The National Academies of
SCIENCES · ENGINEERING · MEDICINE

Deployment of Deep Decarbonization Technologies Workshop
Planning Committee Member Biographies
2019

Chair

Kelly Sims Gallagher is professor of Energy and Environmental Policy and directs the Center for International Environment and Resource Policy at The Fletcher School, Tufts University. From June 2014-September 2015 she served in the Obama Administration as a Senior Policy Advisor in the White House Office of Science and Technology Policy, and as Senior China Advisor in the Special Envoy for Climate Change office at the U.S. State Department. Dr. Sims Gallagher is a member of the board of the Belfer Center for Science and International Affairs at Harvard University, where she previously directed the Energy Technology Innovation Policy (ETIP) research group. She is also a faculty affiliate with the Harvard University Center for Environment. Broadly, she focuses on energy and climate policy in both the United States and China. She specializes in the role of policy in spurring the development and deployment of cleaner and more efficient energy technologies, domestically and internationally. A Truman Scholar, she has a MALD and Ph.D. in international affairs from The Fletcher School, and an AB from Occidental College. She speaks Spanish and basic Mandarin Chinese, and is a member of the Council on Foreign Relations. She is the author of China Shifts Gears: Automakers, Oil, Pollution, and Development (The MIT Press 2006), editor of Acting in Time on Energy Policy (Brookings Institution Press 2009), The Global Diffusion of Clean Energy Technologies: Lessons from China (MIT Press 2014), and numerous academic articles and policy reports.

Members

Ashley Allen is the Senior Manager, Climate and Land at Mars Corporation where she works to advance sustainable development around the world through the Sustainable in a Generation Plan. She leads efforts to take action on climate change to achieve Mars' goal to cut the company's carbon footprint two-thirds across its full value chain by 2050. Previously, she worked at the U.S. State Department where she led a team that implemented the Low Emission Development Strategies Partnership to help developing countries around the world develop low carbon solutions for economic growth. Prior to that position, Allen was Acting Division Chief and Climate Change Specialist at USAID where she led climate change programs, the evaluation and learning team and provided technical training, guidance and oversight for USAID's $350 million per year Global Climate Change Initiative.

Leon Clarke is currently a Senior Scientist and leads the Integrated Modeling and Energy Group at the Joint Global Change Research Institute (JGCRI), a collaboration between the University of Maryland and the Pacific Northwest National Laboratory (PNNL). He is an expert in the cross-disciplinary analysis of issues relating to energy, technology, policy, and climate change. Dr. Clarke's current activities focus on the evolution of national and international energy and agricultural systems, energy technology deployment and technological advance, scenario analysis, international climate policy, and integrated assessment of climate impacts. Dr. Clarke has served in a range of national and international leadership roles, including coordinating lead author for the Intergovernmental Panel on Climate Change (IPCC), member of the National Academy Study on America's Climate Choices, and coordinator of several multi-institution studies exploring energy, technology, policy, and climate change. Prior to joining PNNL, Dr. Clarke worked as a decision scientist at Lawrence Livermore National Laboratory, evaluated utility demand-side management programs at Pacific Gas & Electric Company, and worked in energy consulting. Dr. Clarke holds Ph.D. and M.S. degrees in Engineering Economic Systems and Operations Research from Stanford University and B.S. and M.S. degrees in Mechanical Engineering from U.C. Berkeley.
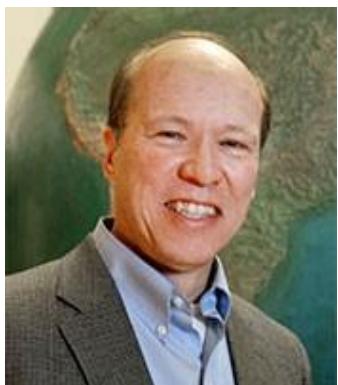
Eric D. Larson is senior research engineer in the Energy Systems Analysis Group at Adlinger Center for Energy and the Environment, Princeton University. Dr. Larson's interests include engineering, economic, and policy-related assessments of advanced clean-energy systems, especially for electric power and transport fuels production from carbonaceous fuels (biomass, coal, and/or natural gas) and for efficient end use of energy. His work addresses technologies of relevance to developed and developing countries. Larson maintains long-term collaborations on energy and sustainability with colleagues in China (Tsinghua University and the North China Electric Power University) and in Australia (University of Queensland). He has also participated in collaborative research efforts with colleagues across the United States and in Brazil, Cuba, India, Italy, Jamaica, Sweden, and elsewhere. He is currently collaborating with ecologists at the University of Minnesota and soil scientists at Colorado State University to better understand the potential of alternative biomass resource/conversion options to sustainably deliver negative carbon emission transportation in the US by mid-century. Larson was part of the Princeton team that contributed extensive analysis to the National Research Council report, America's Energy Future: Technology and Transformation (2009). He was also the Co-Convening Lead Author of the Fossil Energy chapter of The Global Energy Assessment (2012) and a Lead Author (bioenergy) of the Renewable Energy chapter. Past research efforts have included ones focused on analysis of technology systems for modernizing renewable-biomass as an energy source, including advanced gasification-based technologies for power generation and for production of transportation fuels. These efforts have included assessments of potential gas-turbine based biomass electricity supply and use in sugarcane industries, in pulp and paper industries, and in stand-alone electric power generation. Recent work has focused on analysis of fossil fuel/biomass co-processing systems with CO2 capture and storage, for co-production of

clean transportation fuels and electricity. Larson supervises student research and occasionally teaches courses in the engineering school at Princeton. Since 2008, he has also held an appointment as a Senior Scientist with Climate Central, a nonprofit, non-partisan science and media organization created to provide clear and objective science-based information to diverse audiences about climate change and its potential solutions. He holds a PhD and MSE in mechanical engineering from University of Minnesota.

Clark A. Miller is Professor and Director of the Center for Energy & Society at Arizona State University. He leads sustainability research for the Quantum Energy and Sustainable Solar Technologies Engineering Research Center. He also serves as Associate Director for Faculty for ASU's School for the Future of Innovation in Society and as a member of the steering committee of LightWorks, ASU's university-wide sustainable energy initiative. Dr. Miller's current research focuses on the human and social dimensions of energy transitions, including the social value of distributed renewable energy systems; strategies for addressing poverty and inequality through energy innovation; the organization of urban and regional energy transitions; and the design and governance of solar energy futures. He is an author or editor of eight books, including The Weight of Light (2019), Designing Knowledge (2018), The Handbook of Science & Technology Studies (2016), The Practices of Global Ethics (2015), Science and Democracy (2015), Nanotechnology, the Brain, and the Future (2013), Arizona's Energy Future (2011), and Changing the Atmosphere (2001). He has published extensively in the fields of energy policy, science and technology policy, the role of science in democratic governance and international relations, the governance of emerging technologies, and the design of knowledge systems for improved decision-making. He holds a PhD in electrical engineering from Cornell University.

José G. Santiesteban (NAE) is currently Strategy Manager at ExxonMobil Research and Engineering Company. During his approximately 30-year career at ExxonMobil, Dr. Santiesteban has served in a number of technical leadership and management assignments and is currently the Strategy Manager for ExxonMobil Research and Engineering. His current responsibilities include overall coordination of strategy and competitive intelligence, research guidance and valuation, and ensuring robustness of R&D portfolio. José joined Mobil's Central Research Laboratory (CRL) in Princeton, NJ in 1989 after receiving his Ph.D. in Physical Chemistry from Lehigh University. He holds a B.S. Chemical Engineering, from Instituto Tecnológico de Chihuahua, México (1979, summa cum laude), a M.S. in Chemical Engineering from Instituto Tecnológico de Cd. Madero, México. Dr. Santiesteban has led and made significant technical contributions to the discovery, development and commercialization of various nano-engineered catalysts for the production of clean fuels, high performing lubricants and petrochemicals. He led the commercialization of more than 20 novel catalyst technologies that have been deployed worldwide within ExxonMobil and in 3rd parties' refineries and petrochemicals plants. He is inventor or co-inventor on more than 85 U.S. patents, editor of two special catalysis journals and

co-author of over 20 referenced publications. Dr. Santiesteban has been a plenary and invited speaker at numerous national and international conferences in catalysis, and has served on the advisory board of various academic and research institutions around the world. In 2016, he was elected to the National Academy of Engineering "for development and commercialization of catalytic systems for petrochemical manufacture and cleaner fuels production." In 2018, he was elected to The Academy of Medicine, Engineering and Science of Texas (TAMEST). Received the 2018 Innovator Award from The Society of Hispanic Professional Engineers (SHPE). In addition to his scientific and technical contributions, Dr. Santiesteban is a proactive mentor focused on developing the next generation of industrial researchers, engineers and technical leaders. He is a strong champion for junior researchers, particularly promoting diversity and women in science and engineering.