# **Annex IV**

# **Authors and reviewers**

#### **AIV.1 Authors and Review Editors**

## **Technical Summary**

Co-ordinating Lead Authors

Edward Rubin Carnegie Mellon University, United States

Leo Meyer TSU IPCC Working Group III, Netherlands Environment Assessment Agency (MNP),

Netherlands

Heleen de Coninck

TSU IPCC Working Group III, Energy research Centre of the Netherlands (ECN),

Netherlands

Lead Authors

Juan Carlos Abanades Instituto Nacional del Carbon (CSIC), Spain

Makoto Akai National Institute of Advanced Industrial Science and Technology, Japan

Sally Benson Lawrence Berkeley National Laboratory, United States Ken Caldeira Carnegie Institution of Washington, United States

Peter Cook Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC), Australia Ogunlade Davidson Co-chair IPCC Working Group III, Faculty of Engineering, University of Sierra Leone,

Sierra Leone

Richard Doctor Argonne National Laboratory, United States

James Dooley Battelle, United States
Paul Freund United Kingdom

John Gale IEA Greenhouse Gas R&D Programme, United Kingdom

Wolfgang Heidug Shell International Exploration and Production B.V., Netherlands (Germany)

Howard Herzog MIT, United States

David Keith University of Calgary, Canada

Marco Mazzotti ETH Swiss Federal Institute of Technology Zurich, Switzerland (Italy)

Bert Metz Co-chair IPCC Working Group III, Netherlands Environment Assessment Agency (MNP),

Netherlands

Balgis Osman-Elasha Higher Council for Environment and Natural Resources, Sudan

Andrew Palmer University of Cambridge, United Kingdom

Riitta Pipatti Statistics Finland, Finland

Koen Smekens Energy research Centre of the Netherlands (ECN), Netherlands (Belgium)

Mohammad Soltanieh Environmental Research Centre, Dept. of Environment, Climate Change Office, Iran Kelly (Kailai) Thambimuthu Centre for Low Emission Technology, CSIRO, Australia (Australia and Canada)

Bob van der Zwaan Energy research Centre of the Netherlands (ECN), The Netherlands

Review Editor

Ismail El Gizouli IPCC WGIII vice-chair, Higher Council for Environment & Natural Resources, Sudan

**Chapter 1: Introduction** 

Co-ordinating Lead Author

Paul Freund United Kingdom

Lead Authors

Anthony Adegbulugbe Centre of Energy Research and Development, Nigeria Øyvind Christophersen Norwegian Pollution Control Authority, Norway School of Media and Governance, Keio University, Japan

William Moomaw Tufts University, The Fletcher School of Law and Diplomacy, United States

Jose Moreira

University of Sao Paulo, National Reference Center on Biomass (CENBIO), Brazil

Review Editors

Eduardo Calvo IPCC vice-chair WGIII, Peru

Eberhard Jochem Fraunhofer Institut/ETH Zürich, Germany/Switzerland (Germany)

Chapter 2: Sources of CO,

Co-ordinating Lead Author

John Gale IEA Greenhouse Gas R&D Programme, United Kingdom

Lead Authors

John Bradshaw Geoscience Australia, Australia

Zhenlin Chen China Meteorological Administration, China

Amit Garg Ministry of Railways, India

Dario Gomez Comision Nacional de Energia Atomica (CNEA), Argentina Hans-Holger Rogner International Atomic Energy Agency (IAEA), Austria (Germany)

Dale Simbeck SFA Pacific Inc., United States

Robert Williams Center for Energy & Environmental Studies, Princeton University, United States

**Contributing Authors** 

Ferenc Toth International Atomic Energy Agency (IAEA), Austria

Detlef van Vuuren Netherlands Environment Assessment Agency (MNP), Netherlands

Review Editors

Ismail El Gizouli IPCC WGIII vice-chair, Sudan
Jürgen Friedrich Hake Forschungszentrum Jülich, Germany

Chapter 3: Capture

Co-ordinating Lead Authors

Juan Carlos Abanades Instituto Nacional del Carbon (CSIC), Spain

Mohammad Soltanieh Environmental Research Centre, Dept. of Environment, Climate Change Office, Iran Kelly (Kailai) Thambimuthu Centre for Low Emission Technology, CSIRO, Australia (Australia and Canada)

Lead Authors

Rodney Allam Air Products PLC, United Kingdom

Olav Bolland Norwegian University of Science and Technology, Norway John Davison IEA Greenhouse Gas R&D Programme, United Kingdom

Paul Feron TNO Science and Industry, Netherlands
Fred Goede SHE Centre, Sasol Ltd, South Africa

Alice Herrera Industrial Technology Development Institute, Department of Science and Technology,

Philippines

Masaki Iijima Mitsubishi Heavy Industries, Japan

Daniël Jansen Energy research Centre of the Netherlands (ECN), Netherlands Iosif Leites State Institute for Nitrogen Industry, Russian Federation

Philippe Mathieu University of Liege, Belgium

Edward Rubin Carnegie Mellon University, United States

(Crosscutting Chair Energy Requirements)

Dale Simbeck SFA Pacific Inc., United States

Krzysztof Warmuzinski Polish Academy of Sciences, Institute of Chemical Engineering, Poland

Michael Wilkinson BP Exploration, United Kingdom

Robert Williams Center for Energy & Environmental Studies, Princeton University, United States

**Contributing Authors** 

Manfred Jaschik Polish Academy of Sciences, Institute of Chemical Engineering, Poland

Anders Lyngfelt Chalmers University of Technology, Sweden

Roland Span Institute for Thermodynamics & Energy Technologies, Germany

Marek Tanczyk Polish Academy of Sciences, Institute of Chemical Engineering, Poland

Review Editors

Ziad Abu-Ghararah IPCC WGIII vice-chair, Saudi Arabia

Tatsuaki Yashima Nihon University, Advanced Research Institute for the Sciences and Humanities, Japan

# Chapter 4: Transport of CO,

Co-ordinating Lead Authors

Richard Doctor Argonne National Laboratory, Hydrogen and Greenhouse Gas Engineering, United States

Andrew Palmer University of Cambridge, United Kingdom

Lead Authors

David Coleman Kinder Morgan, United Kingdom

John Davison IEA Greenhouse Gas R&D Programme, United Kingdom

Chris Hendriks Ecofys, Netherlands

Olav Kaarstad Statoil ASA, Industry and Commercialisation, Norway

Masahiko Ozaki Nagasaki R & D Centre, Mitsubishi Heavy Industries, Ltd., Japan

Contributing Author

Michael Austell Kinder Morgan, United Kingdom

Review Editors

Ramon Pichs-Madruga Centro de Investigaciones de Economia Mundial (CIEM), IPCC WGIII vice-chair, Cuba Svyatoslav Timashev Science and Engineering Center, Ural Branch, Russian Academy of Sciences, Russian

Federation

#### Chapter 5: Underground geological storage

Co-ordinating Lead Authors

Sally Benson Lawrence Berkeley National Laboratory, United States

Peter Cook Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC), Australia

Lead Authors

Jason Anderson Institute for European Environmental Policy (IEEP), Belgium (United States)

Stefan Bachu Alberta Energy and Utilities Board, Canada

Hassan Bashir Nimir University of Khartoum, Sudan

Biswajit Basu Oil and Natural Gas Corporation Ltd., India

John BradshawGeoscience Australia, AustraliaGota DeguchiJapan Coal Energy Centre, Japan

John Gale IEA Greenhouse Gas R&D Programme, United Kingdom

Gabriela von Goerne Greenpeace, Germany

Bill Gunter Alberta Research Council, Canada

Wolfgang Heidug Shell International Exploration and Production B.V., Netherlands (Germany)

Sam Holloway British Geological Survey, United Kingdom

Rami Kamal Saudi Aramco, Saudi Arabia David Keith University of Calgary, Canada

Philip Lloyd Energy Research Centre, University of Cape Town, South Africa

Paulo Rocha Petrobras - Petroleo Brasileiro S.A., Brazil

Bill Senior DEFRA, United Kingdom

Jolyon Thomson Defra Legal Services, International Environmental Law, United Kingdom

Tore Torp Statoil R&D Centre, Norway

Ton Wildenborg TNO Built Environment and Geosciences, Netherlands

Malcolm Wilson University of Regina, Canada

Francesco Zarlenga ENEA-Cr. Casaccia PROT-PREV, Italy

Di Zhou South China Sea Institute of Oceanology, Chinese Academy of Sciences, China

**Contributing Authors** 

Michael Celia Princeton University, United States

Jonathan Ennis King Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Erik Lindeberg SINTEF Petroleum Research, Norway

Salvatore Lombardi University of Rome "La Sapienza", Laboratory of Fluid Chemistry, Italy

Curt Oldenburg Lawrence Berkeley National Laboratory, United States Karsten Pruess Lawrence Berkeley National Laboratory, United States

Andy Rigg CSIRO Petroleum Resources, Australia

Scott Stevens Advanced Resources International, United States

Elizabeth Wilson Office of Research and Development / US EPA, United States

Steve Whittaker Saskatchewan Industry & Resources, Canada

Review Editors

Günther Borm GeoForschungsZentrum Potsdam, Germany
David G. Hawkins Natural Resources Defense Council, United States

Arthur Lee Chevron Corporation, United States

#### Chapter 6: Ocean storage

Co-ordinating Lead Authors

Ken Caldeira Carnegie Institution of Washington, United States

Makoto Akai National Institute of Advanced Industrial Science and Technology, Japan

Lead Authors

Peter Brewer Monterey Bay Aquarium Research Institute, United States

Baixin Chen National Institute of Advanced Industrial Science and Technology (AIST), Japan (China)

Peter Haugan Geophysical Institute, University of Bergen, Norway
Toru Iwama Seinan Gakuin University, Faculty of Law, Japan
Paul Johnston Greenpeace Research Laboratories, United Kingdom

Haroon Kheshgi ExxonMobil Research & Engineering Company, United States
Qingquan Li National Climate Centre, China Meteorological Administration, China
Takashi Ohsumi Research Institute of Innovative Technology for the Earth, Japan

Hans Pörtner Alfred-Wegener-Institute for Polar and Marine Research, Marine Animal Ecophysiology,

Germany

Christopher Sabine Global Carbon Programme; NOAA/PMEL, United States Yoshihisa Shirayama Seto Marine Biological Laboratory, Kyoto University, Japan

Jolyon Thomson Defra Legal Services, International Environmental Law, United Kingdom

**Contributing Authors** 

Jim Barry Monterey Bay Aquarium Research Institute, United States

Lara Hansen WWF. United States

Review Editors

Brad De Young Memorial University of Newfoundland, Canada

Fortunat Joos University of Bern, Switzerland

# Chapter 7: Mineral carbonation and industrial uses of carbon dioxide

Co-ordinating Lead Author

Marco Mazzotti ETH Swiss Federal Institute of Technology Zurich, Switzerland (Italy)

Lead Authors

Juan Carlos Abanades Instituto Nacional del Carbon (CSIC), Spain

Rodney Allam Air Products PLC, United Kingdom

Klaus S. Lackner School of Engineering and Applied Sciences, Columbia University, United States

Francis Meunier CNAM-IFFI, France

Edward Rubin Carnegie Mellon University, United States Juan Carlos Sánchez M. Environmental consultant, Venezuela

Katsunori Yogo Research Institute of Innovative Technology for the Earth (RITE), Japan

Ron Zevenhoven Helsinki University of Technology, Finland (The Netherlands)

Review Editors

Baldur Eliasson & Associates, Switzerland

R.T.M. Sutamihardja

The Office of the State Minister for Environment Republic of Indonesia, Indonesia

#### **Chapter 8: Costs and economic potential**

Co-ordinating Lead Authors

Howard Herzog MIT, United States

Koen Smekens Energy research Centre of the Netherlands (ECN), Netherlands (Belgium)

Lead Authors

Pradeep Dadhich The Energy Research Institute, India

James Dooley Battelle, United States

Yasumasa Fujii School of Frontier Sciences, University of Tokyo, Japan

Olav Hohmeyer University of Flensburg, Germany

Keywan Riahi International Institute for Applied Systems Analysis (IIASA), Austria

**Contributing Authors** 

Makoto Akai National Institute of Advanced Industrial Science and Technology, Japan

Chris Hendriks Ecofys, Netherlands

Klaus Lackner School of Engineering and Applied Sciences, Columbia University, United States

Ashish Rana National Institute for Environmental Studies, India

Edward Rubin Carnegie Mellon University, United States

Leo Schrattenholzer International Institute for Applied Systems Analysis (IIASA), Austria

Bill Senior DEFRA, United Kingdom

Review Editors

John Christensen UNEP Collaborating Centre on Energy and Environment (UCCEE), Denmark

Greg Tosen Eskom Resources and Strategy, South Africa

#### Chapter 9: Implications of carbon dioxide capture and storage for greenhouse gas inventories and accounting

Co-ordinating Lead Authors

Balgis Osman-Elasha Higher Council for Environment and Natural Resources, Sudan

Riitta Pipatti Statistics Finland, Finland

Lead Authors

William Kojo Agyemang-Bonsu Environmental Protection Agency, Ghana

A.M. Al-Ibrahim King Abdulaziz City for Science & Technology (KACST), Saudi Arabia

Carlos López Institute of Meteorology, Cuba

Gregg Marland Oak Ridge National Laboratory, United States Huang Shenchu China Coal Information Institute, China

Oleg Tailakov International Coal and Methane Research Centre - UGLEMETAN, Russian Federation

Review Editors

Takahiko Hiraishi Institute for Global Environmental Strategies, Japan

José Domingos Miguez Ministry of Science and Technology, Brazil

# Annex I: Properties of CO, and carbon-based fuels

Co-ordinating Lead Author

Paul Freund United Kingdom

Lead Authors

Stefan Bachu Alberta Energy and Utilities Board, Canada

Dale Simbeck SFA Pacific Inc., United States

Kelly (Kailai) Thambimuthu Centre for Low Emission Technology, CSIRO, Australia (Australia and Canada)

Contributing Author

Murlidhar Gupta CANMET Energy Technology Centre, Natural Resources Canada (India)

#### Annex II: Glossary, acronyms and abbreviations

Co-ordinating Lead Author

Philip Lloyd Energy Research Institute, University of Capetown, South Africa

Lead Authors

Peter Brewer Monterey Bay Aquarium Research Institute, United States

Chris Hendriks Ecofys, Netherlands

Yasumasa Fujii School of Frontier Sciences, University of Tokyo, Japan
John Gale IEA Greenhouse Gas R&D Programme, United Kingdom
Balgis Osman Elasha Higher Council for Environment and Natural Resources, Sudan
Jose Moreira University of Sao Paulo, Biomass Users Network (BUN), Brazil

Juan Carlos Sánchez M. Environmental consultant, Venezuela

Mohammad Soltanieh Environmental Research Centre, Dept. of Environment, Climate Change Office, Iran

Tore Torp Statoil R&D Centre, Corporate Strategic Technology, Norway
Ton Wildenborg TNO Built Environment and Geosciences, Netherlands

Contributing Authors

Jason Anderson Institute for European Environmental Policy (IEEP), Belgium (United States)

Stefan Bachu Alberta Energy and Utilities Board, Canada

Sally Benson Ernest Orlando Lawrence Berkeley National Laboratory, United States

Ken Caldeira Carnegie Institution of Washington, United States

Peter Cook Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC), Australia
Richard Doctor Argonne National Laboratory, Hydrogen and Greenhouse Gas Engineering, United States

Paul Freund United Kingdom Gabriela von Goerne Greenpeace, Germany

### **AIV.2 Crosscutting Chairs**

Crosscutting group Chair

Costs Howard Herzog, MIT, United States

Energy requirements Ed Rubin, Carnegie Mellon University, United States

Legal issues and environmental Wolfgang Heidug, Shell International Exploration and Production B.V., Netherlands

impacts (Germany)

Public perception and risks

Technical and economic potential

David Keith, University of Calgary, Canada

James Dooley, Battelle, United States

# **AIV.3 Expert Reviewers**

Argentina

Charles Balnaves BHP Petroleum Pty Ltd

Gustavo Galliano Repsol YPF, Argentina Technology Centre

Héctor Ginzo Ministry of Foreign Affairs, International Trade and Worship

Martiros Tsarukyan Department of Atmosphere protection, Ministry of Nature Protection

Australia

Barry Hooper CO2CRC, Department of Chemical and Biomolecular Engineering

Bill Koppe Anglo Coal Australia
Brian Evans Curtin University

Iain MacGill School of Engineering & Telecommunications

John Torkington Chevron Australia Pty Ltd

Jonathan Ennis-King CSIRO Petroleum

Lincoln Paterson CSIRO

Peter McNally Greenhouse & Climate Change Co-ordinator
Robert Durie CSIRO, Division of Energy Technology
Tristy Fairfield Conservation Council of Western Australia

Austria

Klaus Radunsky Umweltbundesamt

Margit Kapfer Denkstatt
Torsten Clemens OMV E&P

Belgium

Aviel Verbruggen Universiteit Antwerpen

Ben Laenen VITO

Dolf Gielen International Energy Agency
Kris Piessens Geological Survey of Belgium

Benin

Sabin Guendéhou Benin Centre of Scientific and Technical Research

Brazil

Paulo Antônio De Souza Companhia Vale do Rio Doce, Department of Environmental and Territorial Management

Paulo Cunha Petrobras

Bulgaria

Teodor Ivanov Ministry of Environment and Water

Canada

Bob Stobbs Canadian Clean Power Coalition
C.S. Wong OSAP, Institute of Ocean Sciences

Carolyn Preston Canmet Energy Technology Centre, Natural Resources

Chris Hawkes University of Saskatchewan

Don Lawton University of Calgary, Department of Geology and Geophysics

Steve Whittaker Saskatchewan Industry and Resources

China

Chen-Tung Arthur Chen National Sun Yat-Sen University

Xiaochun Li RITE Xu Huaqing ERI

Zhang ChengYi National Climate Center

Denmark

Flemming Ole Rasmussen Danish Energy Authority, Ministry of Economic and Business Affairs

Kim Nissen Elsam Kraft A/S

Kristian Thor Jakobsen University of Copenhagen

Dominican Republic

Rene Ledesma Ministry of Environment and Natural Resources

Egypt

Mohamed Ahmed Darwish The Egyptian Meteorological Authority

Finland

Allan Johansson Technical Research Centre of Finland

Ilkka Savolainen VTT Processes, Emission Control - Greenhouse Gases

France

Isabelle Czernichowski BRGM (French Geological Survey)

Jean-Xavier Morin Alstom

Marc Gillet Observatoire National sur les Effets du Réchauffement Climatique

Martin Pêcheux Institut des Foraminifères Symbiotiques

Paul Broutin IFP-Lyon

Rene Ducroux Centre of Initiative and Research on Energy and the Environment

Yann Le Gallo Institut Français du Pétrole

Germany

Axel Michaelowa Hamburg Institute of International Economics

Franz May Federal Institute for Geosciences and Natural Resources

Gert Müller-Syring DBI Gas- und Umwelttechnik GmbH

Jochen Harnisch Ecofys Gmbh

Jürgen EngelhardtForschung und Entwicklung Rheinbraun AGMartina JungHamburg Institute of International Economics

Manfred Treber GermanWatch

Matthias Duwe Climate Action Network Europe
Peter Markewitz Forschungszentrum Jülich GmbH

Sven Bode Hamburg Institute of International Economics

Ulf Riebesell AWI

Wilhelm Kuckshinrichs Forschungszentrum Jülich GmbH

India

Auro Ashish Saha Department of Mechanical Engineering, Pondicherry Engineering College

M.M. Kapshe MANIT

Ireland

Pat Finnegan Greenhouse Ireland Action Network

Israel

Martin Halmann Weizmann Institute of Science

Italy

Fedora Quattrocchi Institute of Geophysics and Volcanology

Umberto Desideri University of Perugia

Japan

Atsushi Ishimatsu Nagasaki University Hitoshi Koide Waseda University

Imai Nobuo Mitsubishi Heavy Industries, Ltd.

Koh Harada Institute for Environmental Management, Institute of Advanced Industrial, Science and

Technology

Kozo Sato Geosystem Engineering, The University of Tokyo Mikiko Kainuma NIES, National Institute for Environmental Studies Shigeo Murai Research Institute of Innovative Technology for the Earth

Takahisa Yokoyama CS Promotion Office

Yoichi Kaya The Japan Committee for IIASA, Research Institute of Innovative Technology for the

Earth (RITE)

Mexico

Antonio Juarez Alvarado Directore Energy development, Min of Energy

Aquileo Guzman National Institute of Ecology

Jose Antonio Benjamin Ordóňez-Díaz National Autonomous University of Mexico, PhD. Student

Julia Martinez Instituto National Ecologica Lourdes Villers-Ruiz Andador Epigmenio Ibarra

The Netherlands

Annemarie van der Rest Shell Nederland BV

Bert van der Meer TNO Built Environment and Geosciences

Bob van der Zwaan ECN Policy Studies

Dorothee Bakker University of East Anglia, United Kingdom Evert Wesker Shell Global Solutions International, Dept. OGIR

Ipo Ritsema TNO Built Environment and Geosciences - National Geological Survey

Jos Cozijnsen Consulting Attorney Energy & Environment
Jos Keurentjes Eindhoven University of Technology
Karl-Heinz Wolf Delft University of Technology
Nick ten Asbroek TNO Science and Industry

Rob Arts TNO Built Environment and Geosciences
Suzanne Hurter Shell International Exploration and Production

Wouter Huijgen ECN Clean Fossil Fuels

New Zealand

David Darby Institute of Geological and Nuclear Sciences

Peter Read Massey University Wayne Hennessy CRL Energy Ltd

Nigeria

Christopher Ugwu Nigeria Society for the Improvement of Rural People (NSIRP), University of Nigeria

Norway

Asbjørn Torvanger Centre for International Climate and Environmental Research

Bjorn Kvamme Institute of Physics, University of Bergen

Gelein de Koeijer Statoil ASA

Guttorm Alendal Bergen Centre for Computational Science
Hallvard Fjøsne Svendsen NTNU, Chemical Engineering Department

Hans Aksel Haugen Norsk Hydro ASA, Environment and Energy Consulting

Kristin Rypdal CICERO Lars Eide Norsk Hydro

Lars Golmen Norwegian Institute for Water Research (NIVA)

Martin Hovland Statoil ASA

Todd Allyn Flach DNV Research, Energy and Resources, Det Norske Veritas

**Philippines** 

Flaviana Hilario Climatology and Agrometeorology Branch

Russian Federation

Michael Gytarsky Institute of Global Climate and Ecology

Saudi Arabia

Ahmad Al-Hazmi Sabic

Spain

Pilar Coca ELCOGAS

Angel Maria Gutierrez NaturCorp Redes, s.a.

Sweden

Christian Bernstone Vattenfall Utveckling AB
Erlström Anders Geological Survey of Sweden
Jerry Jinyue Yan Luleå University of Technology

Kenneth Möllersten Swedish Energy Agency Climate Change Division

Marie Anheden Vattenfall Utveckling AB

Switzerland

Daniel Spreng ETH Swiss Federal Institute of Technology Zürich

Jose Romero Swiss Agency for the Environment, Forests and Landscape

United Kingdom

Andy Chadwick British Geological Survey, Geophysics & Marine Geoscience
David Reiner University of Cambridge, Judge Institute of Management

John Shepherd Southhampton Oceanography Centre

Jon Gibbins Energy Technology for Sustainable Development Group Nick Riley Reservoir Geoscience, British Geological Survey

Paul Zakkour ERM Energy & Climate Change

Raymond Purdy

Centre for Law and the Environment, Faculty of Laws, University College London
Sevket Durucan

Imperial College of Science Technology and Medicine, Royal School of Mines

Simon Eggleston IPCC NGGIP Technical Support Unit

Stef Simons University College London, Centre for CO<sub>2</sub> Technology

Stefano Brandani Centre for CO, Technology

Stuart Haszeldine University of Edinburgh, Grant Institute

William Wilson Cambrensis Ltd.

**United States** 

Anand Gnanadesikan GFDL

Craig Smith University of Hawaii at Monoa

David Archer University of Chicago

Don Seeburger IPIECA Eric Adams MIT

Franklin Orr Stanford University

Granger Morgan Carnegie Mellon University

Grant Bromhal U.S. Department of Energy, National Energy Technology Laboratory (NETL)

Greg Rau Institute of Marine Sciences

Hamid Sarv Babcock & Wilcox Research Center

Jette Findsen Science Applications International Corporation

Julio Friedman University of Maryland

Karl Turekian Yale University

Larry Myer Lawrence Berkeley National Laboratory
Leonard Bernstein L.S. Bernstein & Associates, L.L.C.

Neeraj GuptaBattelleNeville HoltEPRIR.J. BatterhamRio TintoRichard RhudyEPRI

Robert Buruss US Geological Survey

Robert Finley Illinois State Geological Survey
Robert Fledderman MeadWestvaco Forestry Division

Robert Socolow Princeton Environmental Institute, Princeton University

Scott Imbus IPIECA Seymour Alpert Retired

Steve Crookshank Policy Analysis & Statistics, American Petroleum Institute

Steven Kleespie Rio Tinto

Susan Rice Susan A. Rice and Associates, Inc

Tom Marrero University of Missouri

Vello Kuuskra Advanced Resources International, Inc.
Veronica Brieno Rankin Michigan Technological University