NATIONAL ACADEMIES Sciences Engineering Medicine

Government-University-Industry Research Roundtable
September 2022 Webinar

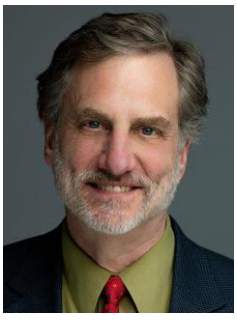
The Role of Engineering to Address Climate Change - A Report of the Engineering Research Visioning Alliance

Abstract

The Government-University-Industry Research Roundtable will convene a webinar to discuss a recent report on The Role of Engineering to Address Climate Change by the Engineering Research Visioning Alliance (ERVA). ERVA visioning events enable the engineering research community to identify opportunities and priorities for high-impact research that addresses global and societal change. This report focuses on specific research directions through which engineering can effectively be used to mitigate the impact of climate change.

The event's Thematic Task Force, comprised of academic, corporate, and non-profit experts, was responsible for the content planning. The co-chair of the Thematic Task Force, Bruce Logan, Director of the Institutes of Energy and the Environment at the Pennsylvania State University; and ERVA co-PI, Anthony Boccanfuso, President and CEO of University-Industry Demonstration Partnership, will present on the identified research priorities and key recommendations in the report, and will discuss the engineering research community's role in enabling convergent and inclusive climate solutions.

Speaker Bios



Bruce Logan, Ph.D.
Director, Institutes of Energy and the Environment (IEE)
Dept. Civil & Environmental Engineering, Penn State University

Professor Bruce E. Logan is an Evan Pugh University Professor in Engineering, the Stan & Flora Kappe Professor of Environmental Engineering, and Director of the Engineering Energy & Environmental Institute at Penn State University. His current research efforts are in renewable energy production and the development of an energy sustainable water infrastructure, with research topics that include bioelectricity generation using microbial fuel cells, water desalination, heat conversion to electricity using thermal batteries, and green hydrogen gas production using water electrolysis powered by renewable electricity and microbial electrochemical technologies fueled by waste biomass. Logan is also active in energy and climate education where he has written a new book on the subject that highlights daily energy use and carbon emissions spanning scales of individuals to global activities.

Logan is former member and a past chair of the National Science Foundation Advisory Committee on Environmental Research and Education (ACERE), and a former member of the NSF Engineering Advisory Committee. He has mentored over 140 graduate students and post docs and hosted over 40 international visitors to his laboratory. Logan is the author or co-author of several books and over 550 refereed publications (>98,500 citations, h-index=154; Google scholar), and the former founding editor of Environmental Science & Technology Letters. He a member of the US National Academy of Engineering (NAE) and the Chinese Academy of Engineering (CAE), and a fellow of the American Association for the Advancement of Science (AAAS), the International Water Association (IWA), the Water Environment Federation (WEF), and the Association of Environmental Engineering & Science Professors (AEESP). Logan is a visiting professor at several universities including Tsinghua University, Harbin Institute of Technology, Dalian University of Technology (China), and he has ties to several other universities in Saudi Arabia, the UK, and Belgium. He received his Ph.D. in 1986 from the University of California, Berkeley, and prior to joining Penn State in 1997 he was at the University of Arizona in Tucson.

Anthony M. Boccanfuso, Ph.D.
President and CEO, UIDP

Since 2007, Anthony M. Boccanfuso has led UIDP, a solutions-oriented membership organization comprised of top-tier innovation companies and world-class research universities. UIDP supports mutually beneficial collaborations by developing and disseminating strategies for addressing common issues between the sectors—academic, corporate and government. Its activities help members achieve meaningful impact on a broad array of collaboration matters, ranging from contracting to commercialization and workforce development.

After completing his doctorate in inorganic chemistry, Boccanfuso embarked on a career spanning more than 30 years with a focus on research and innovation. He managed a variety of administrative, programmatic, and strategy initiatives for academic, government, and private sector organizations, including the National Science Foundation, the National Institutes of Health, and PricewaterhouseCoopers.

More recently, Boccanfuso was part of a team selected to create and manage the Engineering Research Visioning Alliance (ERVA), an NSF-funded initiative with a mission to identify and develop new engineering research directions and catalyze high-impact research that benefits society. He also serves as a member of the 1890 Foundation Board Advisory Council.

Tony's wife, Dr. Laura Boccanfuso, is a successful roboticist and entrepreneur who founded Van Robotics, an ed tech company. They have three children and reside in Columbia, SC.