Art Fraas’s research encompasses a variety of issues related to energy and the environment, including the treatment of uncertainty in regulatory analysis of major rules, the potential regulation of greenhouse gases under the Clean Air Act, and the opportunities for and trade-offs of using alternative fuels in transportation. Fraas joined RFF after a distinguished career in senior positions within the federal government. In 2008, he retired after 21 years as chief of the Natural Resources, Energy, and Agriculture Branch of the Office of Information and Regulatory Affairs at the US Office of Management and Budget. Much of his work has examined the federal regulatory process, with a particular focus on environmental regulations.

### EDUCATION

- PhD in economics, University of California, Berkeley, 1972
- BA in engineering physics, Cornell University, 1965

### SELECTED PUBLICATIONS

Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations (with R. Lutter), *Risk Analysis*, Aug. 2012, doi: 10.1111/j.1539-6924.2012.01883.x.

Efficient Pollution Regulation: Getting the Prices Right: Comment (with R. Lutter), *American Economic Review*, Feb. 2012.

Tradable Standards for Clean Air Act Carbon Policy (with D. Burtraw and N. Richardson), RFF Discussion Paper 12-05, Feb. 2012.



## ROBERT FRI

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### EXPERTISE

**Climate:**

Climate Change

**Energy:**

Nuclear Energy,  
R&D Technology

Bob Fri has been active for more than 35 years as both an administrator and analyst of energy and environmental policy. As the first deputy administrator of both the US Environmental Protection Agency and the Energy Research and Development Administration, he was instrumental in organizing the federal government's programs in environmental regulation and energy technology. He served as president of Resources for the Future and director of the National Museum of Natural History during major transitions in the roles of these institutions.

Fri has served on numerous National Research Council studies of energy and climate change, most recently as chair of the panel on limiting future climate change. He currently directs the Alternative Energy Future project at the American Academy of Arts and Sciences. He is a national associate of the National Academies and a fellow of the American Academy of Arts and Sciences.

### EDUCATION

- MBA, Harvard University Graduate School of Business Administration, 1959
- BA, Rice University, 1957



## MARC HAFSTEAD

*Fellow*

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### EXPERTISE

#### **Climate:**

Cap and Trade,  
Carbon Pricing,  
Climate Mitigation

#### **Policy and**

#### **Analysis:**

Benefit–Cost  
Analysis,  
Emissions Pricing,  
Incentives,  
Markets,  
Regulation,  
Subsidies, Taxes

Marc Hafstead's research spans environmental economics and macroeconomics, with an emphasis on developing detailed dynamic general equilibrium models. Within environmental economics, he models the effects of alternative environmental policies such as carbon taxes, cap-and-trade programs, and clean energy standards in economies with multiple nonenvironmental frictions and distortions on key outcomes such as emissions reductions, welfare, and employment. Within the field of macroeconomics, his interests are focused on measuring the impact of micro-frictions on aggregate outcomes and the implications of those frictions on macroeconomic and monetary policy.

### EDUCATION

- PhD in economics, Stanford University, 2011
- BA in mathematical methods in the social sciences and economics, Northwestern University, 2004

### SELECTED PUBLICATIONS

The Aggregate Implications of Reducing Firing Costs in the Short and Long Run, Working Paper, Stanford University, Aug. 2013.

Financial Shocks, Bank Intermediation, and Monetary Policy in a DSGE Model (with J. Smith), Working Paper, Stanford University, Oct. 2012.

Impacts of Alternative Emissions Allowance Allocation Methods under a Federal Cap-and-Trade Program (with L.H. Goulder and M. Dworsky), *Journal of Environmental Economics and Management*, Nov. 2010.



## WINSTON HARRINGTON

*Senior Fellow*  
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*harrington@rff.org*

### EXPERTISE

**Air Quality:**

Air Pollution

**Policy and Analysis:**

Regulation

**Transportation:**

CAFE Standards,  
Gasoline, Heavy-Duty Vehicles,  
Vehicle Pollution

Winston Harrington's research interests include urban transportation, motor vehicles and air quality, and problems of estimating the costs of environmental policy. He has worked extensively on the economics of enforcing environmental regulations, the health benefits derived from improved air quality, the costs of waterborne disease outbreaks, endangered species policy, federal rulemaking procedures, and the economics of outdoor recreation.

### EDUCATION

- PhD in city and regional planning, University of North Carolina, Chapel Hill, 1985
- MA in mathematics, Cornell University, 1970
- AB in mathematics, University of North Carolina, Chapel Hill, 1968

### SELECTED PUBLICATIONS

Promoting Innovative Climate Adaptation through Federalism, RFF Issue Brief 10-17, Aug. 2010.

*Reforming Regulatory Impact Analysis* (with L. Heinzerling and R. Morgenstern), RFF Report, Mar. 2009.

Automobiles Externalities and Policies (with I. Parry and M. Walls), *Journal of Economic Literature*, 2007.



## MUN HO

*Visiting Scholar*  
*ho@rff.org*

### EXPERTISE

#### Climate:

Climate Change,  
Greenhouse  
Gases

#### International:

China

#### Policy and

#### Analysis:

Benefit–Cost  
Analysis

Mun Ho's research is focused on economic growth, productivity, taxation, and environmental economics. He coauthored a 2013 book, *Double Dividend: Environmental Taxes and Fiscal Reform in the United States*, which discusses how carbon taxes not only reduce environmental risks but also help in making the tax system more efficient. He also coedited *Clearer Skies over China: Reconciling Air Quality, Climate, and Economic Goals*, a 2013 book that reports on research at the Harvard University China Project on local and global impacts of Chinese environmental policies. He is a senior economist at Dale Jorgenson Associates and recently coauthored the article *Economic Growth in the Information Age: A Prototype Industry-Level Production Account for the United States, 1947–2010*.

### EDUCATION

- PhD in economics, Harvard University, 1989
- AB in mathematics, Northwestern University, 1983

### SELECTED PUBLICATIONS

Energy, the Environment and US Economic Growth (with D. Jorgenson, R. Goettle and P. Wilcoxon), in *Handbook of Computable General Equilibrium Modeling*, Elsevier, 2012.

Reconciling Control of Carbon and Air Pollution with Economic Growth in China (with J. Cao and D. Jorgenson), in *The Chinese Economy: A New Transition*, 2012.

Carbon Pricing with Output-Based Subsidies: Impact on US Industries over Multiple Time Frames (with L. Adkins, R. Garbaccio, E. Moore, and R.D. Morgenstern), RFF Discussion Paper 12-27, Jun. 2012.

Information Technology and US Productivity Growth: Evidence from a Prototype Industry Production Account (with D. Jorgenson and J. Samuels), *Journal of Productivity Analysis*, 2011.



## RAYMOND J. KOPP

*Senior Fellow and Director,  
Center for Climate and Electricity Policy  
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### EXPERTISE

#### Climate:

Cap and Trade,  
Carbon Pricing,  
Climate  
Adaptation,  
Climate Mitigation

#### International:

Europe, Mexico

#### Policy and

#### Analysis:

Benefit–Cost  
Analysis,  
Emissions Pricing,  
Markets,  
Regulation

Ray Kopp has been a member of the RFF research staff since 1977 and has held a variety of management positions within the institution. During his career, Kopp has specialized in the analysis of environmental and natural resource issues with a focus on federal regulatory activity. He is an expert in techniques of assigning value to environmental and natural resources that do not have market prices, which is fundamental to benefit–cost analysis and the assessment of damages to natural resources. Kopp’s current research interests focus on the design of domestic and international policies to combat climate change.

### EDUCATION

- PhD in economics, State University of New York, Binghamton, 1978
- MA in economics, University of Akron, 1973
- BS in finance, University of Akron, 1970

### SELECTED PUBLICATIONS

*If Walmart Were in Charge: Sourcing CO<sub>2</sub> Emissions Reductions at Least Cost*, RFF Issue Brief 11-14, Sep. 2011.

*Reforming Institutions and Managing Extremes: US Policy Approaches for Adapting to a Changing Climate* (with D.F. Morris, M.K. Macauley, and R.D. Morgenstern), RFF Report, May 2011.

*The Climate Has Changed—So Must Policy*, RFF Issue Brief 11-03, Mar. 2011.



## CAROLYN KOUSKY

*Fellow*

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### EXPERTISE

#### Climate:

Climate  
Adaptation

#### Ecosystems:

Ecosystem  
Management,  
Ecosystem  
Services

#### Forests:

Wildfire  
Management

#### Land Use:

Green  
Infrastructure

#### Policy and

#### Analysis:

Regulation, State  
and US Regional  
Policies

#### Risk

#### Management:

Disasters,  
Extreme Events,  
Liability

#### Water:

Flooding

Carolyn Kousky's research focuses on natural resource management, decisionmaking under uncertainty, and individual and societal responses to natural disaster risk. She has examined how individuals learn about extreme event risk, the demand for natural disaster insurance, and policy responses to potential changes in extreme events with climate change. She also is interested in ecosystem services policy, and has examined the design of incentive-based mechanisms to supply ecosystem services and the use of natural capital to reduce vulnerability to weather-related disasters.

### EDUCATION

- PhD in public policy, Harvard University, 2008
- BS in Earth systems, Stanford University, 2002

### SELECTED PUBLICATIONS

Explaining the Failure to Insure Catastrophic Risks (with R. Cooke), *The Geneva Papers*, 2012.

Risk Premia and the Social Cost of Carbon: A Review (with R.M. Cooke and R.E. Kopp), *Economics: The Open-Access, Open-Assessment E-Journal*, Dec. 2011.

*The Role of Land Use in Adaptation to Increased Precipitation and Flooding: A Case Study in Wisconsin's Lower Fox River Basin* (with S.M. Olmstead, A. Stern, M.A. Walls, and M.K. Macauley), RFF Report, Nov. 2011.



## ALAN J. KRUPNICK

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Center for Energy Economics and Policy  
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### EXPERTISE

#### **Air Quality:**

Air Pollution,  
Clean Air Act

#### **Ecosystems:**

Ecosystem  
Services

#### **Energy:**

Energy Security,  
Natural Gas, Oil,  
Shale Gas

#### **International:**

China

#### **Policy and**

#### **Analysis:**

Benefit–Cost  
Analysis,  
Incentives,  
Valuation, Value  
of Statistical Life

#### **Risk**

#### **Management:**

Risk Analysis,  
Uncertainty

#### **Transportation:**

Alternative Fuels  
and Vehicles,  
Heavy-Duty  
Vehicles

Alan Krupnick's research focuses on analyzing environmental and energy issues, in particular, the benefits, costs, and design of pollution and energy policies, both in the United States and in developing countries, with an emphasis on China. In 2011, he was elected president of the Association of Environmental and Resource Economists (AERE) and earlier that year was named an AERE fellow. As head of RFF's Center for Energy Economics and Policy, he leads research on the risks, regulation, and economics associated with shale gas development. His primary research methodology is in the development and analysis of stated preference surveys. His work has been published in many scholarly journals and books, and he regularly blogs on energy issues. He served as senior economist for environmental and energy policy on President Clinton's Council of Economic Advisers. Krupnick is a regular member of expert committees from the National Academy of Sciences, the US Environmental Protection Agency, and various Canadian government and nongovernmental institutions. Krupnick also consults with governments around the world and the Asian Development Bank and the World Bank.

### EDUCATION

- PhD in economics, University of Maryland, 1980
- MA in economics, University of Maryland, 1974
- BS in finance, Pennsylvania State University, 1969

### SELECTED PUBLICATIONS

A Fair Share: Perceptions of Climate Justice in the US and China (with F. Carlsson, M. Kataria, E. Lampi, Å. Löfgren, P. Qin, S. Chung, and T. Sterner), *Resource and Energy Economics*, forthcoming.

Shale Gas Development Impacts on Surface Water Quality in Pennsylvania (with S.M. Olmstead, L.A. Muehlenbachs, J.S. Shih, and Z. Chu), *Proceedings of the National Academy of Sciences*, Mar. 2013.



## YUSUKE KUWAYAMA

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### EXPERTISE

#### **Ecosystems:**

Ecosystem  
Management,  
Ecosystem  
Services

#### **Food and Agriculture:**

Agricultural  
Land Use

#### **Policy and Analysis:**

Markets,  
Regulation

#### **Water:**

Fresh Water,  
Groundwater,  
Water Quality

Yusuke Kuwayama's research focuses on the economics of environmental regulation, with an emphasis on water resources and ecosystems. His work seeks to understand how the interaction between economic and natural systems affects the efficiency of policy instruments to regulate environmental externalities. Kuwayama's recent work addresses the management of agricultural activities that deplete and pollute fresh water, the water resource impacts of unconventional fossil fuel development, the societal value of hydrologic information, and interactions between water resource use and ecosystem service function.

### EDUCATION

- PhD in agricultural and applied economics, University of Illinois, Urbana-Champaign, 2011
- MS in economics, University of Illinois, Urbana-Champaign, 2006
- AB in economics, Amherst College, 2004

### SELECTED PUBLICATIONS

The Regulation of a Spatially Heterogeneous Externality: Tradable Groundwater Permits to Protect Streams (with N. Brozović), *Journal of Environmental Economics and Management*, 2013, doi: 10.1016/j.jeem.2013.02.004.

Analytical Hydrologic Models and the Design of Policy Instruments for Groundwater-Quality Management (with N. Brozović), *Hydrogeology Journal*, 2012, doi: 10.1007/s10040-012-0851-5.



## JOSHUA LINN

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Center for Climate and Electricity Policy  
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### EXPERTISE

#### **Electricity:**

Electricity Markets  
and Regulation

#### **Energy:**

Coal, Natural Gas,  
Renewable and  
Clean Energy

#### **International:**

Europe

#### **Policy and**

#### **Analysis:**

Markets,  
Regulation,  
State and US  
Regional Policies

#### **Transportation:**

Alternative Fuels  
and Vehicles,  
CAFE Standards,  
Fuel Taxes,  
Vehicle Pollution

Josh Linn's research centers on the effects of environmental regulation and market incentives on technology, with particular focus on the electricity sector and markets for new vehicles. His work on the electricity sector has compared the effectiveness of cap and trade and alternative policy instruments in promoting new technology, including renewable electricity technologies. Several of his studies on new vehicles markets investigate the effect of CAFE standards on new vehicle characteristics and the effect of gasoline prices on new vehicle fuel economy.

### EDUCATION

- PhD in economics, Massachusetts Institute of Technology, 2005
- BA in astronomy and physics, Yale University, 2000

### SELECTED PUBLICATIONS

Renewable Electricity Policy, Intermittency, and Cost-Effectiveness (with H. Fell), *Journal of Environmental Economics and Management*, forthcoming.

New Vehicle Characteristics and the Cost of the Corporate Average Fuel Economy Standard (with T. Klier), *RAND Journal of Economics*, forthcoming.

Regulating Greenhouse Gases from Coal Power Plants under the Clean Air Act (with E. Mastrangelo and D. Burtraw), RFF Discussion Paper 11-43, Jan. 2012.



## ANTUNG ANTHONY LIU

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### EXPERTISE

#### **Climate:**

Carbon Pricing,  
Climate Change,  
Climate Mitigation

#### **International:**

China

#### **Policy and**

#### **Analysis:**

Regulation, Taxes

#### **Water:**

Water Quality

Anthony Liu's research focuses on two broad areas: climate change policy and the environment in developing countries. Some of his current work addresses carbon taxes and the unique properties that could make them attractive components of modern tax systems. Using a combination of analytical models and general equilibrium simulations, Liu has found that the cost of carbon taxes could be much lower than has been previously believed. Liu is also interested in pollution issues and the interactions between the environment and the economy in China, and has studied large-scale water treatment infrastructure in China.

### EDUCATION

- PhD in economics, University of California, San Diego, 2012
- MA in economics, University of California, Santa Barbara, 2005
- BA in economics, Stanford University, 2000



## RANDALL LUTTER

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### EXPERTISE

#### **Air Quality:**

Air Pollution,  
Clean Air Act

#### **Food and Agriculture:**

Food Safety

#### **Policy and Analysis:**

Benefit–Cost  
Analysis,  
Regulation

Randall Lutter joined RFF in 2010 after more than 20 years of senior experience in the management and evaluation of programs regulating health, safety, and environmental risks, having served in three different federal agencies, including service as the chief economist and deputy commissioner for policy at the US Food and Drug Administration. His current research interests include regulation of genetically engineered animals, food safety, the valuation of health improvements from better nutrition, and the quality of economic analysis of regulations.

### EDUCATION

- PhD in economics, Cornell University, 1986
- BA in economics, University of California, Berkeley, 1977

### SELECTED PUBLICATIONS

Fetal and Early Childhood Undernutrition, Mortality and Life-Long Health (with C. Lutter), *Science*, Sep. 2012.

Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations (with A. Fraas), *Risk Analysis*, Aug. 2012.

Efficient Pollution Regulation: Getting the Prices Right: Comment (with A. Fraas), *American Economic Review*, 2012.

Do Some NO<sub>x</sub> Emissions Have Negative Environmental Damages? Evidence and Implications for Policy (with A. Fraas), *Environmental Science and Technology*, Aug. 2011.

On the Economic Analysis of Regulations at Independent Regulatory Commissions: Would Greater Use of Economic Analysis Improve Regulatory Policy at Independent Regulatory Commissions? (with A. Fraas), *Administrative Law Review*, 2011.



## MOLLY K. MACAULEY

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### EXPERTISE

#### **Climate:**

Carbon Pricing,  
Climate Adaptation,  
Climate Change,  
Climate Mitigation,  
Forest Carbon,  
Satellites

#### **Ecosystems:**

Ecosystem  
Management

#### **Energy:**

R&D Technology

#### **Forests:**

Forest Carbon,  
Global Forest  
Monitoring

#### **Policy and Analysis:**

Valuation

#### **Risk Management:**

Extreme Events

#### **Space:**

Satellites, Space  
Debris

#### **Waste**

#### **Management:**

Solid Waste and  
Recycling

#### **Water:**

Flooding, Water  
Quality

Molly Macauley's research interests include space economics and policy, the economics of new technologies for research and understanding of the interactions between people and natural resources, the use of economic incentives in environmental regulation, climate and earth science, and recycling and solid waste management. She serves on the Space Studies Board and numerous special committees of the National Research Council and on advisory boards for several federal agencies. Macauley also serves on the Board of Trustees of the University Corporation for Atmospheric Research, the Board of Advisers for the Thomas Jefferson Program in Public Policy at the College of William and Mary, and the Women in Aerospace Scholarship Committee. Macauley has testified extensively before Congress and is the author of more than 80 articles, reports, and books.

### EDUCATION

- PhD (1983) and MA (1981) in economics, Johns Hopkins University
- BA in economics, College of William and Mary, 1979

### SELECTED PUBLICATIONS

*The Value of Information: Methodological Frontiers and New Applications* (ed., with R. Laxminarayan), Springer, 2012.

Forest Carbon Economics: What We Know, What We Do Not, and Whether It Matters (with N. Richardson), *Climate Change Economics*, Dec. 2012.

Space Infrastructure: Issues in the Theory and Practice of Estimating Costs, *Space Policy*, May 2008.

*Using Economic Incentives in Regulating Toxic Substances* (with K. Palmer and M. Bowes), RFF Press, 1992.



## JAN W. MARES

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### EXPERTISE

#### **Climate:**

Carbon Pricing,  
Carbon  
Sequestration,  
Climate Adaptation,  
Climate Mitigation

#### **Electricity:**

Energy Efficiency,  
Renewable and  
Clean Energy

#### **Energy:**

Energy Security,  
Natural Gas,  
Nuclear Energy, Oil,  
R&D Technology,  
Shale Gas

#### **Policy and Analysis:**

Benefit–Cost  
Analysis, Emissions  
Pricing, Incentives

#### **Risk Management:**

Disasters, Extreme  
Events

#### **Transportation:**

Alternative Fuels  
and Vehicles

Jan Mares was previously a business liaison and deputy director at the Private Sector Office of the Department of Homeland Security (DHS). During the Reagan administration, Mares was an assistant secretary of commerce for import administration and a senior policy analyst at the White House, where he was involved with environment, energy, trade, and technology issues. He also served as assistant secretary of energy for international affairs and energy emergencies; assistant secretary of energy for policy, safety and environment; and assistant secretary of energy for fossil energy. For six months, he was the acting under secretary of energy. Before entering federal service, Mares was with Union Carbide Corporation for 18 years, half in the Law Department, working on antitrust compliance and purchasing issues, and half in its chemical business, including leading an effort for three years to create a chemicals joint venture with a Middle East government company and being the operations/profit manager for several groups of industrial chemicals. Subsequent to his service in the Reagan administration, he worked with the Washington, DC, law firm Shaw Pittman, the Synthetic Organic Chemical Manufacturers Association, and the EOP Group (a Washington DC environment, energy, and budget consulting firm).

### EDUCATION

- LLB, Harvard Law School, 1963
- MS in chemical engineering, Massachusetts Institute of Technology, 1960
- BA in chemistry, Harvard College, 1958



## VIRGINIA MCCONNELL

*Senior Fellow*

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### EXPERTISE

#### **Air Quality:**

Air Pollution

#### **Land Use:**

Urban Sprawl

#### **Policy and**

#### **Analysis:**

Incentives,  
Regulation

#### **Transportation:**

Alternative Fuels  
and Vehicles,  
CAFE Standards,  
Vehicle Pollution

Virginia McConnell's research focuses on the effects of pricing and regulatory policies on environmental and economic outcomes, primarily in the areas of transportation and land use. She has recently worked on issues related to energy use and greenhouse gas emissions in the transportation sector, focusing on fuel efficiency standards and alternative vehicles and fuels. Her work in the area of land use has focused on modeling the externalities of land-use decisions, including the effects of open space provision, large lot development, and infill development, and on developing policies that best address these externalities.

McConnell is a professor of economics at the University of Maryland, Baltimore County, and has recently served on a number of National Research Council Panels, including the Committees on Transitions to Alternative Vehicles and Fuels and the Fuel Economy of Light Duty Vehicles. She has previously served on other NRC committees, including several for the Transportation Research Board.

### EDUCATION

- PhD in economics, University of Maryland, 1978
- BA in economics, Smith College, 1969

### SELECTED PUBLICATIONS

*Transitions to Alternative Vehicles and Fuels*, Report of the Committee on Transitions to Alternative Vehicles and Fuels, Board on Energy and Environmental Systems, National Research Council, National Academies Press, 2013.

Zoning on the Urban Fringe: Impacts on Land Prices, House Prices, and Spatial Patterns of Development (with N. Magliocca, M. Walls, and E. Safirova), *Regional Science and Urban Economics*, Jan. 2012.



## RICHARD D. MORGENSTERN

*Senior Fellow*

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### EXPERTISE

#### **Air Quality:**

Air Pollution

#### **Climate:**

Cap and Trade,  
Carbon Pricing,  
Climate Change,  
Global Trade,  
State and US  
Regional Policies

#### **International:**

China, Mexico

#### **Policy and Analysis:**

Emissions Pricing,  
Regulation, Taxes

#### **Transportation:**

Alternative Fuels  
and Vehicles

Dick Morgenstern is an expert on the economics of environmental issues and on the use of economic incentives to address air pollution, global climate change, and other problems. He was formerly a senior executive at the US Environmental Protection Agency and the State Department, and has conducted design and evaluation studies, including benefit–cost analyses, in the United States and abroad. He has been involved in the design and evaluation of an international climate change regime for more than 20 years. Recently, Morgenstern has been analyzing competitiveness and trade issues at international, national, and state levels, as well as the economics of expanded natural gas use. He also has worked in China on establishing an emissions trading system and has advised the Colombian and Mexican governments on a range of environmental management issues.

### EDUCATION

- Postdoctoral studies, Columbia University School of Business, 1974
- PhD in economics, University of Michigan, 1970
- AB in economics, Oberlin College, 1966

### SELECTED PUBLICATIONS

The Impact on Japanese Industry of Alternative Carbon Mitigation Policies (with M. Sugino and T. Arimura), *Energy Policy*, forthcoming.

Climate Policy Design with Correlated Uncertainties in Offset Supply and Abatement Cost (with H. Fell, D. Burtraw, and K. Palmer), *Land Economics*, Aug. 2012.

Did the Clean Air Act Amendments of 1990 Really Improve Air Quality? (with W. Harrington, J.S. Shih, and M.L. Bell), *Air Quality, Atmosphere and Health*, 2012.

*Reforming Institutions and Managing Extremes: US Policy Approaches for Adapting to a Changing Climate* (with D.F. Morris, M.K. Macauley, and R.J. Kopp), RFF Report, May 2011.

*Reforming Regulatory Impact Analysis* (with W. Harrington and L. Heinzerling, eds.), RFF Press, 2009.



## DANIEL F. MORRIS

*Center Fellow*

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### EXPERTISE

#### **Air Quality:**

Clean Air Act

#### **Climate:**

Cap and Trade,  
Carbon Pricing,  
Climate  
Adaptation,  
Climate Change,  
Forest Carbon

#### **Ecosystems:**

Coastal  
Resources,  
Deforestation

#### **Policy and Analysis:**

Emissions Pricing

#### **Water:**

Fresh Water

As part of RFF's Center for Climate and Electricity Policy, Danny Morris focuses on the policy and economic implications of a wide suite of climate change issues, many related to land use, human development, and natural systems. He is currently working on carbon pricing, including aspects of carbon taxes and cap-and-trade systems, domestic climate adaptation policy, water supply, forest resources, ecosystem services, and international climate policy development. Morris has also recently investigated the potential impacts of EPA regulations on the US electricity sector.

### EDUCATION

- MS in environmental science and management, University of California, Santa Barbara, 2008
- BS in environmental science, Northern Arizona University, 2005

### SELECTED PUBLICATIONS

Modeling the Electricity Sector: A Summary of Recent Analyses of New EPA Regulations (with B. Beasley), RFF Discussion Paper 12-52, Nov. 2012.

Setting the Carbon Bar: Measurement, Reporting, and Verification in Bilateral Forestry Agreements (with A. Riddle), RFF Issue Brief 11-11, Sep. 2011.

Importing Climate Mitigation: The Potential and Challenges of International Forest Offsets in California Climate Policy (with N. Richardson and A. Riddle), RFF Issue Brief 11-12, Sep. 2011.

*Reforming Institutions and Managing Extremes: US Policy Approaches for Adapting to a Changing Climate* (with M.K. Macauley, R.J. Kopp, and R.D. Morgenstern), RFF Report, May 2011.



## LUCIJA ANNA MUEHLENBACHS

*Visiting Scholar*  
*muehlenbachs@rff.org*

### EXPERTISE

#### **Energy:**

Natural Gas, Oil,  
Shale Gas

#### **Policy and Analysis:**

Information  
Disclosure,  
Markets

Lucija Muehlenbachs focuses on energy-related topics as part of RFF's Center for Energy Economics and Policy. Her research focuses on issues pertaining to the oil and gas industry. Recent work includes empirical estimation of externalities associated with shale gas development in Pennsylvania. She has estimated the impact of shale gas wells on property values and impacts of shale gas development on downstream water quality. Her research also involves studying the effectiveness of enforcement of environmental compliance. She has estimated the determinants of incidents, such as oil spills, injuries, or fatalities, on offshore production platforms in the Gulf of Mexico, as well as the effectiveness of inspections and enforcement actions. Recent work includes studying the effect of public disclosure of environmental violations by the US Environmental Protection Agency.

### EDUCATION

- PhD in agricultural and resource economics, University of Maryland, 2009
- MS in agricultural and resource economics, University of Maryland, 2008
- BS in physical sciences and Japanese, University of Alberta, 2002

### SELECTED PUBLICATIONS

Shale Gas Development and Property Values: Differences across Drinking Water Sources (with E.B. Spiller and C. Timmins), RFF Discussion Paper 12-40, Jul. 2012.

Strategic Release of News at the EPA (with E. Newcomb Sinha and N. Ranjan Sinha), RFF Discussion Paper 11-45, Oct. 2011.

Preliminary Empirical Assessment of Offshore Production Platforms in the Gulf of Mexico (with M.A. Cohen and T. Gerarden), RFF Discussion Paper 10-66, Jan. 2011.



## SHEILA M. OLMSTEAD

*Nonresident Fellow*

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*olmstead@rff.org*

### EXPERTISE

#### Climate:

Climate  
Adaptation,  
Climate Change,  
Climate Mitigation

#### Energy:

Shale Gas

#### Forests:

Wildfire  
Management

#### International:

Asia

#### Land Use:

Green  
Infrastructure

#### Policy and

#### Analysis:

Benefit–Cost  
Analysis,  
Information  
Disclosure,  
Regulation,  
Valuation

#### Water:

Clean Water Act,  
Drinking Water,  
Water Quality

Sheila Olmstead is an associate professor at the Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin. Her research focuses on natural resource management and pollution control, with a particular emphasis on water resource economics. Her current research projects examine the environmental externalities associated with shale gas development in the United States, adaptation to the water resource impacts of climate change, the influence of federal fire suppression policy on land development in the American West, and free riding in dam placement and water withdrawals in transboundary river basins.

### EDUCATION

- PhD in public policy, John F. Kennedy School of Government, Harvard University, 2002
- MA in public affairs, University of Texas at Austin, 1996
- BA in political and social thought, University of Virginia, 1992

### SELECTED PUBLICATIONS

Moving Pollution Trading from Air to Water: Potential, Problems, and Prognosis (with K. Fisher-Vanden), *Journal of Economic Perspectives*, Winter 2013.

Shale Gas Development Impacts on Surface Water Quality in Pennsylvania (with L. Muehlenbachs, J.S. Shih, Z. Chu, and A. Krupnick), *Proceedings of the National Academy of Sciences*, Feb. 2013. doi: 10.1073/pnas.1213871110.

The Value of Scarce Water: Measuring the Inefficiency of Municipal Regulations (with E.T. Mansur), *Journal of Urban Economics*, Feb. 2012.



## ARIEL ORTIZ-BOBEA

*Fellow*

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### EXPERTISE

#### **Climate:**

Climate  
Adaptation

#### **Food and Agriculture:**

Agricultural  
Land Use

#### **Risk**

#### **Management:**

Extreme Events,  
Uncertainty

#### **Water:**

Groundwater

Ariel Ortiz-Bobea's current research focuses on agricultural sustainability and resource issues. Much of his recent work has assessed the impacts of climate change on US agriculture and analyzed potential adaptation mechanisms and policies. In general, his research interests include water sustainability, risk management and natural disasters, and genetically modified crops, with the work involving econometric analysis based on large environmental spatial datasets. His ongoing research suggests that the US agricultural sector has greater room for adaptation to climate change than the economic literature currently indicates, pointing to more optimistic prospects for key areas of the sector. Although Ortiz-Bobea's contributions are primarily methodological in this area, upcoming research will expand to subtropical areas where climatic constraints are different. Earlier in his career, he served as special assistant to the minister of the environment of the Dominican Republic, where he managed the minister's office and support staff and ensured the coordination of key ministry-wide initiatives.

### EDUCATION

- PhD in agricultural and resource economics, University of Maryland, 2013
- MS in agricultural and resource economics, University of Maryland, 2011
- MPA in international and development administration, Syracuse University, 2006
- ME in agronomy, AgroParisTech, 2004
- BS in life sciences, Paris-Sud University, 2001

### SELECTED PUBLICATIONS

Modeling the Structure of Adaptation in Climate Change Impact Assessment for Agriculture (with R.E. Just), *American Journal of Agricultural Economics*, forthcoming.



## KAREN L. PALMER

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Center for Climate and Electricity Policy  
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### EXPERTISE

#### **Climate:**

Cap and Trade,  
Carbon Pricing,  
Clean Air Act,  
Climate Change,  
Climate Mitigation,  
State and US  
Regional Policies

#### **Electricity:**

Electricity Markets  
and Regulation,  
Energy Efficiency,  
Renewable and  
Clean Energy

#### **Energy:**

Energy Efficiency,  
Natural Gas,  
Renewable and  
Clean Energy

#### **Policy and**

#### **Analysis:**

Emissions Pricing,  
Regulation

Karen Palmer has been a researcher at RFF for more than 20 years and specializes in the economics of environmental and public utility regulation, particularly on issues at the intersection of air quality regulation and the electricity sector. Her work seeks to improve the design of environmental regulations and technology policies that influence the electricity sector. To this end, she identifies cost-effective approaches to regulating carbon emissions and efficient ways to promote the use of renewable sources of electricity. She also studies the size and determinants of the energy efficiency gap and the role of policy in addressing it.

Palmer's research has direct links to debates on the design of federal policies to control greenhouse gases, including carbon taxes, regulations under the Clean Air Act and clean energy standards, and to debates around regional climate programs, including the Regional Greenhouse Gas Initiative (RGGI) and AB32 in California. Palmer previously served as an economist in the Office of Economic Policy at the Federal Energy Regulatory Commission.

### EDUCATION

- PhD in economics, Boston College, 1990
- BA in economics, Brandeis University, 1981

### SELECTED PUBLICATIONS

Secular Trends, Environmental Regulations, and Electricity Markets (with D. Burtraw, A. Paul, and M. Woerman), *The Electricity Journal*, Jul. 2012.

Cost Effectiveness of Electricity Energy Efficiency Programs (with T. Arimura, R. Newell, and S. Li), *The Energy Journal*, 2012.



## ANTHONY PAUL

*Center Fellow*

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### EXPERTISE

#### **Air Quality:**

Air Pollution, Clean Air Act

#### **Climate:**

Carbon Pricing, Climate Change, Climate Mitigation, State and US Regional Policies

#### **Electricity:**

Electricity Markets and Regulation, Renewable and Clean Energy

#### **Energy:**

Natural Gas, Renewable and Clean Energy

#### **Policy and**

#### **Analysis:**

Emissions Pricing, Regulation, State and US Regional Policies

Anthony Paul works with RFF's Center for Climate and Electricity Policy, focusing his work on environmental policies in the electricity sector as the manager of the Haiku electricity market model. His recent research has addressed the US Environmental Protection Agency's (EPA) recent rule on emissions of air toxics from electricity generators (MATS) and a potential federal clean energy standard. His current work relates to the implementation of EPA regulation of carbon dioxide emissions from existing electricity generators. Another current research thread is on cooling water demand by electricity generators under changing climate and policies to mitigate carbon emissions.

### EDUCATION

- MS in economics, University of Wisconsin, Madison, 2006
- BS in civil and environmental engineering, and engineering and public policy, Carnegie Mellon University, 1997

### SELECTED PUBLICATIONS

Reliability in the Electricity Industry under New Environmental Regulations (with D. Burtraw, K.L. Palmer, B. Beasley, and M. Woerman), *Energy Policy*, forthcoming.

Modeling a Clean Energy Standard for Electricity: Policy Design Implications for Emissions, Supply, Prices, and Regions Energy Economics (with A. Paul, K. Palmer and M. Woerman), *Energy Economics*, 2013.

Cost-Effectiveness and Economic Incidence of a Clean Energy Standard (with B.K. Mignone, T. Alfstad, A. Bergman, K. Dubin, R. Duke, P. Friley, A. Martinez, M. Mowers, K. Palmer, S. Showalter, D. Steinberg, M. Woerman, and F. Wood), *Economics of Energy and Environmental Policy*, Sep. 2012.

Secular Trends, Environmental Regulations and Electricity Markets (with D. Burtraw, K. Palmer, and M. Woerman), *The Electricity Journal*, Jul. 2012.

Retail Electricity Price Savings from Compliance Flexibility in GHG Standards for Stationary Sources (with D. Burtraw and M. Woerman), *Energy Policy*, Mar. 2012.



## NIGEL PURVIS

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### EXPERTISE

#### **Climate:**

Cap and Trade,  
Carbon Pricing,  
Climate  
Adaptation,  
Climate Mitigation,  
Forest Carbon,  
Global Trade

#### **Development and Environment:**

Deforestation,  
Sustainable  
Development

#### **Electricity:**

Energy Efficiency,  
Renewable and  
Clean Energy

#### **Energy:**

Energy Security

#### **International:**

Europe

Nigel Purvis is a visiting scholar at Resources for the Future. He is the founder and CEO of Climate Advisers, a strategic consulting firm specializing in US climate change policy, international climate change cooperation, global carbon markets, and climate-related forest conservation. He is also a nonresident senior fellow in the Global Development Program at the Brookings Institution. Purvis directed US environmental diplomacy, including most recently as deputy assistant secretary of state for oceans, environment and science. In that capacity, he oversaw US foreign policy on climate change, biodiversity conservation, forests, international trade, toxic substances, and ozone depletion. His essays and interviews on climate change, environmental diplomacy, international assistance, and foreign affairs have appeared in leading news outlets and academic journals.

### EDUCATION

- JD, Harvard Law School, 1990
- BA, University of Minnesota, 1987

### SELECTED PUBLICATIONS

*Carbon Market Crossroads: New Ideas for Harnessing Global Markets to Confront Climate Change* (with S. Grausz and A. Light), Center for American Progress and Climate Advisers, Apr. 2013.

*Climate of Despair? The Future of US Climate Policy and Global Negotiations*, German Marshall Fund of the United States, Apr. 2012.

*Energizing Rio+20: How the United States Can Promote Sustainable Energy for All at the 2012 Earth Summit* (with A. Jones), Center for Global Development, Apr. 2012.

*The World Bank and Coal Aid* (with A. Jones and A. Stevenson), The Brookings Institution, Oct. 2011.



## NATHAN RICHARDSON

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### EXPERTISE

#### **Air Quality:**

Clean Air Act

#### **Climate:**

Climate Change,  
Climate Mitigation,  
Greenhouse  
Gases, State and  
US Regional  
Policies

#### **Energy:**

Natural Gas, Oil,  
Shale Gas

#### **International:**

Europe

#### **Land Use:**

Public Lands

#### **Policy and**

#### **Analysis:**

Regulation, State  
and US Regional  
Policies

#### **Risk**

#### **Management:**

Liability, Risk  
Regulation

Nathan Richardson is an attorney and has been a researcher at RFF since 2009, specializing in environmental law and economics. His research has examined environmental liability, environmental federalism, and the relationship among law, regulatory institutions, and policy design. He has published research on law and policy related to climate change, including EPA regulation of greenhouse gas emissions under the Clean Air Act. Other research areas include regulation and liability rules related to oil and gas development. Richardson is also managing editor of RFF's environmental policy and economics blog, *Common Resources*.

### EDUCATION

- JD, University of Chicago Law School, 2009
- BS in foreign service, Georgetown University, 2001

### SELECTED PUBLICATIONS

Aviation, Carbon, and the Clean Air Act, RFF Discussion Paper 12-22, Jul. 2012;  
*Columbia Journal of Environmental Law*, 2013.

Playing without Aces: Offsets and the Limits of Flexibility under Clean Air Act  
Climate Policy, RFF Discussion Paper 11-49, Dec. 2011; *Environmental Law*, 2012.

Tradable Standards for Clean Air Act Carbon Policy (with D. Burtraw and A.  
Fraas), *Environmental Law Reporter*, 2012.

Banking on Allowances: The EPA's Mixed Record in Managing Emissions-Market  
Transitions (with A.G. Fraas), *NYU Journal of Environmental Law*, 2012.



## HEATHER L. ROSS

*Visiting Scholar*

202.328.5114

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### EXPERTISE

#### **Energy:**

Energy Security,  
Oil

#### **Policy and Analysis:**

Regulation

#### **Risk**

#### **Management:**

Risk Analysis,  
Risk Regulation

Heather Ross's research at RFF has focused on regulatory reform and energy policy. She brings to this work a background in government, industry, and public policy analysis. Her government service includes appointments as senior economist of the US Senate Committee on the Budget, deputy assistant secretary of the US Department of the Interior, and special assistant to the president for economic policy. She worked for 10 years in the international oil industry, including positions as vice president of BP America and assistant director of BP Europe. Her earliest employment was in think tanks, as a thesis-writing fellow at the Brookings Institution and a senior research associate at the Urban Institute.

### EDUCATION

- PhD in economics, Massachusetts Institute of Technology, 1970
- BA in mathematics, Vassar College, 1963

### SELECTED PUBLICATIONS

Precursor Analysis for Offshore Oil and Gas Drilling: From Prescriptive to Risk-Informed Regulation (with R. Cooke and Adam Stern), RFF Discussion Paper 10-61, Jan. 2011.

Getting Off Oil, *Resources* 164, Winter 2007.

Producing Oil or Reducing Oil: Which Is Better for US Energy Security? *Resources* 148, Summer 2002.

Clean Air—Is the Sky the Limit? *Resources* 143, Spring 2001.



## STEPHEN W. SALANT

*Nonresident Fellow*

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### EXPERTISE

#### **Climate:**

Cap and Trade,  
Greenhouse  
Gases

#### **Policy and**

#### **Analysis:**

Emissions Pricing,  
Markets,  
Regulation

Stephen Salant is an applied microtheorist with a specialization in the fields of industrial organization and natural resource economics. Before joining the economics faculty at the University of Michigan in 1986, he worked at the Federal Reserve Board and the RAND Corporation, where he served as the first editor of the *RAND Journal of Economics*. Among the subjects he has addressed in his research are the appropriate interpretation of government statistics on the duration of unemployment, the effects of anticipated and actual government policies on the price of gold, the cause of speculative attacks on government buffer stocks, the effects of catch-sharing partnerships and other potential solutions to the common-property problem, and the economic decisions of organizations (agricultural marketing boards, cartels, international commodity organizations, prorationing boards, and so on) that select quantity restrictions by voting processes.

### EDUCATION

- PhD in economics, University of Pennsylvania, 1973
- BA in mathematics, Columbia University, 1967

### SELECTED PUBLICATIONS

Cap-and-Trade Programs under Delayed Compliance: Consequences of Interim Injections of Permits (with M. Hasegawa), RFF Discussion Paper 12-32, Aug. 2012.

Alternative Climate Policies and Intertemporal Emissions Leakage: Quantifying the Green Paradox (with C. Fischer), RFF Discussion Paper 12-16, Apr. 2012.

Willpower and the Optimal Control of Visceral Urges (with E. Ozdenoren and D. Silverman), *Journal of the European Economic Association*, 2012.



## ROGER A. SEDJO

*Senior Fellow and Director,  
Forest Economics and Policy Program  
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### EXPERTISE

#### Climate:

Carbon Sequestration, Climate Mitigation, Forest Carbon

#### Ecosystems:

Deforestation, Ecosystem Management

#### Forests:

Biomass and Plant Biofuels, Timber and Forest Product Markets, Tree Biotechnology

#### International:

Asia, Europe, South America

#### Policy and

#### Analysis:

Markets, Regulation

Roger Sedjo has directed RFF's Forest Economics and Policy Program for more than 25 years. He is an expert on forest economics and policy, including public and private forestland management and international forestry. He was among scholars who shared a Nobel Peace Prize in 2007 for contributions to a number of major Intergovernmental Panel on Climate Change reports addressing climate change and forests.

Sedjo's work involves both issues of wood as a commodity and environmental issues related to forests. He has focused on modeling domestic and international timber supplies, followed the changing position of US industrial competition, examined the environmental impacts of management and harvest, and evaluated the effects of forest plantations on timber supply. Recent work has focused on issues of measuring and monitoring deforestation and forest change, the potential of wood for bioenergy, and the carbon neutrality of biomass. He also studies tree biotechnology, including the regulatory processes and the potential costs and benefits of genetically modified trees.

### EDUCATION

- PhD in economics, University of Washington, 1969
- MA in economics, University of Illinois, 1963
- BA in economics, University of Illinois, 1961

### SELECTED PUBLICATIONS

An Investigation of the Effects of Wood Bioenergy on Forest Carbon Stocks (with X. Tian), *Journal of Environmental Protection*, Sep. 2012.

An Economic Approach to Assess the Forest Carbon Implications of Biomass Energy (with A. Daigneault and B. Sohngen), *Environmental Science & Technology*, Apr. 2012.



## LEONARD A. SHABMAN

*Resident Scholar*

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### EXPERTISE

#### **Ecosystems:**

Clean Water Act, Ecosystem Management, Ecosystem Services, Green Infrastructure

#### **Land Use:**

Agricultural Land Use

#### **Policy and**

#### **Analysis:**

Incentives, Markets, Regulation, State and US Regional Policies, Voluntary Programs

#### **Risk**

#### **Management:**

Disasters, Extreme Events, Risk Analysis, Risk Regulation

#### **Water:**

Flooding, Water Quality

After three decades on the faculty at Virginia Tech, Len Shabman joined RFF in 2002 as a resident scholar. His research and communications efforts are focused on programs and responsibilities for flood and coastal storm risk management, design of payment for ecosystem services programs, and development of evaluation protocols for ecosystem restoration and management projects, with special focus on the Everglades, coastal Louisiana, and the Chesapeake Bay. Among the specific topics related to these broader themes are applied research on permitting under Section 404 of the Clean Water Act, creating market-based incentives for water quality management and provision of ecosystem services, and design of collaborative water management institutions. In 2004, Len was named an associate of the National Academy of Sciences.

### EDUCATION

- PhD in agricultural economics, Cornell University, 1972
- MS in agricultural economics, Cornell University, 1969
- BS in food and resource economics, University of Massachusetts, 1967

### SELECTED PUBLICATIONS

Moving from Concept to Implementation: The Emergence of the Northern Everglades Payment for Environmental Services Program (with S. Lynch), RFF Discussion Paper 13-27, Aug. 2013.

The Realities of Federal Disaster Aid: The Case of Floods (with C. Kousky), RFF Issue Brief 12-02, Apr. 2012.

Rhetoric and Reality of Water Quality Trading and the Potential for Market-like Reform (with K. Stephenson), *Journal of the American Water Resources Association*, Feb. 2011.



## PHIL SHARP

*President*  
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### EXPERTISE

#### **Air Quality:**

Clean Air Act

#### **Climate:**

Cap and Trade,  
Carbon Pricing,  
Climate Mitigation,  
State and US  
Regional Policies

#### **Electricity:**

Electricity Markets  
and Regulation,  
Energy Efficiency,  
Renewable and  
Clean Energy

#### **Energy:**

Energy Efficiency,  
Energy Security,  
Natural Gas,  
Nuclear Energy,  
Oil

#### **Policy and**

#### **Analysis:**

Emissions Pricing,  
Markets,  
Regulation

Phil Sharp became president of RFF in September 2005, following a long career in public service that included 10 terms as a member of the US House of Representatives from Indiana, from 1975 to 1995. During his 20-year congressional service, Sharp took key leadership roles in the development of landmark energy legislation, including the Energy Policy Act of 1992 and the 1990 Clean Air Act Amendments. He served on the House Energy and Commerce Committee, where he chaired the Energy and Power Subcommittee. From 1995 to 2001, Sharp was a lecturer at Harvard University's John F. Kennedy School of Government, and he also directed Harvard's Institute of Politics from 1995 to 1998, and again in 2004 and 2005. He was appointed to the National Academy of Sciences' Committee on America's Climate Choices (2008–2011) and to the Secretary of Energy's Blue Ribbon Commission on America's Nuclear Future (2010–2012).

Currently, Sharp is a member of the Boards of Directors of the Duke Energy Corporation and the Energy Foundation. He serves on the MIT Energy Initiative External Advisory Board and chaired advisory committees for MIT studies on the future of nuclear power, the future of coal, and the future of solar.

### EDUCATION

- PhD in government, Georgetown University, 1974
- BS in foreign service, Georgetown University, 1964



## DANIEL SHAWHAN

*Gilbert White Fellow*

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### EXPERTISE

#### **Air Quality:**

Air Pollution

#### **Climate:**

Cap and Trade,  
Carbon Pricing,  
Climate Mitigation,  
State and US  
Regional Policies

#### **Electricity:**

Electricity Markets  
and Regulation,  
Energy Efficiency,  
Renewable and  
Clean Energy

#### **Energy:**

Coal, Renewable  
and Clean Energy

#### **Policy and**

#### **Analysis:**

Benefit–Cost  
Analysis, Cap  
and Trade,  
Discounting,  
Emissions Pricing,  
Incentives,  
Markets,  
Regulation, State  
and US Regional  
Policies

Much of Daniel Shawhan's research focuses on predicting and estimating the effects of electricity policies, including environmental ones. He has played a leading role in developing a new set of capabilities for simulating how power grids, power plants, and pollution levels will respond to potential changes in policy. The same simulation capabilities can be used to evaluate the effects of potential new power plants and transmission lines. In related statistical work, Shawhan has examined whether power plant startups and ramping greatly increase emissions, whether wind farms really reduce emissions from fuel-burning power plants, and whether the Regional Greenhouse Gas Initiative cap-and-trade program has increased emissions in the neighboring coal-rich state of Pennsylvania. He also has an interest in electricity market design and environmental policy design. Before becoming an academic, Shawhan was a consultant to state governments, crafting electric industry reforms and first-in-the-nation policies for hybrid vehicles, energy efficiency, green buildings, and renewable energy.

### EDUCATION

- PhD in applied economics and management, Cornell University, 2008
- BA in economics, with honors, Grinnell College, 1995

### SELECTED PUBLICATIONS

Does a Realistic Model of the Electricity Grid Matter? Estimating the Impacts of the Regional Greenhouse Gas Initiative (with J.T. Taber, D. Shi, R.D. Zimmerman, J. Yan, C.M. Marquet, Y. Qi, B. Mao, D.J. Tylavsky, R.E. Schuler, and W.D. Schulze) revise and resubmit at *Resource and Energy Economics*, 2013.

An Experimental Test of Automatic Mitigation of Wholesale Electricity Prices (with K.D. Messer, W.D. Schulze, and R.E. Schuler), *International Journal of Industrial Organization*, 2011.



## JHIH-SHYANG SHIH

*Fellow*

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### EXPERTISE

#### **Air Quality:**

Air Pollution

#### **Climate:**

Climate

Adaptation

#### **Ecosystems:**

Green

Infrastructure

#### **Energy:**

Shale Gas

#### **Policy and**

#### **Analysis:**

Benefit–Cost

Analysis,

Incentives,

Voluntary

Programs

#### **Risk**

#### **Management:**

Risk Analysis

#### **Space:**

Satellites

#### **Waste**

#### **Management:**

Solid Waste and

Recycling

#### **Water:**

Drinking Water,

Water Quality

Trained as an environmental systems engineer, Jhih-Shyang Shih focuses his research on developing tools for environmental management and policy analysis. He has extensive experience with modeling to study air quality, water resources, and solid waste management, and has studied the costs of environmental protection, technology adoption, and renewable energy. Shih's recent research has focused on water quality modeling, shale gas development, ozone and PM control, recycling, small water systems, and space solar power. His other interests include climate change and air quality, risk management, and cost–benefit and uncertainty analysis, as well as energy and environment issues. The combination of a technical background and public policy research enables him to bridge the science, engineering, and policy communities.

### EDUCATION

- PhD in system analysis and economics for public decisionmaking, Johns Hopkins University, 1991
- MS in environmental engineering, National Cheng-Kung University, 1983
- BS in environmental engineering, National Cheng-Kung University, 1981

### SELECTED PUBLICATIONS

Shale Gas Development Impacts on Surface Water Quality in Pennsylvania (with S. Olmstead, L. Muehlenbachs, Z. Chu, and A. Krupnick), *Proceedings of the National Academy of Sciences*, Feb. 2013, doi: 10.1073/pnas.1213871110.

Terrestrial Fluxes of Sediments and Nutrients to Pacific Coastal Waters and Their Effects on Coastal Carbon Storage Rates (with B.A. Bergamaschi, R.A. Smith, and M.J. Sauer), in *Baseline and Projected Future Carbon Storage and Greenhouse-Gas Fluxes in Ecosystems of the Western United States*, Z. Zhu and B.C. Reed (eds.), US Geological Survey, Nov. 2012.



## HILARY SIGMAN

*Nonresident Fellow*  
*hsigman@rutgers.edu*

### EXPERTISE

#### **Policy and Analysis:**

Regulation, State and US Regional Policies

#### **Risk**

#### **Management:**

Liability

#### **Waste**

#### **Management:**

Waste Liability,  
Waste Regulation

Hilary Sigman is a professor of economics at Rutgers University and a research associate of the National Bureau of Economic Research (NBER). She conducts research on the empirical effects of environmental policy. Her current work focuses on the law and economics of brownfields, international water resources, and the environmental implications of decentralization of public policies. She has served on the Environmental Economics Advisory Committee of EPA's Science Advisory Board and the Board of Directors of the Association of Environmental and Resource Economists.

### EDUCATION

- PhD in economics, Massachusetts Institute of Technology, 1993
- MPhil in economics, Cambridge University, 1988
- BA in economics and studies in the environment, Yale College, 1986

### SELECTED PUBLICATIONS

Decentralization and Environmental Quality: An International Analysis of Water Pollution Levels and Variation, *Land Economics*, Feb. 2014.

Management of Hazardous Waste and Contaminated Land (with S. Stafford), *Annual Review of Resource Economics*, 2011.

Environmental Liability and Redevelopment of Old Industrial Land, *Journal of Law and Economics*, May 2010.

International Spillovers and Water Quality in Rivers: Do Countries Free Ride? *American Economic Review*, Sep. 2002.



## JUHA SIIKAMÄKI

*Associate Research Director and Fellow*

202.328.5157

*juha@rff.org*

### EXPERTISE

#### **Air Quality:**

Air Pollution

#### **Climate:**

Carbon  
Sequestration,  
Climate Mitigation

#### **Ecosystems:**

Biodiversity,  
Coastal Resources,  
Ecosystem  
Management,  
Ecosystem Services

#### **Forests:**

Forest Carbon,  
Forest  
Conservation,  
Global Forest  
Monitoring, Tree  
Biotechnology

#### **Land Use:**

Outdoor  
Recreation; Parks,  
Refuges, and  
Wildernesses;  
Public Lands

#### **Policy and Analysis:**

Environmental  
Accounting,  
Regulation,  
Valuation

Juha Siikamäki works primarily on biodiversity and ecosystem services, including their economic valuation and assessing options for their conservation and management. His work is purposed to help governments and other organizations make prudent decisions about the use and conservation of nature. Siikamäki has recently examined global economic potential of preserving the carbon storage in mangroves and other coastal habitats. He has also developed new approaches to evaluate benefits from outdoor recreation resources in the United States and the cost-effectiveness of the protection of biodiversity, as well as developed survey and other approaches to valuing ecosystem services in many different contexts. His work encompasses policy issues in the United States and elsewhere around the world.

### EDUCATION

- PhD in environmental policy analysis, University of California, Davis, 2001
- MS in agricultural and natural resource economics, University of California, Davis, 1998
- MS in agricultural policy analysis, University of Helsinki, 1995

### SELECTED PUBLICATIONS

Global Economic Potential for Reducing Carbon Dioxide Emissions from Mangrove Loss (with J. Sanchirico and S. Jardine), *Proceedings of the National Academy of Sciences*, Jul. 2012.

Potential Biodiversity Benefits from International Programs to Reduce Carbon Emissions from Deforestation (with S.C. Newbold), *Ambio*, Feb. 2012.

Contributions of the US State Park System to Nature Recreation, *Proceedings of the National Academy of Sciences*, 2011.



## KENNETH A. SMALL

*Nonresident Fellow*  
*ksmall@uci.edu*

### EXPERTISE

#### **Transportation:**

CAFE Standards,  
Fuel Taxes, Public  
Transit, Traffic  
Congestion,  
Vehicle Pollution

Ken Small is one of the nation's leading experts on urban and transportation issues and environmental economics. Among his recent research topics are urban highway congestion, measurement of value of time and reliability, effects of fuel efficiency standards, road and public transit pricing, and fuel taxes. For four years, he served as associate editor of *Transportation Research Part B: Methodological*, and he remains on the editorial boards of that and four other professional journals. He previously was North American coeditor of the international journal *Urban Studies*. Small has served on several study committees of the National Research Council, examining, among other things, benefit–cost analysis and the equity of new transportation finance mechanisms. His book *Urban Transportation Economics* was recently updated in a new edition (*Economics of Urban Transportation*) and has become a widely cited standard reference in the field.

### EDUCATION

- PhD in economics, University of California, Berkeley, 1976
- MA in physics, University of California, Berkeley, 1972
- BS, AB in physics, mathematics, University of Rochester, 1968

### SELECTED PUBLICATIONS

Energy Policies for Passenger Motor Vehicles, *Transportation Research Part A: Policy and Practice*, 2012.

Should Urban Transit Subsidies Be Reduced? (with I. Parry), *American Economic Review*, 2009.

Does Britain or the United States Have the Right Gasoline Tax? (with I. Parry), *American Economic Review*, 2005.



## MARGARET A. WALLS

*Research Director and Senior Fellow*

202.328.5092

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### EXPERTISE

#### Climate:

Climate  
Adaptation,  
Climate Change

#### Ecosystems:

Ecosystem  
Management,  
Ecosystem  
Services, Green  
Infrastructure

#### Energy:

Energy Efficiency

#### Land Use:

Green  
Infrastructure,  
Outdoor  
Recreation, Parks,  
Refuges, and  
Wildernesses,  
Public Lands,  
Urban Sprawl

#### Policy and

#### Analysis:

Benefit–Cost  
Analysis,  
Environmental  
Accounting,  
Regulation, State  
and US Regional  
Policies

Margaret Walls's current research focuses on issues related to urban land use, ecosystem services, parks, and energy efficiency. She has analyzed transferable development rights programs for managing land use in urban fringe areas, assessed the value of different types of parks and open space, and investigated energy efficiency issues in buildings. In 2008 and 2009, she was the study director for the Outdoor Resources Review Group (see [www.rff.org/orrg](http://www.rff.org/orrg)). From 2010 to 2013, Walls was the first appointee to the Thomas J. Klutznick Chair at RFF. Walls has published widely in peer-reviewed journals, including the *Journal of Public Economics*, *National Tax Journal*, *Journal of Urban Economics*, and *Journal of Economic Literature*, among others.

### EDUCATION

- PhD in economics, University of California, Santa Barbara, 1988
- BS in agricultural economics, University of Kentucky, 1981

### SELECTED PUBLICATIONS

Strategically Placing Green Infrastructure: Cost-Effective Land Conservation in the Floodplain (with C. Kousky, S. Olmstead, and M. Macauley), *Environmental Science and Technology*, Apr. 2013.

*Paying for State Parks: Evaluating Alternative Approaches for the 21st Century*, RFF Report, Jan. 2013.

*Borrowing to Save Energy: An Assessment of Energy-Efficiency Financing Programs* (with K.L. Palmer and T. Gerarden), RFF Report, Apr. 2012.

Zoning on the Urban Fringe: Results from a New Approach to Modeling Land and Housing Markets, (with N. Magliocca, V. McConnell, and E. Safirova), *Regional Science and Urban Economics*, Jan. 2012.

*The Role of Land Use in Adaptation to Increased Precipitation and Flooding: A Case Study in Wisconsin's Lower Fox River Basin* (with C. Kousky, S.M. Olmstead, A. Stern, and M.K. Macauley), RFF Report, Nov. 2011.



## ZHONGMIN WANG

*Fellow*

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### EXPERTISE

#### **Energy:**

Natural Gas, Oil,  
R&D Technology,  
Shale Gas

#### **International:**

China

#### **Policy and**

#### **Analysis:**

Green GDP,  
Incentives,  
Information  
Disclosure,  
Regulation

#### **Transportation:**

Gasoline

Zhongmin Wang's research focuses primarily on energy-related economic issues. He has studied pricing, competition, regulatory, technology, and environmental issues related to oil, gasoline, natural gas, and alternative transport fuels. He has recently studied the economic history of shale gas development in the United States, and has also started to research China's energy and environmental issues. His work has appeared in the *Journal of Political Economy*.

### EDUCATION

- PhD in economics, Georgetown University, 2002
- Coursework in American studies, Johns Hopkins-Nanjing Center for Chinese and American Studies, 2002–2003
- MA in petroleum management, China University of Petroleum, 1994
- BE in management (major) and petroleum engineering (minor), China University of Petroleum, 1991

### SELECTED PUBLICATIONS

(Mixed) Strategy in Oligopoly Pricing: Evidence from Gasoline Price Cycles Before and Under a Timing Regulation, *Journal of Political Economy*, Dec. 2009.

Station Level Gasoline Demand in an Australian Market with Regular Price Cycles, *Journal of Agricultural and Resources Economics*, Oct. 2009.

Assessing the Degree of Spot Market Integration for US Natural Gas: Evidence from Daily Price Data (with J. Cuddington), *Journal of Regulatory Economics*, Mar. 2006.



## ROBERTON C. WILLIAMS III

Senior Fellow and Director, Academic Programs

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### EXPERTISE

#### Climate:

Cap and Trade,  
Carbon Pricing,  
Climate Mitigation

#### Policy and

#### Analysis:

Benefit–Cost  
Analysis, Cap  
and Trade,  
Discounting,  
Emissions Pricing,  
Incentives,  
Markets,  
Subsidies, Taxes

Rob Williams studies both environmental policy and tax policy, with a particular focus on interactions between the two. In addition to his role at RFF, he is an associate professor at the University of Maryland, College Park, and a research associate of the National Bureau of Economic Research. He was previously an associate professor at the University of Texas, Austin; a visiting research scholar at the Stanford Institute for Economic Policy Research; and an Andrew W. Mellon Fellow at the Brookings Institution. Williams has served as a coeditor of both the *Journal of Public Economics* and the *Journal of Environmental Economics and Management*.

### EDUCATION

- PhD in economics, Stanford University, 1999
- AB in economics, Harvard University, 1994

### SELECTED PUBLICATIONS

Growing State–Federal Conflicts in Environmental Policy: The Role of Market-Based Regulation, *Journal of Public Economics*, 2012.

The Choice of Discount Rate for Climate Change Policy Evaluation (with L.H. Goulder), *Climate Change Economics*, 2012.

How to Design a Carbon Tax (with I. Parry and R. van der Ploeg), in *Fiscal Policy to Mitigate Climate Change: A Guide for Policymakers*, R. de Mooij, I. Parry, and Michael Keen (eds.), International Monetary Fund, 2012.

Setting the Initial Time-Profile of Climate Policy: The Economics of Environmental Policy Phase-Ins, in *The Design and Implementation of US Climate Policy*, D. Fullerton and C. Wolfram (eds.), University of Chicago Press, 2012.

Moving US Climate Policy Forward: Are Carbon Taxes the Only Good Alternative? (with I. Parry), in *Climate Change and Common Sense: Essays in Honour of Tom Schelling*, R. Hahn and A. Ulph (eds.), Oxford University Press, 2012.



## MICHAEL WOLOSIN

*Visiting Scholar*

202.470.3022

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### EXPERTISE

#### **Climate:**

Cap and Trade,  
Climate Change,  
State and US  
Regional Policies

#### **Development and Environment:**

Sustainable  
Development

#### **Forests:**

Deforestation,  
Forest Carbon

Michael Wolosin manages Climate Advisers' forest carbon policy practice, focusing his research on US and international climate-related forest policy. Since joining Climate Advisers in 2010, Michael has served as the program director for the bipartisan Commission on Climate and Tropical Forests. Wolosin previously focused on US climate and deforestation policy at The Nature Conservancy, bringing the organization's on-the-ground experiences to bear in the US policy process and representing the organization in multi-stakeholder coalitions and through direct outreach. Before this, he was a policy fellow at the Pew Center on Global Climate Change. He did his doctoral research in forest ecology at Duke University, studying light competition and growth using advanced remote sensing and statistical techniques, and is coauthor of a number of peer-reviewed papers published by top academic journals.

### EDUCATION

- PhD in ecology, Duke University, 2007
- AB in mathematics, Brown University, 1995

### SELECTED PUBLICATIONS

*US Forest–Climate Assistance: An Assessment*, RFF Report, Sep. 2012.

Should REDD+ Be Included in the CDM? Analysis of Issues and Options (with R. O'Sullivan, C. Moore, and D. Lee); prepared for the CDM Policy Dialogue, Jun. 2012.

A Whole-of-Government Approach to Reducing Tropical Deforestation (with A. Riddle and D.E. Morris), RFF Discussion Paper 11-28, Jul. 2011.

International Forest Conservation: A Survey of Key Staff in the 112th Congress (with P.T. Jenkins), RFF Issue Brief 11-05, May 2011.

## RFF UNIVERSITY FELLOWS

The RFF university fellows program was established to foster closer working relationships between RFF researchers and the wider academic community. Outstanding scholars at universities around the world are appointed by the RFF president on the advice of senior management and with the understanding that substantial benefits to the research of both RFF and the university fellow can be expected.

### **John F. Ahearne**

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John Ahearne, a former RFF vice president and senior fellow, is executive director (emeritus) of Sigma Xi, an international honor society of research scientists and engineers, and an adjunct professor of civil and environmental engineering at Duke University. His primary areas of work are nuclear reactors, nuclear waste, and nuclear weapons. From 1978 to 1983, he was a commissioner of the US Nuclear Regulatory Commission and served as chairman from 1979 to 1981. Previously, Ahearne was deputy and principal deputy assistant secretary of defense and served in the White House Energy Office and as deputy assistant secretary of energy. He has served on or chaired more than 25 study committees of the National Research Council and is a member of the National Academy of Sciences Committee on International Security and Arms Control. He is chair of the Advisory Group for the National Academy of Engineering's Center for Engineering, Ethics, and Society. He holds memberships in the National Academy of Engineering and the American Academy of Arts and Sciences and is a fellow of the American Physical Society, the Society for Risk Analysis, and the American Association for the Advancement of Science. He received his PhD in physics from Princeton University.

### **John M. Antle**

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John Antle is a professor in the Department of Applied Economics at Oregon State University and a former Gilbert White Fellow at RFF. He received his PhD in economics at the University of Chicago, served as a senior staff economist on the President's Council of Economic Advisers, and is a past president and fellow of the American Agricultural Economics Association. His research interests are in production economics, environmental economics, econometrics, and international development. His current research addresses the sustainability of agricultural production systems in both industrialized and developing countries, including impacts of alternative technologies and policies on food security and poverty, economic feasibility of agricultural greenhouse gas mitigation, payments for environmental services, and impacts of climate change on agriculture. Antle also serves as a principal investigator for the Agricultural Model Intercomparison and Improvement Project, a

global consortium aiming to improve agricultural systems science and its use for food security and climate change assessment.

**Jesse H. Ausubel**

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Jesse Ausubel's interests include industrial evolution, industrial ecology, and the conservation of land and sea. He directs the Rockefeller University's Program for the Human Environment and also serves as a science advisor to the Alfred P. Sloan Foundation and guest investigator at the Woods Hole Oceanographic Institution. Previously, he served as director of programs for the National Academy of Engineering, a staff officer with the National Research Council Board on Atmospheric Sciences and Climate, and a research scholar at the International Institute for Applied Systems Analysis. Educated at Harvard and Columbia, Ausubel was a main organizer of the first UN World Climate Conference in Geneva, in 1979. He initiated and led three major biodiversity programs: the Census of Marine Life, the Barcode of Life initiative to develop DNA identifiers for animals and plants, and the Encyclopedia of Life to develop a web page for every species. While continuing studies of waste minimization in energy and sparing of land for nature, he also now is a leader of the international Deep Carbon Observatory, examining the quantities, movements, origins, and forms of carbon deep in Earth's crust.

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