

**HEI Research Planning Workshop**  
**Understanding Population-Level Exposures Associated with the**  
**Onshore Development of Oil and Natural Gas from Unconventional Resources**

Austin, Texas  
September 12-13, 2018

**SPEAKER BIOGRAPHIES**

**Megan E. Garvey**

Megan Garvey was appointed to her role as Senior Counselor to EPA's Region 8 Administrator in July of this year. Megan's focus is on Region 8 energy matters, NEPA and Environmental Justice. She also works closely with the Agricultural and Tribal Advisors of the Region. Before coming to EPA, Megan managed regulatory policy for an upstream oil and gas company and volunteered her time as a Commissioner on the Colorado Air Quality Control Commission. Previously, Megan worked for the State of Colorado: as an Assistant Attorney General at the Colorado Attorney General's Office (Air Quality Unit) and as the Compliance Unit Manager for the Air Pollution Control Division of Colorado's Department of Public Health and Environment. Megan started out her career practicing environmental law at a private law firm in Chicago, IL. Megan holds a B.S. in Environmental Studies from Loyola University Chicago and a J.D. from Chicago-Kent College of Law. Megan resides in Morrison, Colorado with her husband and two young sons.

**John Grant**

John Grant is a Managing Consultant at Ramboll where he has worked for 15 years developing emission inventory and emission control program analyses. He has developed dozens of region and project level oil and gas emission inventories and contributed to state of the science reports on oil and gas emission inventory methods and impacts. He also has extensive experience analyzing emission inventories to understand environmental tradeoffs associated with technological advancements such as vehicle and equipment electrification and adoption of emission control programs.

**Michael Honeycutt, PhD**

Michael Honeycutt is the director of the Toxicology Division of the Texas Commission on Environmental Quality (TCEQ). His career at TCEQ began in 1996, and he has managed the division of 14 toxicologists since 2003. His responsibilities include overseeing (1) health effects reviews of air permit applications, (2) review of the results of ambient air monitoring projects, and (3) reviews of human health risk assessments for hazardous waste sites. Dr. Honeycutt spearheaded the updating of TCEQ's Effects Screening Levels (ESLs), or toxicity factors for chemicals. The TCEQ ESL derivation procedure has undergone two independent external scientific peer reviews and multiple rounds of public comment (<http://www.tceq.texas.gov/toxicology/esl/guidelines/about.html>). Dr. Honeycutt serves as a technical resource for TCEQ management and staff on issues concerning air and water quality, drinking water contamination, and soil contamination. He also serves as an expert witness in public and state legislative hearings, participates in public meetings, and has conducted hundreds of media interviews. Dr. Honeycutt is an adjunct professor at Texas A&M University, has published numerous articles in the peer-reviewed literature, serves or has served on numerous external committees, and has provided invited testimony at Congressional hearings. He was recently appointed chairman of USEPA's Science Advisory Board. Dr. Honeycutt received his Bachelor's degree and Ph.D. in Toxicology from the University of Louisiana at Monroe.

**George Hornberger**

(See separate compilation of biographies for HEI's Energy Research Committee)

**Rebecca Hornbrook**

Rebecca Hornbrook is a Project Scientist in the VOC Measurement Group in the Atmospheric Chemistry Observations & Modeling laboratory (ACOM) at the National Center for Atmospheric Research (NCAR) in Boulder, Colorado. Her research interests center on the atmospheric emissions and fate of volatile organic compounds (VOCs), both natural and anthropogenic. Dr. Hornbrook received her Ph.D. working with Dr. Jochen Rudolph at York University in Toronto, Canada in 2005, and has over 20 years of experience in the measurement and analysis of gas-phase VOCs. She has been involved in laboratory studies of processes involved in tropospheric oxidation of VOCs, including work she led developing the methodology for measuring stable carbon kinetic isotope effects in the reactions of non-methane hydrocarbons with OH radicals and Cl atoms. She also spent several years measuring hydroperoxy and organic peroxy radicals (HO<sub>2</sub> and RO<sub>2</sub>) using Chemical Ionization Mass Spectrometry (CIMS), studying photochemical processes involved in VOC oxidation. In recent years at NCAR, Dr. Hornbrook has participated in the development and deployment of state-of-the-art instrumentation to measure VOCs in the atmosphere, contributing significantly to the measurement capabilities of the Trace Organic Gas Analyzer (TOGA), a fast online gas chromatograph-mass spectrometer, both in its measurement frequency and growing suite of quantified VOCs. As a member of the TOGA team, she has participated in a large number of NSF and NASA-funded field campaigns, both airborne and ground-based, including OASIS, BEACHON-ROCS, TORERO, DC3, NOMADSS, CONTRAST, FRAPPÉ, WINTER, ORCAS, and most recently, ATom and WE-CAN.

**James C. Kenney**

James Kenney is the Senior Policy Advisor for Unconventional Oil and Natural Gas at the United States Environmental Protection Agency. In this capacity, Jim coordinates unconventional oil and natural gas activities for the Office of the Administrator across EPA's program and regional offices. Externally, Jim works with oil and natural gas stakeholders on regulatory and policy matters to ensure responsible oil and natural gas development. Such stakeholders include: industry, trade associations, federal and state agencies, tribes, environmental non-governmental organizations (eNGOs) and the public. Within EPA, Jim's career has spanned multiple offices around the U.S., including: Denver, Colorado; Philadelphia, PA; and Washington, DC, helping him bring both a national and local perspective to his current work. Jim earned a Master of Science in Engineering and Bachelor of Science in Engineering Technology from Temple University in Philadelphia, PA. While he is an EPA Headquarters employee, Jim teleworks from Albuquerque, New Mexico where he and his family reside.

**Kate Konschnik**

Kate Konschnik directs the Climate & Energy Program at the Nicholas Institute for Environmental Policy Solutions at Duke University and is a Senior Lecturing Fellow at Duke Law School. Konschnik's work focuses on options for public electric utility regulation and electricity market reforms given emerging technologies and de-carbonization goals. Konschnik has also worked extensively on effective governance of unconventional oil and gas production and transport. Konschnik joined Duke from Harvard Law School, where she founded and directed the Harvard Environmental Policy Initiative and taught as a Lecturer on Law. Previously, Konschnik was Chief Environmental Counsel to U.S. Senator Sheldon Whitehouse, and an Environmental Enforcement Trial Attorney at the U.S. Department of Justice.

**Alan Krupnick**

Alan Krupnick is a Senior Fellow at Resources for the Future. 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 abroad. He leads RFF's research on the risks, regulation and

economics associated with shale gas development and has developed a portfolio of research on issues surrounding this newly plentiful fuel. Krupnick also served as senior economist on the President's Council of Economic Advisers, advising the Clinton administration on environmental and natural resource policy issues. In 2011 he was elected President of the Association of Environmental and Resource Economists and earlier that year was named an AERE Fellow.

He has served on the Editorial Boards of a number of journals. He co-chaired a federal advisory committee counseling the U.S. Environmental Protection Agency on the implementation of new ozone and particulate standards. He is a regular member of expert committees from the National Academy of Sciences, the USEPA and various Canadian government and non-governmental institutions. Krupnick also consults with state governments, federal agencies, private corporations, the Canadian government, the European Union, the Asian Development Bank, the World Health Organization, and the World Bank. He received his PhD in Economics from the University of Maryland in 1980.

His primary research methodology is in the development and analysis of stated preference surveys (such as contingent valuation and choice experiments), which include eliciting preferences for reductions in mortality risks, environmental risks, tradeoffs involved in improving community drinking water quality with respect to removal of carcinogens versus microbiological agents, and most recently, the risks from shale gas development as seen by experts and the general public.

#### **Tami McMullin**

Tami McMullin currently serves as Colorado's state toxicologist, where she also manages the Oil and Gas Health information and Response Program at the Department of Public Health and Environment (CDPHE). She leads research on community health exposures and technical evaluation of the literature on the public health effects potentially associated with oil and gas exposures. Prior to joining CDPHE, Tami worked as a toxicologist and risk assessor in the chemical industry for over a decade where she conducted regulatory testing and safety assessments. Dr. McMullin earned her Bachelor's degree in biology at the University of California San Diego and her Doctoral degree in Environmental Health and Toxicology from Colorado State University.

#### **Charles Thomas (Tom) Moore, Jr.**

Tom Moore works for the Western States Air Resources (WESTAR) Council as manager of the Western Regional Air Partnership (WRAP) air quality program, a voluntary partnership of states, tribes, federal land managers, local air agencies and the U.S. EPA, whose purpose is to understand current and evolving regional air quality issues in the context of the Clean Air Act (CAA) and the National Environmental Policy Act (NEPA). His regional analysis and planning support work is conducted through management of a series of interrelated contractor-supported regional projects for the WESTAR and WRAP membership. These diverse and complex projects cover ambient monitoring data analysis, emissions inventory preparation and analysis, regional photochemical grid modeling and source apportionment results, and satellite air quality data. He has worked extensively with both the activity and emissions estimation techniques for electrical generating units, wildland and agricultural fire emissions, oil & gas exploration and production emissions, and ozone and regional haze analysis needs and planning requirements, in support of air quality management programs across the West. A principal emphasis of his work from 2002 to the present is support of Regional Haze planning for the more than 100 Class I areas in the WESTAR-WRAP region. Key western U.S. air quality expertise includes oil & gas production emissions, wildland fire emissions and impacts, regional haze sources and transport, and impacts on the Ozone National Ambient Air Quality Standards from various sources and scales. He has a B.S. in Physical Geography from Arizona State University in Tempe, with an emphasis on meteorological and glacier field studies, and climate data analysis projects, as well as additional graduate coursework related to air pollution and climate. He has lead numerous air pollution monitoring studies

and analysis projects, held management positions in state and local government, and worked as an environmental consultant. Before re-joining the WESTAR staff in 2013, he worked for the Western Governors' Association from 2002-13 coordinating and managing WRAP activities. From 1990 to 2001, he designed and managed air quality monitoring and data analysis activities for the Arizona Department of Environmental Quality, where he led the development and implementation of the haze monitoring networks in both urban and remote areas throughout the state. Tom also worked previously for the WESTAR from 1994-96 on an inter-agency personnel assignment, leading a WESTAR project to advise EPA on western U.S. topics and issues with implementation of the national Particulate Matter health and welfare standards.

### **Robert O'Keefe**

Robert O'Keefe is responsible for management of key programs at HEI, including the Institute's global program to assess the health effects of air pollution in developing countries. He also provides leadership in implementing HEI's ongoing research and review programs on the health impact of particulates, ozone air toxics and other pollutants, and emerging technologies and fuels, including those driven by climate concerns. He oversaw the Institute's efforts to define and implement a program of research on Accountability, a first-of-its-kind program designed to understand the health impacts of environmental regulation. He is regularly called on to address prominent institutions, including the U.S. Congress, the European Parliament, the National Academy of Science's National Research Council and Institute of Medicine, and many other domestic and international bodies. In 2009 he was invited by the Woodrow Wilson Center to address its congressional forum as a "Scholar on the Hill." He is currently a member of the U.S. EPA's national Clean Air Act Advisory Committee and is Chair of the Board of Directors of Clean Air Asia. Before coming to HEI he served for nine years at the Massachusetts Department of Environmental Protection, as Assistant Deputy Commissioner for Policy and Program Development and as Director of Planning and Budget. Mr. O'Keefe played a significant role in gaining passage and funding for major state programs, including the Massachusetts State Superfund law, the Safe Drinking Water Program, and the design and funding of Massachusetts' implementation of the 1990 Clean Air Act amendments.

### **Kelly Rose**

Kelly Rose is a geo-data science researcher with the National Energy Technology Laboratory's (NETL) Research Innovation Center. Her research at NETL is focused on using geologic and geospatial science to reduce uncertainty about, characterize and understand spatial relationships between energy, engineered-natural systems at a range of scales. Her work involves development of new data-driven methods and tools for analysis of offshore energy, oil & gas, rare earth element, groundwater, carbon storage, and geothermal systems. Rose's research interests also include development of software driven solutions to common science-data curation, discovery and inter-operability challenges. She has served on advisory committees including the Department of Interior's National Geologic and Geophysical Data Preservation Program, United Nations Environmental Programme's global outlook on methane gas hydrates, and the University of Southern California's Induced Seismicity and Reservoir Monitoring Consortiums. She is associate editor for the Journal of Sustainable Energy Engineering and is also NETL's Technical Portfolio Lead for the Advanced Offshore Energy Research Portfolio <https://edx.netl.doe.gov/offshore>. Rose is Principal investigator for NETL's Energy Data eXchange (EDX), an online, public and private research curation and virtual laboratory platform developed by Rose and the EDX team for DOE FE, <https://edx.netl.doe.gov>. Rose is co-author of 1 patented, 1 trademarked, 1 copyrighted, 10 custom tools, and more than 100 published technologies and studies. Throughout her career at NETL, Rose has had the honor of mentoring and working with more than forty-five STEM research interns and fellows. She holds geology degrees from Denison University, B.S., Virginia Tech, M.S., and Oregon State University, Ph.D.

**Anna Rosofsky**

Anna Rosofsky is a Staff Scientist at HEI with expertise in environmental and spatial epidemiology. Rosofsky joined HEI in 2017 as part of the Energy Research Program. In this role, Rosofsky supports technical work within and implementation of the Strategic Scientific Research Agenda to understand potential human exposure and health impacts from unconventional oil and gas development. Rosofsky recently received a Ph.D. in Environmental Health from Boston University School of Public Health, where she studied spatiotemporal patterns of ambient air pollution exposure and early-childhood health impacts. Prior to her doctoral studies, Rosofsky investigated environmental health disparities at the Center for Puerto Rican Studies and at the Mosakowski Institute for Public Enterprise. She received an M.A. in Environmental Science and Policy from Clark University.

**Martha E. Rudolph**

Martha Rudolph is the Director of Environmental Programs for the Colorado Department of Public Health and Environment where she oversees the Air Quality, Environmental Health and Sustainability, Hazardous Materials and Waste Management, and Water Quality Divisions. Ms. Rudolph has been with the Department since 2007 and served as the Executive Director of the Department in 2010. In 2015/2016, Ms. Rudolph was President of the Environmental Council of States, the national non-profit, non-partisan association of state and territorial environmental agency leaders. She currently serves on the Board of Directors for the Environmental Research Institute of the States and is a co-chair of the ECOS Shale Gas Caucus. Previously Ms. Rudolph was the Chair of the ECOS Air Committee and the Vice Chair of the ECOS Planning Committee. She is a member of the Division on Earth and Life Studies of The National Academies of Sciences, Engineering, and Medicine, a state advisor for the Georgetown Climate Center, and a member of the American College of Environmental Lawyers. A graduate of the Georgetown University Law Center, Ms. Rudolph is an environmental attorney, and served for 14 years in the Colorado Attorney General's Office. She has been in private practice in Denver, and was an assistant general counsel for Kinder Morgan Inc., a natural gas and energy transportation company. Ms. Rudolph received her BA in International Affairs from the University of Colorado-Boulder and Doctor of Law degree from the Georgetown University Law Center.

**Saba Tahmassebi**

Saba Tahmassebi is the Agency Chief Engineer for the Oklahoma Department of Environmental Quality. For the past 25 years he has been involved in several environmental programs at DEQ. He earned his Ph.D. in engineering from University of Oklahoma, an MS in petroleum engineering from University of Southern California and a BS in chemical engineering from University of California, San Diego. He is also a university faculty member teaching engineering, environmental science and statistics courses. Saba promotes the protection of the environment and people's health through the sound application of scientific and engineering principles, adherence to environmental laws and regulations, and common-sense problem solving.

**Scott Thompson**

Scott Thompson has served as the executive director of the Oklahoma Department of Environmental Quality since December 2013. In that role, Thompson has implemented new approaches to environmental permitting and enforcement in Oklahoma with the goal of helping make the state more prosperous and economically viable. Prior to becoming executive director, Thompson led DEQ's Land Protection Division, where he managed a diverse set of programs, including Superfund, Brownfields, Voluntary Cleanup, and Radiation Management. Thompson has a biology degree from Central State University. He also has a master's degree in environmental science from the University of Oklahoma.

**Donna J. Vorhees**

Donna Vorhees directs the Energy Research Program at HEI. She is leading an effort to implement a

Strategic Scientific Research Agenda designed to understand potential human exposures and health effects from unconventional oil and gas development and how they might be prevented or minimized. Vorhees has 25 years of consulting experience, assessing multi-pathway chemical exposures in indoor and outdoor environments, quantifying human health risks, and communicating risks to affected communities in the United States on behalf of government and private clients and internationally on behalf of the United Nations Environment Program. She serves on the U.S. EPA Board of Scientific Counselors Subcommittee on Chemical Safety for Sustainability and previously served on National Research Council committees (Health Risks of Phthalates and Sediment Dredging at Superfund Megasites), other advisory committees, and peer review panels for numerous health risk assessments prepared by the U.S. EPA, the Consumer Product Safety Commission, and Health Canada. She is Adjunct Assistant Professor at the Boston University School of Public Health where she teaches Risk Assessment Methods. Vorhees received her ScM and ScD in Environmental Health from the Harvard School of Public Health.

### **Tao Wen**

Tao Wen received his PhD in Geology from the University of Michigan in 2017 and is currently a Postdoctoral Scholar in the Earth and Environmental Systems Institute at Penn State University. He completed his B.S. degree in Environmental Sciences at the University of Science and Technology of China in 2011. He has extensively worked on characterizing the formation and migration of natural gas (conventional and unconventional) and has assessed the environmental impacts of hydrocarbon recovery activities on water quality across a few major shale plays (i.e., Antrim Shale, Barnett Shale, and Marcellus Shale) in the U.S. During his research, Tao has blended field geology, state-of-the-art geochemical analyses, as well as emerging data mining (big data) tools in his research. More details about Tao Wen can be found at <http://jaywen.com/>.

### **Clint Woods**

Clint Woods serves as Deputy Assistant Administrator in U.S. EPA's Office of Air and Radiation. Prior to joining EPA in December 2017, Clint was the Executive Director of the Association of Air Pollution Control Agencies (AAPCA), a non-profit organization of state and local air quality agencies located in Lexington, Kentucky. While with AAPCA, he was also a member of U.S. EPA's National Advisory Council on Environmental Policy and Technology. Clint previously served as a professional staff member with the Committee on Science, Space, and Technology in the U.S. House of Representatives, the Energy, Environment, and Agriculture Task Force at the American Legislative Exchange Council, and Manager of Government Affairs with the Recreation Vehicle Industry Association. He holds an MA in international commerce and policy from George Mason University and a BA from the University of Mary Washington.