

## Industrial Technology Innovation Advisory Committee (ITIAC) Meeting – March 2024

### Presenter/Staff Bios

#### Dr. Zach Pritchard, Industrial Efficiency and Decarbonization Office

**Technology Manager, Cross-Sector Technologies & ITIAC Designated Federal Officer (DFO) (pending)**

Dr. Zach Pritchard is a Technology Manager with the U.S. Department of Energy's Industrial Efficiency and Decarbonization Office (IEDO), where he supports activities related to RD&D for cross-sector technologies. His portfolio includes projects focused on decarbonization of thermal processes. Zach was previously an American Association for the Advancement of Science (AAAS) Science and Technology Policy Fellow in IEDO and, prior to that, was an American Society of Mechanical Engineers (ASME) Congressional Science and Engineering Fellow serving the House Select Committee on the Climate Crisis, where he led efforts in the industrial sector portfolio.



Zach is a chemical engineer with a background in additive manufacturing, semiconductor fabrication, and clean energy policy. He received his B.S. from the Georgia Institute of Technology and his Ph.D. from the University of Michigan, where he developed theoretical and computational models to investigate light propagation, resin flow, and reaction kinetics in continuous vat photopolymerization. He also studied in the Science, Technology, and Public Policy program at the University of Michigan's Gerald R. Ford School of Public Policy, where he researched state-level renewable energy policies including renewable portfolio standards and wind farm taxation.

#### Dr. Avi Shultz, Industrial Efficiency and Decarbonization Office Director

Dr. Avi Shultz is the director of the U.S. Department of Energy (DOE) Industrial Efficiency and Decarbonization Office (IEDO). Dr. Shultz leads IEDO's strategy to accelerate the innovation and adoption of cost-effective technologies that eliminate industrial greenhouse gas emissions. Dr. Shultz also works with DOE leadership and interagency partners to position IEDO and the department for the greatest impact across America's industrial sector.

Previously, Dr. Shultz was the deputy director of IEDO. Prior to his tenure in IEDO, Dr. Shultz was the program manager for concentrating solar-thermal power for the DOE's Solar Energy Technologies Office. Dr. Shultz has been with DOE since 2013, where he started as a science and technology policy fellow, supporting the concentrating solar-thermal power program on a wide variety of topics.



Before joining DOE, Dr. Shultz was a post-doctoral fellow at the University of Amsterdam, after getting his bachelor and doctoral degrees in chemistry from Columbia University and Northwestern University, respectively.

## Dr. Carolyn Snyder, Office of Energy Efficiency and Renewable Energy

### Deputy Assistant Secretary for Buildings & Industry

Dr. Carolyn Snyder is the Deputy Assistant Secretary for Buildings and Industry at the U.S. Department of Energy. In this role, she leads offices that advance energy efficiency and reduce emissions from our nation's buildings and industry while supporting U.S. energy security and manufacturing competitiveness. She oversees over \$800 million annually for R&D across U.S. national laboratories, private industry, and universities, as well as comprehensive partnerships with energy sector leaders, other federal agencies, and state and local governments to demonstrate and deploy these technologies and support the transition to a clean energy economy.



Dr. Snyder oversees three offices. The Industrial Efficiency and Decarbonization Office accelerates the innovation and adoption of cost-effective technologies that eliminate industrial greenhouse gas emissions. The Building Technologies Office invests in high-impact solutions to equitably and rapidly scale decarbonization technologies across the buildings sector. The Advanced Materials and Manufacturing Technologies Office drives innovation in energy-related materials and manufacturing technologies to increase global competitiveness and support a clean, decarbonized economy.

Previously, Dr. Snyder served as the Director of U.S. EPA's Climate Protection Partnerships Division where she led voluntary partnerships with thousands of industrial, commercial, utility, state, and local organizations. She also served as a consultant at McKinsey & Company, a White House Fellow in the U.S. Office of Management and Budget, and Director of Delaware's Division of Energy & Climate. She earned a Ph.D. in Environment and Resources from Stanford University, Masters Degrees as a Marshall Scholar from Oxford and Cambridge, and a B.A. from Amherst College. Her scientific research has been published in *Nature*, *Paleoceanography*, and *Climatic Change*.

## Arpita Bhattacharyya, Loan Programs Office

### Senior Advisor and Chief Climate Officer

Arpita Bhattacharyya currently serves as the Chief Climate Officer at the Loan Programs Office of the U.S. Department of Energy (DOE). She works across the interagency to reduce barriers and enable clean energy deployment to meet the Biden Administration's priorities.

Ms. Bhattacharyya was most recently Chief of Staff in the Office of the Deputy Secretary. In addition to managing the Deputy Secretary's office and advising the budget, she was the lead for the Office of Science, ARPA-E, Sustainability, and the National Labs in the Secretary's office. Before DOE, she led strategic projects at Impossible Foods, working to bring low-emission food technology to market.



She previously worked at SunPower, developing commercial solar projects for Fortune 500 companies, and later leading the Channel Project Development and Finance team. Ms. Bhattacharyya has also worked closely with the U.S. and international governments on collaborative climate partnerships at the Center for American Progress.

Ms. Bhattacharyya holds an MBA from the Yale School of Management and a B.A. from Carleton College.

### **Christopher Davis, Office of the Secretary**

#### **Chief of Staff**

Christopher Davis is the Chief of Staff at the U.S. Department of Energy. Davis was previously a Senior Advisor to Secretary Jennifer Granholm. Davis served all eight years of the Obama Administration—first in the White House Office of Legislative Affairs and then in several senior roles at the Department of Energy. Prior to that, he worked for the U.S. House Committee on Oversight and Reform and the U.S. House Committee on Energy and Commerce. More recently, Davis worked with Co-Equal, a non-profit organization providing expertise and knowledge to Congress on oversight and legislation.



### **Joe Cresko, Industrial Efficiency and Decarbonization Office**

#### **Chief Engineer**

Joe Cresko is the chief engineer and strategic analysis lead for IEDO, where he leads efforts to assess the life cycle and cross-sector impacts of emerging industrial technologies. Joe led the development of DOE's Industrial Decarbonization Roadmap, launched DOE's Industrial Heat Shot, and supports the Industrial Deep Decarbonization Initiative, which is a Clean Energy Ministerial coalition designed to stimulate global demand for low-carbon industrial materials.



Joe first joined DOE in 2008 as Science & Technology Policy Fellow in the Industrial Technologies Program. In 2013, Joe joined DOE's (former) Advanced Manufacturing Office, where he launched the Strategic Analysis Team and advanced to chief engineer.

Prior to federal employment, Joe was the director of the Emerging Technology Applications Center, which worked with manufacturers to improve their energy efficiency and reduce their environmental footprint through energy efficiency assessments and applied R&D.

Joe graduated with a master of science degree from Penn State University in 1991 and from Bucknell University with a bachelor of science degree in chemical engineering in 1987.

## Dr. Lisa Guay, Bioenergy Technologies Office

### AAAS Fellow

Lisa Guay is a second-year American Association for the Advancement of Science (AAAS) Science & Technology Policy Fellow in DOE's Bioenergy Technologies Office. During her fellowship, she has focused on decarbonization of hydrocarbon chemicals and marine fuels and has supported DOE's response to the Bioeconomy Executive Order. Before the fellowship, she developed and scaled up specialty materials products at Corning Incorporated. She also previously developed sustainable diesel and marine fuels at ExxonMobil. Lisa earned a Ph.D. in Chemical Engineering from the Massachusetts Institute of Technology in 2019. Her doctoral research focused on producing renewable chemicals from biomass using microbial fermentation. Lisa also holds a B.S. in Chemical Engineering and a B.A. in Economics from the University of Arizona.



## Kelly Visconti, Office of Manufacturing and Energy Supply Chains

### Acting Deputy Director, Manufacturing and Workforce Development

Kelly Visconti leads a U.S. Department of Energy-wide coordination effort on industrial technologies. She is working with a team to implement programs to strengthen U.S. manufacturing and industrial supply chains and workforce. She has a decade of public sector experience in DOE and DoD with a focus on industry and manufacturing and spent the first 10 years as an engineer in the industrial gas sector. She's a chemical engineer and has her professional engineer license. For ten years, prior to joining DOE, Ms. Visconti gained broad industrial experience as an engineer and manager at The Linde Group, the world's largest industrial gas company. She led R&D projects, was the quality assurance manager for North America carbon dioxide operations, developed and standardized engineering solutions, and conducted technical training courses around the world.



## Dr. Paul Majsztrik, Industrial Efficiency and Decarbonization Office

### Program Manager, Energy- and Emissions-Intensive Industries

Dr. Paul Majsztrik recently joined the U.S. Department of Energy as Program Manager for the Energy- and Emissions-Intensive Industries program in the Industrial Efficiency and Decarbonization Office (IEDO). In this role, he leads a sector-specific industrial decarbonization effort that drives innovation, development, and demonstration of enabling technologies through RD&D partnerships with industry, national labs, and academia. Subsectors include chemicals and refining; cement and concrete; iron and steel; food and beverage, forest products; and other industries like glass and aluminum.

Prior to joining DOE, Paul spent 15 years leading private sector RD&D aimed at innovating and scaling technologies that enable industrial and energy sector decarbonization. This includes work in low-carbon cement and concrete (Solidia Technologies), CO<sub>2</sub> to chemicals (Liquid Light),





energy storage/conversion technologies, and novel routes for high-purity silicon production. Paul's work spanned process, equipment, and materials innovation/scale-up as well as sustainability.

Paul has BS degrees in Mechanical Engineering and Applied Physics (Rutgers), an MS in Mechanical Engineering (Vanderbilt), and a PhD in Chemistry and Materials (Princeton) as well as post-doctoral work at Oak Ridge National Lab. His academic focus was on energy conversion technologies, materials, and processes.

### **Meegan Kelly, Industrial Efficiency and Decarbonization Office Technology Manager, Tech Assistance and Workforce Development**

Meegan Kelly is a Senior Technology Manager in the Industrial Efficiency and Decarbonization Office (IEDO) Technical Assistance and Workforce Development subprogram. In this role, Meegan manages technical assistance initiatives focused on deployment of onsite energy and combined heat and power. Prior to this, Meegan worked as an Energy Technical Project Specialist in DOE's Federal Energy Management Program, where she led cross-cutting federal sustainability efforts related to workforce development, stakeholder engagement, and communications.



Before joining the Department of Energy (DOE), Meegan worked on clean energy research, policy analysis and program management through previous roles as a manager with the consulting firm ICF and as a senior researcher at the American Council for an Energy-Efficient Economy.

She holds a Master of Science in Energy Policy and Climate from Johns Hopkins University, and a Bachelor of Science in Communications with majors in journalism and philosophy from the University of Miami.

### **Dr. Diana Bauer, Advanced Materials and Manufacturing Technologies Office Deputy Director**

Dr. Diana Bauer is the Deputy Director of the U.S. Department of Energy (DOE) Advanced Materials and Manufacturing Technologies Office (AMMTO). Dr. Bauer helps lead the strategic direction and execution of AMMTO's funding to advance energy-related materials and manufacturing technologies to increase domestic competitiveness and build a clean, decarbonized economy.



Dr. Bauer has departmental and interagency leadership roles in energy storage and critical materials. Before joining AMMTO, Diana directed the Office of Energy Systems Integration Analysis within the Department's Office of Policy, where she and her staff looked at the connection between energy and other systems. She was the lead author of *The Water-Energy Nexus: Challenges and Opportunities* in 2014. Also, in the policy office, she led the drafting of DOE's 2010 and 2011 Critical Materials Strategy reports.

Before coming to DOE, Diana led the extramural sustainability research program at the Environmental Protection Agency, which focused on green engineering, green chemistry, green buildings, and transportation systems.

She has a Ph.D. in mechanical engineering with a concentration in green design and manufacturing from the University of California, Berkeley.

### **Dr. Kamala Raghavan, Solar Energy Technologies Office Concentrating Solar-Thermal Power Technology Manager**

Dr. Kamala Raghavan joined the U.S. Department of Energy Solar Energy Technologies Office (SETO) as a technology manager on the concentrating solar-thermal power (CSP) team. Since joining the CSP team in 2021, Kamala has supported various research, development, and demonstration efforts for CSP with a primary focus on materials and manufacturing. She is engaged with the broader CSP community to identify material and manufacturing research needs for the development and commercialization of advanced components for CSP. Kamala is responsible for developing longer-term material and manufacturing strategies to enable ultra-high temperature operation of CSP components.



Prior to joining SETO, Kamala spent 15 years of her R&D career in the conglomerate and semiconductor industries, where she carried out research in metal additive manufacturing, atomistic modeling, thin film CdTe photovoltaics, metrology, and sensing technologies. She has a Ph.D. in physical sciences from the Indian Institute of Science, Bangalore, India.

### **Tomas Green, Hydrogen and Fuel Cells Technologies Office Technology Manager**

Tomas Green (he/him) is a Technology Manager at DOE's Hydrogen Office (HFTO) working on cross-cutting analysis and early-stage pilots and demonstrations of clean hydrogen. He was one of the primary authors on the U.S. National Strategy and Roadmap and has been working across the agency to advise the U.S. Treasury on implementation of the Clean Hydrogen Production Tax Credit. Previously, he was a Hydrogen Shot Fellow in HFTO, a Policy Analyst at Energy Futures Initiative working under former Secretary of Energy Ernest Moniz, and an MIT graduate from the Technology and Policy Program. He has a B.S. in chemical engineering from the University of Kansas.



### **Dr. Gayle Bentley, Bioenergy Technologies Office Technology Manager, Conversion Technologies**

Dr. Gayle Bentley is a technology manager for the Conversion Program in the Bioenergy Technologies Office at the U.S. Department of Energy (DOE). She manages a portfolio of research and development projects that improve the production of renewable biofuels and biochemicals, and is involved in the Plastics Innovation Challenge. Prior to DOE, Gayle was a postdoctoral researcher at the National Renewable Energy Laboratory



where she engineered microorganisms to produce value-added chemicals, and was granted a Laboratory Directed Research and Development award to develop a novel genetic engineering technology. Gayle completed her doctorate in Molecular Microbiology and Microbial Pathogenesis from Washington University in St. Louis, and both a bachelor's degree in microbiology and a master's degree in public health from The University of Arizona.

### **Sarah Forbes, Office of Fossil Energy and Carbon Management** **Acting Director, Office of Carbon Management Technologies**

Sarah M. Forbes is the Acting Director for the Office of Carbon Management Technologies in the United States Department of Energy's Office of Fossil Energy and Carbon Management. Sarah began her career at the National Energy Technology Laboratory, working on Carbon Capture and Storage (CCS) during the program's formative years.

Prior to her current position at DOE, Sarah served as the first Director for Carbon Capture Utilization and Sequestration at the White House Council on Environmental Quality (CEQ). Sarah launched an interagency working group, led efforts to develop a CEQ report to congress on CCS, to issue Guidance to the Federal Agencies on responsible CCS and to establish the CCS Permitting Task Forces.

She holds a B.S. from Wheaton College in Biology and a M.S. from Mississippi State University in the Biological Sciences.



### **Dr. Gail McLean, Office of Science** **Chemical Sciences, Geosciences, and Biosciences Division Director**

Dr. McLean is the Director of the Chemical Sciences, Geosciences and Biosciences (CSGB) Division and the acting team lead for the Photochemistry and Biochemistry team in the Office of Basic Energy Sciences, Office of Science, U.S. Department of Energy.

Dr. McLean joined the Chemical Sciences, Geosciences, and Biosciences Division in November 2008 as a program manager for Photosynthetic Systems. Prior to joining DOE, Dr. McLean was a National Program Leader for Plant Biology in the Competitive Programs Unit of the Cooperative State Research, Education, and Extension Service (now the National Institute of Food and Agriculture), United States Department of Agriculture (USDA).

She directed and provided leadership for four competitive grant programs while at USDA, three of which were in the National Research Initiative (NRI) competitive grants program: Plant Environmental Stress, Plant Biochemistry, Plant Breeding and Education, and Biotechnology Risk Assessment. She also served on the Interagency Metabolic Engineering Working Group and as an Acting Integrated Programs Director for the Competitive Programs unit.

Dr. McLean has broad research experience in plant biochemistry and molecular and cell biology, conducting research in the Biochemistry Department at the University of Maryland-Baltimore Medical School and in the Plant & Microbial Biology Department at the University of California, Berkeley. She is a Fellow of the American Association for the Advancement of Science (AAAS).



Dr. McLean holds a Ph.D. in Molecular Genetics from the University of Georgia and a B.S. in Biology from St. Andrews College.

### Jason Marcinkoski, Office of Nuclear Energy

#### Program Manager

Jason Marcinkoski spent 15 years at DOE, beginning in 2006 working on hydrogen and fuel cells. He recently developed DOE's hydrogen truck targets, but also developed technical targets for fuel cell distributed generation for combined heat and power. In the hydrogen office (HFTO), he accelerated high-temperature electrolysis system development and testing for nuclear hydrogen production. He moved to DOE's Nuclear Energy Office in 2021 to focus on nuclear energy systems, where he focuses on expanding nuclear energy use in the industrial and transportation sectors; using thermal energy storage to improve the capability for nuclear plants to respond to increasingly variable grid loads; and continuing to develop nuclear hydrogen production capabilities. M.S. Mechanical Engineering, UMD; specialized in hybrid vehicle technology.

### Dr. Chris Vandervort, Advanced Research Projects Agency-Energy (ARPA-E)

#### Technology-to-Market Advisor

Dr. Christian Vandervort is as a Technology-to-Market Advisor at the ARPA-E. Prior to joining ARPA-E, Vandervort served with General Electric (GE) for 29 years with roles at GE Power and GE Global Research Center (GRC). At GE Power, he was Product Manager for the 9HA.02 Gas Turbine and Combined Cycle Power Plant. In this role, he focused on product development, introduction, manufacturing, and sales and the product was successfully introduced with multiple power generation projects spanning five countries across two continents.



Vandervort rejoined GE Power & Water in 2013 following 10 years at GE's Global Research (GEGR) Center. As Technology Leader - Combustion Systems, his team performed Research and Development in support of key initiatives across multiple businesses in the transportation, power, and aviation sectors. Prior to his transition to GRC, Vandervort held leadership positions in several design engineering departments, including Hydro, Steam Turbine, Generator, and Gas Turbine Combustion Engineering. Some of the major technology initiatives included fish-friendly hydro, HEAT steam turbine, super-conducting generator, and Dry Low NOx (DLN) gas turbine combustion.

Vandervort also completed Nuclear Plant Engineer qualification with the Knolls Atomic Power Laboratory nuclear plant operations program. He participated in operations and training at a Naval Nuclear Submarine Prototype.

Vandervort received his Ph.D. in Mechanical Engineering from Rensselaer Polytechnic Institute. He also completed his M.S. in Nuclear Engineering and B.S. in Nuclear Engineering & Mathematics at the University of Wisconsin-Madison. Vandervort has been awarded 37 patents, authored numerous technical publications, and delivered multiple technical presentations.



## Andrew Dawson, Office of Clean Energy Demonstrations Strategy and Program Development Director

Andrew Dawson is the Strategy and Program Development Director at the U.S. Department of Energy's Office of Clean Energy Demonstrations (OCED), supporting the office mission to deliver clean energy technology demonstration projects at scale in partnership with the private sector to accelerate deployment, market adoption, and the equitable transition to a decarbonized energy system. His team is responsible for identifying strategic opportunities and priorities for OCED and developing impactful programs.



Prior to joining OCED he worked at the DOE's Solar Energy Technologies Office with a focus on manufacturing and technology competitiveness, led an engineering team at Lawrence Livermore National Laboratory, and worked for General Electric on wind, solar, and other energy technologies.