Expanding Biofuel Production—Sustainability and the Transition to Advanced Biofuels

Lessons from the Upper Midwest for Sustainability

STEERING COMMITTEE

PATRICK ATKINS recently retired from the position of the Director of Technology-Energy Innovation and was responsible for Alcoa's environmental policy and global environmental programs. Dr. Atkins joined Alcoa in Pittsburgh in 1972, after serving as a professor in Environmental Health Engineering at the University of Texas at Austin where he taught engineering, industrial hygiene and ecology courses and directed MS and PhD research projects. He became manager-environmental control at Alcoa in 1973, director-environmental control in 1980, director of environmental affairs in 1991 and to his director's position in 1995. He also served as Alcoa's chief environmental engineer from 1982 to 1984. Author of over 50 technical articles and editor of two books, Dr. Atkins is a member of the American Society of Civil Engineers, the National Society of Professional Engineers and the Engineering Society of Western Pennsylvania. He represents Alcoa on the environmental committees of the International Primary Aluminum Institute, the Business Roundtable, National Association of Manufacturers and other national and international groups. In addition, he is a former member of the National Research Council's Commission on Geosciences, Environment and Resources. Dr. Atkins is a registered professional engineer in the states of Texas and Pennsylvania and is an adjunct professor at the University of Pittsburgh Graduate School of Public Health, teaching industrial waste treatment technology. Dr. Atkins received a bachelor's degree in civil engineering from the university of Kentucky in 1964 and master of science in environmental engineering from Stanford University a year later. He also earned a doctor of philosophy degree in 1968 from Stanford specializing in environmental engineering.

JOHN CARBERRY recently retired from the position of the Director of Environmental Technology for the DuPont Company in Wilmington, Delaware. He was responsible for recommendations on technical programs for DuPont based on an analysis of environmental issues. He led this technology function in a transition to increasingly emphasize waste prevention and product stewardship while maintaining excellence in treatment. Externally, Mr. Carberry is a past Chair of the standing National Academy Committee on the Destruction of the Non-Stockpile Chemical Weapons, a founding member of the Green Power Market Development Group and of the Vision2020 Steering Committee, and a member of the NAE Committees on; Technologies for Sequestering CO2, and Metrics for Documenting Progress in Global Change Research. Since 1990, John has served on four other National Academy Committees and has presented 30 lectures on environmental issues at 18 universities, given invited presentations at 63 public conferences worldwide and provided 21 literature interviews, or contributions. He holds a B.ChE. and an M.E. in Chemical Engineering from Cornell University and an MBA from the University of Delaware.

PETER CIBOROWSKI directs the climate change unit of the Minnesota Pollution Control Agency (MPCA) responsible for greenhouse gas (GHG) emission and sink tracking and forecasting, GHG analysis and assessment and rule writing. He has served on the steering committees and working groups of the University of Minnesota's Terrestrial Carbon Sequestration Initiative, Sustainable Transportation Initiative, and adaptation initiative. He represented the Midwest in the discussions leading to the design of the The Climate Registry (TCR) and has served on the TCR General Reporting Protocol working group, the TCR Mandatory Reporting Committee, and working groups developing reporting protocols for the electric power sector and local governments. The TCR is a 42-state effort to develop a uniform

national reporting system for GHGs. He served on the Midwest Registry committee and the USEPA Emission Inventory Improvement Program for GHGs and was an invited presenter to the White House Task Force on Climate Change under the Clinton Administration. He directs the work of MPCA staff on the model rule and reporting and standards committees of the Midwest Accord, the six-state Midwest effort to develop a cap-and-trade program for GHGs. He is author of the Minnesota Climate Action Plan and, just recently, the 2009 MPCA report on "Minnesota GHG Emissions, 1970-2006: Update and Progress Report." He developed the analysis for Minnesota's GHG externality value for energy planning and Minnesota's environmental disclosure reporting, as well as the analysis of statewide GHG emissions used for the Minnesota Climate Change Advisory Group (MCCAG), the Governor's 2007-2008 GHG task force. He sat on the MCCAG emission inventory, energy supply and cross-cutting committees. Recent projects include: the MPCA guidance incorporation of GHGs into state environmental review and permitting processes and the MPCA solid waste stakeholder process for reducing GHG emissions. He holds a masters degree in Public Affairs from the University of Minnesota.

ELISABETH A. GRAFFY has worked on national, state, and international sustainability policies and programs for more than twenty years, and as policy advisor and economist with the U.S. Geological Survey for the last decade. She most recently served as the Department of the Interior's Coordinator for Environmental Indicators and representative on the interdepartmental team that designed the national environmental indicators initiative, announced by the White House in 2008. She participates in the federal interagency effort to develop sustainability indicators for biofuels and is collaborating with partners in state and federal agencies, universities and non-governmental organizations to explore frameworks for addressing energy and other cross-cutting issues, with particular attention to the special challenges of bridging research and policy development. During her tenure with the U.S. Congress Office of Technology Assessment, Dr. Graffy co-authored two major policy assessments on agriculture, environment, and trade. While at USGS, she has authored, edited, or overseen numerous publications on related themes and developed new conceptual models related to the intersection of science and policy. Her papers and public presentations appear in many forums, including conference proceedings and journals such as Society and Natural Resources, the International Journal of Global Environmental Issues, and Public Administration Review. She holds an A.B. in Politics from Princeton University, an M.S. in Agricultural Economics from the University of Wisconsin-Madison, and a Ph.D. in Policy from the Gaylord Nelson Institute for Environmental Studies at the University of Wisconsin-Madison.

NATHANAEL GREENE is a Senior Policy Analyst of the Natural Resources Defense Council. Greene received his Bachelor of Arts Degree in Public Policy from Brown University and a Master of Science Degree in Energy and Resources from University of California Berkeley. He joined NRDC in 1992 and worked two years before getting his master's degree and returned to NRDC in 1996 and working there since. He is a senior policy analyst and is responsible for working on energy policy and related issues including utility restructuring, energy taxes, energy efficiency, renewables, and low-income services. He has particular expertise in clean energy technologies including wind, solar and biomass energy, fuel cells, combined heat and power and energy efficiency and in regulations and policies to promote these technologies. For the last few years he has been focusing on assessing the sustainable potential for biofuels and developing policies to advance them.

JASON HILL is a Research Associate in the Department of Applied Economics and the Department of Ecology, Evolution, and Behavior at the University of Minnesota. His research interests include the technological, environmental, economic, and social aspects of sustainable bioenergy production from current and next-generation feedstocks. His work on the life cycle

impacts of transportation biofuels has been published in the journals Science and the Proceedings of the National Academy of Sciences. He is currently focusing on the effects that the expanding global biofuels industry is having on climate change, land use, biodiversity, and human health. Dr. Hill has testified before U.S. Senate committees on the use of diverse prairie biomass for biofuel production and on the greenhouse gas implications of ethanol and biodiesel. He has also performed independent analysis for the National Renewable Energy Laboratory, the National Research Council, and the U.S. Environmental Protection Agency. Dr. Hill received his A.B. in biology from Harvard College and his Ph.D. in plant biological sciences from the University of Minnesota.

TRACEY HOLLOWAY is the Director of the Center for Sustainability and the Global Environment (SAGE), a cross-disciplinary research center based in the Nelson Institute for Environmental Studies at the University of Wisconsin--Madison. Holloway's research examines air pollution chemistry and transport at regional and global scales, including links between air quality and climate, energy, land use, health, and public policy. As an assistant professor in the Nelson Institute, Holloway teaches graduate and undergraduate courses on environmental modeling, air resource management, and atmospheric chemistry, and she has affiliate appointments in Atmospheric and Oceanic Sciences (AOS), Civil and Environmental Engineering (CEE), and the La Follette School of Public Policy. Holloway earned her Ph.D. in AOS from Princeton University in 2001, and completed a certificate in Science, Technology, and Environmental Policy from the Woodrow Wilson School of Public and International Affairs. Her undergraduate degree (Sc.B.) is from Brown University in Applied Mathematics, and her post-doctoral work was done at Columbia University's Earth Institute.

JOHN A. MIRANOWSKI is a Professor in the Department of Economics at Iowa State University. He served as chair of the department from 1995 to 2000. Dr. Miranowski has expertise in soil conservation, natural-resource management, water quality, land management, energy, global change, and agricultural research decision making. He has previously served as director of the Resources and Technology Division of the U.S. Department of Agriculture Economic Research Service (1984–1994); executive coordinator of the secretary of agriculture's Policy Coordination Council and special assistant to the deputy secretary of agriculture (1990–1991); and Gilbert F. White fellow at Resources for the Future (1981–1982). Dr. Miranowski headed the US delegation to the Organization for Economic Cooperation and Development Joint Working Party on Agriculture and the Environment (1993–1995). He has served as a member of the Ad Hoc Working Group on Risk Assessment of Federal Coordinating Committee on Science, Education, and Technology (1990–1992); director of the Executive Board of the Association of Environmental and Resource Economists (1989–1992); and director of the Executive Board of the American Agricultural Economics Association (1987–1990). Dr. Miranowski is currently serving on the Alternative Liquid Transportation Fules Committee of the National Research Council's America's Energy Future Study. He served as a member of the National Research Council Committee on Impact of Emerging Agricultural Trends on Fish and Wildlife Habitat. He received a B.S. degree in agricultural business from Iowa State University and M.A. and Ph.D. degrees in economics from Harvard University.

MARCIA PATTON-MALLORY is a loaned executive from the US Forest Service/ She works closely with the Western Forestry Leadership Coalition to help accomplish their strategic goals related to biomass utilization, bioenergy, and climate change. She also is a member of the Forest Service's Climate Change Strategy team working on mitigation, and participates with regional and national climate change initiatives in relation to forestry and bioeneryg. Previously, Marcia coordinated the woody biomass efforts of the USDA Forest Service across programs and provided executive liaison and coordination between the USDA Forest Service and other Federal

Agencies, State organizations and private interests. She has twenty-five years of Forest Service experience as: Station Director of the Rocky Mountain Research Station, Fort Collins, CO; Staff Specialist in Forest Products and Harvesting Research, Washington, DC; and Research Engineer, Forest Products Laboratory, Madison, WI. Additional relevant experience includes Science and Technology Fellow in the U.S. Senate working on energy and natural resources issues, and internships with Weyerhaeuser Company, Tacoma, WA.

GARY RADLOFF is the Director of Policy and Strategic Communications at the Wisconsin Department of Agriculture, Trade and Consumer Protection shaping department-wide policy initiatives and communication plans. He is staff liaison to the North Central Bioeconomy Consortium (NCBC), a 12-state partnership of Agriculture departments, University Extension offices and Agriculture Research Stations. Radloff serves on the Steering Committee for the Midwest Agriculture Energy Network (MAEN), a regional policy incubator. He is on the Advisory Committee to the Wisconsin Initiative on Climate Change Impacts (WICCI), researching and providing outreach on climate change adaptation policy and practices. Recent projects in promoting renewable energy policy and climate stewardship include advising the Agriculture and Forestry Work Group of the Governor's Task Force on Global Warming. He also assisted with policy planning and platform development for the Midwest Governor's Association, Energy Security and Climate Stewardship held in November 2007. Previously, he served as a policy staff and co-author of final reports for two major Wisconsin projects; Governor (Jim Doyle's) Consortium on the Biobased Industry and the Working Lands Initiative. The Governor's Consortium is a roadmap for positioning Wisconsin to play a key role in promoting the use of renewable energy and growing the state's bioeconomy. The Working Lands Initiative is a report of detailed policy steps and strategies to protect the source of food and fiber, paper and pulp, and biomass - the Wisconsin working lands in agriculture and forestry. He is a grant reviewer with the Environmental and Economic Research and Development Program with the Focus on Energy Program, Public Service Commission, and a member of the Universal Service Council of the Public Service Commission. He has a Master’s Degree in Public Administration and Public Policy.

BRUCE D. RODAN is a Senior Policy Advisor-Environment in the White House Office of Science and Technology Policy (OSTP). Dr. Rodan serves as OSTP liaison to the Ecosystems and the Toxics and Risk Subcommittees of the NSTC Committee on Environment and Natural Resources (CENR). Dr. Rodan is a medical doctor (U. Melb) with Masters Degrees in Environmental Studies (U. Melb) and Public Health (Harvard). His work has included environmental risk analyses for toxic chemicals under the U.S. EPA Integrated Risk Information System (IRIS), negotiating the Stockholm Convention on Persistent Organic Pollutants (POPs), and research on neotropical timber species under the CITES Treaty.