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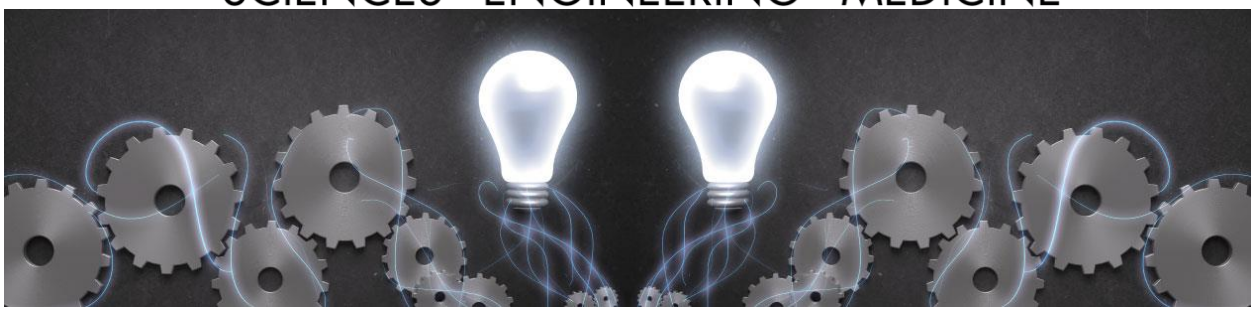

Workshop Series: Enhancing Federal Clean Energy Innovation

Planning Committee and Speaker Biographical Sketches

Planning Committee:

Dorothy Robyn
Boston University Institute for Sustainable Energy
Planning Committee Chair
Dorothy Robyn is a public policy expert who writes and consults on issues related to energy and infrastructure, and a Nonresident Senior Fellow with Boston University's Institute for Sustainable Energy. From 2009-2014, Dr. Robyn served in the Obama Administration, first as a Deputy Under Secretary in the Department of Defense with overall management responsibility for U.S. military bases and related energy and environmental issues, and later as head of the U.S. General Services Administration's Public Buildings Service. From 1993-2001, she was on the staff of the White House National Economic Council, where she handled issues related to aviation, defense and aerospace, telecommunications, and science and technology policy. Dr. Robyn has also been a principal with The Brattle Group, an economic consultancy; an assistant professor at Harvard's Kennedy School of Government; and a Guest Scholar at the Brookings Institution. She currently serves on the World Resources Institute's Global Leadership Council and the boards of the Information Technology & Innovation Foundation and U.S. Ignite. She has an MPP and Ph.D. in public policy from the University of California, Berkeley, and is the author of two books.

Anna Goldstein
University of Massachusetts Amherst
Planning Committee Member
Anna Goldstein is a Senior Research Fellow and Director of the Energy Transition Initiative at University of Massachusetts Amherst. Her research is on science and technology policy as it relates to clean energy innovation and climate change mitigation. She was previously a Postdoctoral Research Scientist at the Carnegie Institution for Science, following a fellowship from the Science, Technology & Public Policy program in the Belfer Center for Science and International Affairs at Harvard Kennedy School. Anna received her Ph.D. in Chemistry with an emphasis in

Nanoscale Science and Engineering from the University of California, Berkeley, where she worked with nanomaterials for energy harvesting and storage applications.

David M. Hart

George Mason University
Planning Committee Member
David M. Hart is professor of public policy and director of the Center for Science, Technology, and Innovation Policy at George Mason University's Schar School of Policy and Government. He also serves as a senior fellow at the Information Technology and Innovation Foundation (ITIF), where he directs the clean energy innovation policy program, and as co-chair of the Innovation Policy Forum at the National Academies of Science, Engineering, and Medicine. Dr. Hart is co-author (with Richard K. Lester) of Unlocking Energy Innovation (MIT Press) and has published numerous articles and reports on energy innovation policy. Dr. Hart served as senior associate dean of the Schar School during the 2014 and 2015 academic years. In 2011 and 2012, he served as assistant director for innovation policy at the White House Office of Science and Technology Policy, where he focused on advanced manufacturing issues. His other books include The Emergence of Entrepreneurship Policy (Cambridge University Press), and Forged Consensus: Science, Technology, and Economic Policy in the U.S., 1929-1953 (Princeton University Press). He earned his Ph.D. in political science from MIT in 1995.

Cheryl Martin
Harwich Partners
Planning Committee Member
Cheryl Martin currently leads Harwich Partners, a consulting firm she founded to engage public and private sector entities on implementation of solutions for complex problems, especially those related to energy, sustainability, urban development and technology adoption. Until November 2018 she was a member of the Managing Board at the World Economic Forum where she was responsible for a range of business and innovation initiatives. Previously Dr. Martin served as the Acting Director of the US Department of Energy (DOE) Advanced Research Projects Agency–Energy (ARPA-E). In addition, she was the Deputy Director for Commercialization at the agency where she developed the Technology-to-Market program, which helps breakthrough energy technologies succeed in the marketplace. Prior to joining ARPA-E, Dr. Martin was an Executive in Residence with the venture capital firm Kleiner Perkins Caufield and Byers, and interim CEO of Renmatix, a start-up company focused on renewable materials. She also spent 20 years with Rohm and Haas Company in roles ranging from technology development to finance and business management and where, most recently, she had been the General Manager for the Paint and Coatings business in Europe, Middle East and Africa.

Dr. Martin earned a B.A. in chemistry from the College of the Holy Cross, where she currently serves on the Board of Trustees, and went on to earn a Ph.D. in organic chemistry from MIT. She is a non-resident Fellow at the Center on Global Energy Policy at Columbia University.

Dr. Martin serves on the Board of Directors for Enbala, an early stage company focused on making the electric grid more sustainable by harnessing the power of distributed energy. In addition, she is on the Board of Directors for Clean Energy Trust (Chicago), as well as on advisory boards for several mid-Atlantic innovation initiatives.

Venkatesh Narayanamurti
Harvard University
Planning Committee Member
Venkatesh Narayanamurti is the Benjamin Peirce Professor of Technology and Public Policy, Engineering and Applied Sciences, and Physics, Emeritus in the Harvard John A. Paulson School of Engineering and Applied Sciences and the Kennedy School of Government at Harvard University. From 2009 to 2015, he was Benjamin Peirce Professor of Technology, and Public Policy and Professor of Physics at Harvard and concurrently served as director of the Science, Technology, and Public Policy Program at the Belfer Center of Science and International Affairs. Dr. Narayanamuti was formerly the John L. Armstrong Professor and founding dean of the School of Engineering and Applied Sciences and Dean of Physical Sciences at Harvard. Previously, he served as the Richard A. Auhll Professor and Dean of Engineering at the University of California at Santa Barbara. Prior to that he was Vice President of Research at Sandia National Laboratories and Director of Solid State Electronics Research at Bell Labs. Dr. Narayanamurti obtained his Ph.D. in physics from Cornell University and has an honorary doctorate from Tohoku University. He is an elected member of the American Academy of Arts and Sciences, the National Academy of Engineering, and the Royal Swedish Academy of Engineering Sciences, and a fellow of the American Physical Society, the American Association for the Advancement of Science, the IEEE, and the Indian Academy of Sciences. He has served on numerous advisory boards of the federal government, research universities, National Laboratories, and industry. From 2011 to 2015, he served as the Foreign Secretary of the U.S. National Academy of Engineering. He currently serves on the board of directors and the academic council of the American Academy of Arts and Sciences. He is the author of more than 240 scientific papers in different areas of condensed matter and applied physics and the author of two books. He has written extensively and lectures widely on solid state, energy technologies, computer, and communication technologies, and on the management of science, technology, and public policy.

Jetta Wong
JLW Advising
Planning Committee Member
Jetta Wong is President of JLW Advising, where she advises clients on how to bring new clean energy technologies to the market. She works with laboratories, universities, and other innovation organizations to develop policies and programs focused on U.S. competitiveness and the commercialization of technologies that reduce carbon emissions. From 2012 through 2016, Wong worked at the U.S. Department of Energy. She established the Office of Technology Transitions for the Department and served as its first

director. Before OTT she was in the Office of Energy Efficiency and Renewable Energy, where she worked on clean energy manufacturing and led the office's National Laboratory Impact

Initiative. While at DOE, Wong co-chaired the White House's National Science and Technology Council's Lab-to-Market initiative.The initiative focused on creating economic impact from federally funded R&D. Before joining DOE, Wong worked for the U.S. House of Representatives' Committee on Science, Space, and Technology, where she helped establish and oversee energy and environment programs of the federal government. Prior to working for Congress, Wong worked for the Clean Energy Program of the Union of Concerned Scientists (UCS) and the Environmental and Energy Study Institute (EESI). Her career in energy started in Uzbekistan where she was a natural resources consultant on an anaerobic digestion development project. Wong holds a MPS in legislative affairs from George Washington University and a B.S. in natural resources and the environment from the University of Michigan.

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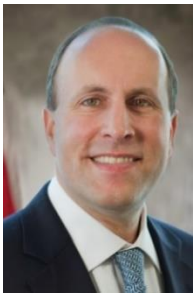
Session 1: The Imperative to Accelerate Energy Innovation



Paul Dabbar
U.S. Department of Energy
Invited Speaker
The Honorable Paul M. Dabbar, Under Secretary for Science, serves as the U.S. Department of Energy's principal advisor on fundamental energy research, energy technologies, and science, driving this mission through programs including nuclear and high energy particle physics, basic energy, advanced computing, fusion, and biological and environmental research, and direct management over a majority of the Department's national labs and their world-leading user facilities. In addition, Dabbar manages the environmental and legacy management missions of the Department, addressing the U.S. legacy of nuclear weapons production and government-sponsored nuclear energy research. In addition, Dabbar is the lead for technology commercialization activities for the Department and its 17 national labs.

Prior to confirmation as Under Secretary for Science, Dabbar worked in operations, finance, and strategy roles in the energy sector. As a Managing Director at J.P. Morgan, leading various energy business areas, he has over $400 billion in investment experience across all energy sectors including solar, wind, geothermal, distributed-generation, utility, LNG, pipeline, oil & gas, trading, and energy technologies, and has also led the majority of all nuclear transactions. In addition, he had a senior leadership role for the company's commodity trading business, including power, oil and gas. Before joining J.P. Morgan, Dabbar served as a nuclear submarine officer in Mare Island, California, and Pearl Harbor, Hawaii, including deploying to the North Pole where he conducted environmental research. He also served on the Department of Energy Environmental Management Advisory Board. He has been a lecturer at the U.S. Naval Academy, and conducted research at the Johns Hopkins Applied Physics Laboratory. He is also a member of the Council on Foreign Relations. Dabbar received a B.S. degree from the U.S. Naval Academy, and a masters degree from Columbia University.

David Turk
International Energy Agency
Invited Speaker
Dave Turk joined the International Energy Agency in September 2016 and is currently the Acting Deputy Executive Director and Head of the Strategic Initiatives Office. He formerly served as Deputy Assistant Secretary for International Climate and Technology at the U.S. Department of Energy, where he coordinated the Department's international clean energy efforts. Turk also previously served as Deputy Special Envoy for Climate Change at the U.S. Department of State, Special Assistant to the President and Senior Director for Congressional Affairs at the U.S. National Security Council, and in various capacities in the U.S. Congress.

Arati Prabhakar
Actuate
Invited Speaker
Arati Prabhakar is founder and CEO of Actuate, a nonprofit organization to research and demonstrate breakthrough solutions for societal challenges. Actuate aims to develop new forms of innovation that contribute to opportunity and good health for every person, trustworthy information, and climate stability. Prabhakar was a fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford University during 2017-18. Her public service includes serving as the director of the Defense Advanced Research Projects Agency (DARPA) 2012-17 and the director of the National Institute of Standards and Technology (NIST) 1993-97. In between, she worked in Silicon Valley as a senior executive at Raychem and at Interval Research and then for a decade as a partner at U.S. Venture Partners. Dr. Prabhaker holds a B.S. in electrical engineering from Texas Tech University and an M.S. in electrical engineering and a Ph.D. in applied physics from the California Institute of Technology. She is a fellow of the Institute of Electrical and Electronics Engineers and a member of the National Academy of Engineering.

Ellen Williams
University of Maryland
Invited Speaker
Ellen Williams is distinguished university professor and director of Earth System Science Interdisciplinary Center at University of Maryland. Previously, Dr. Williams served as the chief scientist for British Petroleum (BP) from 2010 to 2014. In 2014, she was confirmed by the U.S. Senate as the director of the Advanced Research Projects Agency-Energy (ARPA-E). Dr. Williams led the agency in its mission to advance high potential, high-impact clean energy technologies. Dr. Williams also founded the University of Maryland Materials Research Science and Engineering Center and served as its Director from 1996 through 2009. She is a member of the National Academy of Sciences and a foreign member of the Royal Society (London). She is also a fellow of the American Association for the Advancement of Science, the American Academy of Arts and Sciences, the American Physical Society, and the American Vacuum Society. Dr. Williams earned her B.S. in 1976 from Michigan State University and her Ph.D. in 1981 from the California Institute of Technology.

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Session 2: Strategies for Acceleration: Strengthening User Pull

Walter Copan
National Institute of Standards and Technology
Invited Speaker
Walter G. Copan was confirmed by Congress as Under Secretary of Commerce for Standards and Technology and NIST Director on October 5, 2017. As NIST Director, Dr. Copan provides high-level oversight and direction for NIST. Dr. Copan formerly served as president and CEO of the IP Engineering Group Corporation, providing services in intellectual property strategy, technology commercialization and innovation. Until June 2017, he was founding CEO and chairman of Impact Engineered Wood Corporation, an advanced materials technology company. He also is a founding board member of Rocky Mountain Innovation Partners, where he led technology transfer programs and innovation services on behalf of the U.S. Air Force Academy, U.S. federal labs and academic institutions and helped foster entrepreneurial businesses in the Rocky Mountain West. He also served with the National Advisory Council to the Federal Laboratory Consortium for more than 5 years, providing industry inputs to advance the U.S. economic impacts of the federal laboratory system. From 2010–2013, Dr. Copan served as managing director of Technology Commercialization and Partnerships at DOE's Brookhaven National Laboratory (BNL). From 2005–2010, Dr. Copan was executive vice president and chief technology officer at Clean Diesel Technologies, Inc., an international technology development and licensing firm. After earning dual B.S./B.A. degrees in chemistry and music from Case Western Reserve University and d a Ph.D. in physical chemistry from Case Western.

Chris Gould
Exelon
Invited Speaker
Christopher D. Gould serves as Chief Innovation and Sustainability Officer and Senior Vice President of Corporate Strategy at Exelon Corporation. He previously served as its Chief Sustainability Officer. Gould served as Vice President of Corporate Strategy at Exelon Corporation since April 12, 2010. Gould is responsible for Exelon’s overall corporate strategic planning as well as its environmental efforts. He joined Exelon in 1999 and served as its Vice President of corporate financial planning and analysis. Gould graduated from Penn State in 1993 with a degree in civil engineering. He earned his M.B.A. at the University of Pittsburgh.

Paula Gant
GTI
Invited Speaker
As the Senior Vice President of Corporate Strategy and Innovation at GTI, Dr. Gant drives efforts to increase GTI’s impact in deploying technology-based energy and environmental solutions that enable safe, efficient, clean and affordable energy supplies in the U.S. and around the globe. In private and public sector roles, Dr. Gant has focused on the technology, market, and policy solutions needed to transition energy systems. She has a strong track record in addressing complex business and policy challenges through building teams, communicating science and technology impacts and organizing diverse interests around a common goal.

Dr. Gant is a respected voice in global natural gas and broader energy discussions. In leadership roles at the U.S. Department of Energy, Dr. Gant administered natural gas export regulation and R&D programs executed by the National Energy Technology Lab, along with orchestrating the implementation of international clean energy deployment initiatives. Prior to that, she led policy, regulatory affairs, and strategy at the American Gas Association, and directed policy and government affairs for Duke Energy Corporation. She has served on the Economics faculties of the University of Louisville and Louisiana State University. She is a graduate of McNeese State University in Louisiana and Auburn University in Alabama.

Richard Kauffman
NYSERDA
Invited Speaker
Richard Kauffman is Chair of Generate Capital, a leading financier of clean energy projects and Chairman of the New York Energy Research and Development Authority (NYSERDA). He is also an Adjunct Senior Research Scholar at Center on Global Energy Policy at Columbia University. Prior to these roles, he served as New York State's first "Energy Czar," where he oversaw the State's energy agencies, including the Department of Public Service, the New York Power Authority, the Long Island Power Authority, and NYSERDA. Kauffman served as Senior Advisor to Secretary Steven Chu at the U.S. Department of Energy. He was CEO and President of Good Energies, Inc., a leading investor in clean energy technologies; a partner of Goldman Sachs; and Vice Chairman of Morgan Stanley's Institutional Securities business. Kauffman served as Chairman of the Board of Levi Strauss & Co. He currently serves on the boards of Altaba; Wallace Foundation; Emergent, a tropical forest finance accelerator; and on the advisory board of the Precourt Energy Institute at Stanford. He is a member of the Council on Foreign Relations and recently served on a study group on innovation in energy. Kauffman received a bachelor's degree from Stanford University, a master's degree in international relations from Yale University, and a master's in public and private management from the Yale School of Management.

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Session 3: Strategies for Acceleration: Leveraging and Learning from the Department of Defense

John Deutch
Massachusetts Institute of Technology
Invited Speaker
John Deutch is an Institute Professor Emeritus at the Massachusetts Institute of Technology. Dr. Deutch has been a member of the MIT faculty since 1970, and has served as Chairman of the Department of Chemistry, Dean of Science, and Provost. Dr. Deutch served as Director of Central Intelligence from 1995-1996. From 1994-1995, he served as Deputy Secretary of Defense and served as Undersecretary of Defense for Acquisition and Technology from 1993-1994. Prior, Dr. Deutch has also served as Director of Energy Research (1977-1979), Acting Assistant Secretary for Energy Technology (1979), and Undersecretary (1979-80) in the United States Department of Energy. He received a Ph.D. in physical chemistry from MIT.

Jeffrey Marqusee
National Renewable Energy Laboratory
Invited Speaker
Jeffrey Marqusee is a senior research advisor at the National Renewable Energy Laboratory (NREL). Prior to joining NREL he served as a Chief Scientist at Noblis, a nonprofit science, technology, and strategy organization. He has over 20 years of government leadership in research, technology development, and policy aimed at making the Department of Defense (DoD) a more sustainable and effective organization. At DoD he served as the Executive Director of the Strategic Environmental Research and Development Program and the Environmental Security Technology Certification Program. He led the DoD's science and technology investments in energy and environment. Before joining DoD, he worked at the Institute for Defense Analyses, Stanford University, the University of California, and the National Institute of Standards and Technology. He has a Ph.D. from the Massachusetts Institute of Technology.

Richard Carlin
Office of Naval Research
Invited Speaker
Richard Carlin serves as Naval Accelerator at the Office of Naval Research. Dr. Carlin has extensive experience in the defense research community, including over 12 years as the Department Head for Sea Warfare and Weapons. As a Senior Executive, he provided technical and strategic advice to Navy senior leadership that led to the implementation of several initiatives that merge technology innovation, entrepreneurship and workforce development, especially for veterans. These initiatives span across and link together academia, Navy laboratories, commercial and defense industries, and the private investment sector, and they are now are a full-time responsibility within the Naval Agility ecosystem. Before joining ONR, Dr. Carlin held several positions at Air Products and Chemicals as a Senior Research Chemist; a faculty appointment at the University of Alabama in Tuscaloosa; and federal service as the Electrochemistry Division Chief at the Frank J. Seiler Research Laboratory (FJSRL) located at the United States Air Force Academy. Dr. Carlin received his Ph.D. in Inorganic Chemistry from Iowa State University. He was a postdoctoral fellow performing electrochemistry research at the State University of New York at Buffalo. Dr. Carlin has published over 100 technical papers, and he is co-inventor on 7 United State patents.

Thomas Bostick
U.S. Army (Retired)
Invited Speaker
Lieutenant General (Retired) Thomas P. Bostick recently served as Chief Operating Officer and President, Intrexon Bioengineering at Intrexon Corporation. Bostick led Intrexon operations in developing better DNA solutions for Energy, Health, Environment, and Food products. He currently serves on the Boards of HireVue, Streamside and American Corporate Partners. Lt. Gen. (Ret) Bostick served as the 53rd Chief of Engineers and Commanding General of the U.S. Army Corps of Engineers. Prior, he was the Deputy Chief of Staff, Personnel for the U.S. Army and also served as the Commanding General, U.S. Army Recruiting Command. He was the Assistant Division Commander-Maneuver, then Assistant Division Commander-Support of the 1st Cavalry Division. Lt. Gen. (Ret) Bostick served as an Associate Professor of Mechanical Engineering at West Point and was a White House Fellow, working as a special assistant to the Secretary of Veterans Affairs. He is a of the U.S. Military Academy and holds Master of Science Degrees in both Civil Engineering and Mechanical Engineering from Stanford University, and a PhD in Systems Engineering from George Washington University. He is a member of the National Academy of Engineering, the National Academy of Construction, and the Hall of Fame of the George Washington University School of Engineering and Applied Science.

Norman Augustine
Lockheed Martin (Retired)
Invited Speaker
Norman Augustine served as Under Secretary of the Army and Acting Secretary of the Army, as Chairman and CEO of Lockheed Martin Corporation, and as Lecturer with the Rank of Professor at Princeton University. Augustine was Chairman of the American Red Cross, the Council of the National Academy of Engineering, the Association of the United States Army, the Aerospace Industries Association, and the Defense Science Board. He is a former President of the American Institute of Aeronautics and Astronautics and the Boy Scouts of America. He was a Regent of the University System of Maryland, Trustee of Princeton and MIT, and is a Trustee Emeritus of Johns Hopkins He served on advisory boards to NASA, the Departments of Homeland Security, Energy, Defense, Commerce, Transportation, and Health and Human Services (NIH), and served for 16 years on the President's Science Advisory Board. He is a founder of the American Energy Innovation Council, a member of the Secretary of Energy's Advisory Board, and chairman of the External Advisory Board of the MIT Energy Initiative.

He is a member of the National Academy of Sciences, the National Academy of Engineering, the American Philosophical Society, the American Association of Arts and Sciences, Phi Betta Kappa, Tau Beta Pi, Sigma-Xi, the Council on Foreign Relations, and a fellow of the Explorers Club. Augustine has been presented the National Medal of Technology by the President of the United States, the Joint Chiefs of Staff Distinguished Public Service Award and the NASA Distinguished Public Service Medal. He has five times received the Department of Defense's highest civilian decoration, the Distinguished Service Medal. Augustine received a BSE and MSE in Aeronautical Engineering from Princeton University.

Session 4: Managing DOE's RD&D Portfolio

Dan Arvizu,
New Mexico State University
Invited Speaker
Dan Arvizu became Chancellor and the 28th Chief Executive of the New Mexico State University System (NMSU) on June 1, 2018. NMSU is New Mexico's land-grant institution founded in 1888 and is presently one of the nation's foremost Hispanic-serving universities. Dr. Arvizu has had a long-distinguished career in advanced energy R&D, materials and process sciences, and technology commercialization. He started his career at Bell Labs and served in executive roles at Sandia National Labs, CH2M Hill Companies, Ltd., and Emerson Collective. In January of 2005 he was appointed as the 8th Director of the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) in Golden, Colorado, where he served for more than a decade. Dr. Arvizu presently serves on a number of boards, panels and advisory committees. Including, the Western Electricity Coordinating Council, Singapore International Advisory Panel on Energy, and State Farm Mutual Board of Directors. He also currently serves as a Venture Partner for Sustainability for Ridge-Lane Partners, Ltd. and as a Precourt Institute Energy Advisory Council at Stanford University. He was appointed to serve on the National Science Foundation governing body, the National Science Board (NSB), by two successive presidents—George W. Bush and Barack Obama. He was elected NSB Chair for two consecutive terms. He is an elected Fellow of the National Academy of Engineering and the National Academy of Public Administration. Dr. Arvizu has a Bachelor of Science in Mechanical Engineering from New Mexico State University, and a Master of Science and Ph.D. in Mechanical Engineering from Stanford University.

Arun Majumdar
Stanford University
Invited Speaker
Arun Majumdar is the Jay Precourt Provostial Chair Professor at Stanford University, a faculty member of the Departments of Mechanical Engineering and Materials Science and Engineering (by courtesy) and co-Director of the Precourt Institute for Energy, which integrates and coordinates research and education activities across all seven Schools and the Hoover Institution at Stanford. He is also a faculty in Department of Photon Science at SLAC. In October 2009, Dr. Majumdar was nominated by President Obama and confirmed by the Senate to become the Founding Director of the Advanced Research Projects Agency - Energy (ARPA-E), where he served till June 2012 and helped ARPA-E become a model of excellence and innovation for the government with bipartisan support from Congress and other stakeholders. Between March 2011 and June 2012, he also served as the Acting Under Secretary of Energy, enabling the portfolio that reported to him: Office of Energy Efficiency and Renewable Energy, Office of Electricity Delivery and Reliability, Office of Nuclear Energy and the Office of Fossil Energy, as well as multiple cross-cutting efforts such as Sunshot, Grid Tech Team and others that he had initiated. Furthermore, he was a Senior Advisor to the Secretary of Energy, Dr. Steven Chu, on a variety of matters related to management, personnel, budget, and policy. In 2010, he served on Secretary Chu's Science Team to help stop the leak of the Deep Water Horizon (BP) oil spill. After leaving Washington, DC and before joining Stanford, Dr. Majumdar was the Vice President for Energy at Google, where he created several energy technology initiatives. Prior to joining the Department of Energy, Dr. Majumdar was the Almy & Agnes Maynard Chair Professor of Mechanical Engineering and Materials Science & Engineering at University of California–Berkeley and the Associate Laboratory Director for energy and environment at Lawrence Berkeley National Laboratory. He also spent the early part of his academic career at Arizona State University and University of California, Santa Barbara. Dr. Majumdar is a member of the National Academy of Sciences, National Academy of Engineering and the American Academy of Arts and Sciences. He served as the Vice Chairman of the Advisory Board of US Secretary

of Energy, Dr. Ernest Moniz, and was also a Science Envoy for the US Department of State with focus on energy and technology innovation in the Baltics and Poland. He serves on the Science Board of Oak Ridge National Laboratory and is a member of the International Advisory Panel for Energy of the Singapore Ministry of Trade and Industry. He serves as an advisor to Envision Energy, Breakthrough Energy Ventures, First Light Fusion, the New Energy Group of Royal Dutch Shell, Lime Rock New Energy, Autogrid and Clearvision Ventures. He is a member of the Board of Directors of two non-profits focused on research and development: Activate.org and the Electric Power Research Institute. Dr. Majumdar received his bachelor's degree in Mechanical Engineering at the Indian Institute of Technology, Bombay in 1985 and his Ph.D. from the University of California, Berkeley in 1989.

Cherry Murray
University of Arizona
Invited Speaker
Cherry Murray, Professor of Physics at the University of Arizona, is Deputy Director of Research at Biosphere2 focusing on environment, water, food, energy, and sustainable development. From 1978 to 2004, Murray held a number of research and executive positions at Bell Laboratories, eventually becoming Senior Vice President for Physical Sciences and Wireless Research, She then served at Lawrence Livermore National Laboratory as Deputy Director and Principal Associate Director for Science and Technology from 2004 to 2009. She was dean of Harvard University's School of Engineering and Applied Sciences from 2009 until 2014. Murray served as the Director of the US Department of Energy Office of Science, from 2015 until 2017, overseeing $6 billion in competitive scientific research as well as the management of 10 national laboratories. She then became Benjamin Peirce Professor of Technology and Public Policy and Professor of Physics at Harvard until her retirement in 2019. A member of the National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences, and co-chair of the InterAcademy Partnership, Murray has received the US National Medal of Technology and Innovation as well as the American Physical Society Maria Goeppert-Mayer Award and George E. Pake Prize. She obtained B.S. and Ph.D, degrees in physics from the Massachusetts Institute of Technology.

George Crabtree
Argonne National Laboratory
Invited Speaker
George Crabtree is Director of the Joint Center for Energy Storage (JCESR) at Argonne National Laboratory, and a Distinguished Professor of Physics, Electrical, and Mechanical Engineering at University of Illinois-Chicago (UIC). He leads research on creating next-generation electricity storage technology beyond lithium-ion batteries. He has directed workshops for the Department of Energy on energy science and technology, is a member of the National Academy of Sciences and has testified before the U.S. Congress on the hydrogen economy, on meeting sustainable energy challenges, on the prospects for next generation electrical energy storage, and on accelerating energy storage on the electricity grid.

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Session 5: Expert Roundtable

Carla Bailo
Center for Automotive Research
Invited Expert
Carla Bailo is the President and CEO of the Center for Automotive Research (CAR), and is a leader in engineering and vehicle program management with 35 years of experience in the automotive industry. Under her leadership, CAR continues to be a preeminent resource of objective and unbiased research, analysis, and information regarding the North American automotive industry. In addition to her role at CAR, Bailo was the 2016-2018 vice president of automotive for SAE International, a global association of more than 138,000 engineers and related technical experts in the aerospace, automotive and commercial-vehicle industries. Prior to joining CAR, she was most recently the assistant vice president for mobility research and business development at The Ohio State University. She also has 25 years of experience at Nissan North America, Inc., where she served as senior vice president of research and development. Bailo also spent 10 years at General Motors. She has a MS degree in mechanical engineering from the University of Michigan and a BS degree in mechanical engineering from Kettering University.

Yet-Ming Chiang
Massachusetts Institute of Technology
Invited Expert
Yet-Ming Chiang is the Kyocera Professor in the Department of Materials Sci-ence and Engineering at the Massachusetts Institute of Technology (MIT). For the past 28 years, he has managed a multidisciplinary research team focused on energy science and technology; electrochemi-cal energy storage; processing and physical properties of advanced materials; surfaces and interfaces in solids; and electron microscopy of materials. He is a member of the National Academy of Engineering and a Fellow of the Materials Research Society and American Ceramic Society. He has brought new technology through the innovation pipeline from basic research to technology startup, four times to date. Chiang brought his MIT research on nanoscale olivine cathodes to commercial impact by co-founding A123 Systems in 2001. The company pioneered a new category of rechargeable lithium-ion batteries with improved power, safety, and life compared with previous technology. This technology is now produced in large volume for applications ranging from cordless power tools, to HEVs and PHEVs, to grid-scale storage systems of many-MW scale. In 1987, Chiang co-founded American Supercon-ductor Corporation, which today manufactures high-temperature superconductor wire products and wind energy equipment. He received his Sc.D. in materials science and engineering from MIT.

Tanya Das
House Committee on Science, Space, and Technology
Invited Expert
Tanya Das is a Professional Staff Member on the Energy Subcommittee of the House Science, Space, and Technology Committee. She covers a range of issues in energy innovation policy including advanced manufacturing, technology transfer, grid modernization, industrial emissions, and energy storage. Prior to joining the committee, she was an American Association for the Advancement of Science (AAAS) Congressional Fellow in the office of Senator Chris Coons where she supported the Senator's work on advancing U.S. economic competitiveness. Tanya has a Ph.D. in Electrical Engineering from the University of California, Santa Barbara and a B.S. in Electrical Engineering from the University of Michigan, Ann Arbor.

Deepak Divan
Georgia Institute of Technology
Invited Expert

Deepak Divan is Professor, John E Pippin Chair, GRA Eminent Scholar and Director of the Center for Distributed Energy at the Georgia Institute of Technology in Atlanta, GA. His field of research is in the areas of power electronics, power systems, smart grids and distributed control of power systems. He works closely with utilities, industry and is actively involved in research, teaching, entrepreneurship and starting new ventures. Dr. Divan has started several companies, including Varentec in Santa Clara, CA, where he served as Founder, President and CTO from 2011-14, and as Chief Scientist for several years after. He led the company as it developed its suite of innovative distributed real-time grid control technologies. Varentec is funded by leading green-tech Venture Capital firm Khosla Ventures and renowned investor Bill Gates. He has founded or seeded several new ventures including Soft Switching Technologies, Innovolt, Varentec and Smart Wires, which together have raised >$200M in venture funding.

Dr. Divan is an elected Member of the US National Academy of Engineering, member of the National Academies Board on Energy and Environmental Systems, Committee on the Future Grid. He a Fellow of the IEEE, past President of the IEEE Power Electronics Society, is a recipient of the IEEE William E Newell Field Medal and is International Steering Committee Chair of the IEEE Empower a Billion Lives global competition to crowdsource scalable energy access solutions. He has 40 years of academic and industrial experience, 85 issued and pending patents, and over 400 refereed publications. He received his B. Tech from IIT Kanpur, and his MS and PhD degrees from the University of Calgary, Canada.

Marcius Extavour
XPRIZE Foundation
Invited Expert

Marcius Extavour is Senior Director of Energy and Resources as XPRIZE Foundation. He applies his unique background in research physics, technology development, and public policy to the world's grand challenges in energy and climate. At XPRIZE this involves the strategic development of prizes and programs in energy and resources. Dr. Extavour previously served as Director of Government and Corporate Partnerships in the Faculty of Applied Science & Engineering at the University of Toronto. There, he built strategic partnerships between academia, the private sector, and government to drive commercialization of technologies spanning sustainable energy, robotics and AI, quantum computing, and internet-of-things. In the private sector, Dr. Extavour developed optical telecommunications hardware at Nortel Networks, and electricity market software tools at Ontario Power Generation, one of Canada's largest utilities. Dr Extavour's work in public policy has spanned both the U.S. and Canada. As a Science and Technology Policy Fellow in the U.S. Senate, he held the portfolios of renewables, heavy oil, and critical minerals under U.S. Senate Energy and Natural Resources Committee Chairman Senator Jeff Bingaman (D-NM). This work included development of the Helium Stewardship Act of 2013. At the Council of Canadian Academies in Ottawa, Dr. Extavour served as a consultant to the Federal Government of Canada on the safety of conducted energy weapons. Dr. Extavour has co-authored over 25 publications; given dozens of invited policy, science, and technology keynote presentations, internal briefings, and public talks across three continents and the Caribbean; raised over $30 million for commercialization of clean energy technologies; and led policy-oriented international science assessments. Dr Extavour obtained a BASc in Engineering Science, and both MSc and PhD in Physics from the University of Toronto, where his research focused on quantum optics and atomic physics. He is a member of the American Physical Society, the Optical Society of America, the International Society for Photonics and Optics (SPIE), and the National Society of Black Engineers. In 2010 Dr. Extavour was awarded the Arthur H. Guenther Congressional Fellowship from the Optical Society of America and SPIE.

Denise Gray
LG Chem Michigan Inc.
Invited Expert

Denise Gray is President LG Chem Michigan Inc. Tech Center (LGCMI), the North American subsidiary of lithium-ion battery maker, LG Chem (LGC), Korea. In this position, she has overall responsibility for strategic direction, engineering, and business development. Additionally, she is a member of LGCMI Board of Directors. Prior to joining LG Chem, Gray served as Vice President of Electrification Powertrain Engineering at AVL List, GmbH, in Austria, where she was responsible for leveraging AVL's global capability to provide electrification engineering services to the automotive industry. Prior to that, Gray was Vice President of Business Development for an electrified powertrain battery startup company in California targeting China New Energy Vehicle Market. The majority of her more than 30-year professional career was spent at General Motors, where she spearheaded efforts in vehicle electrical and powertrain systems controls and software, including battery systems. Gray is active in several charitable organizations, including The March of Dimes, where she served as the organization's chair in 2016, 2017 and 2018 for the North American International Auto Show (NAIAS) Charity Preview. She also serves on the board of directors of Tenneco Inc. and the Original Equipment Suppliers Association (OESA), a non-profit trade association that represents the business interests of OE automotive suppliers doing business in North America. Gray has been a proponent of the academic disciplines of science, technology, engineering, and mathematics (STEM), and is a frequent participant at STEM events. Her strong support of the STEM curriculum played a role in her receiving the 2017 Women of Color Technologist of the Year Award, which recognizes the exceptional achievements of distinguished multicultural women who excel in STEM. Gray received a Master of Science in Engineering Management of Technology from Rensselaer Polytechnic Institute and a Bachelor of Science in Electrical Engineering from Kettering University.

Kara Hurst
Amazon
Invited Expert

Kara Hurst leads Worldwide Sustainability at Amazon. Utilizing Amazon's scale, speed and innovation, the Sustainability organization includes teams executing the work of The Climate Pledge; Sustainable Operations (renewable energy and energy efficiency, buildings); Sustainability Science and Innovation; Social Responsibility and responsible supply chain management; Circular Economy; Sustainable Products, packaging and shopping; Sustainability Technology; Sustainable Transportation; and social and environmental external engagement and policy setting. Prior to joining Amazon, Hurst was CEO of The Sustainability Consortium (TSC), a multi-sector group across academia, the retail industry and the public sector. TSC was named one of Scientific American's "Top Ten World Changing Ideas" of 2012. For eleven years before that, Hurst worked as Vice President of BSR, where she built several global industry practices and lead BSR's NY and DC offices, as well as the global partnership practice with governments, multi-laterals and foundations. Hurst also co-founded of the Electronic Industry Citizenship Coalition (EICC, now the Responsible Business Alliance) and worked in Silicon Valley as Executive Director of the public-private venture OpenVoice, building out early teen channel content for AOL and others. In her early career, she held roles at the Children's Health Council, leading interdisciplinary educational and development programs, at the Urban Institute as a Research lead in the public finance and housing division, and worked in the offices of two elected officials – Mayor Willie Brown of San Francisco and in New York for the late Senator Daniel Patrick Moynihan (D-NY). Kara holds a BA from Barnard College of Columbia University and an MPP from the University of California, Berkeley.

Scott McKee
House Committee on Appropriations
Invited Expert
Scott McKee focuses on energy and science accounts at the House Appropriations Subcommittee on Energy & Water. Previously, he worked at the Senate Committee on Energy & Natural Resources, the Bipartisan Policy Center, the National Commission on the BP Deepwater Horizon Oil Spill & Offshore Drilling, and the Energy Information Administration at the Department of Energy. Mckee has a B.S. and M.S. in Chemical & Biomolecular Engineering from the Georgia Institute of Technology.

Robin Millican
Gates Ventures
Invited Expert
Robin Millican is Program Manager for Advocacy and Government Relations at Gates Ventures, where she manages the organization's work on energy innovation. Prior to joining Gates Ventures in 2017, Millican was a senior public sector consultant at Booz Allen Hamilton, working in the Commerce and defense energy sectors. Millican has also held positions as the Director of Federal Affairs at the Institute for Energy Research, and as a legislative aide to U.S. Senator John Cornyn. She has a B.A. in International Studies from Southern Methodist University, and a Master of Public Policy degree from Duke University.

Adele Morris
Brookings Institution
Invited Expert
Adele Morris is the Joseph A. Pechman senior fellow in Economic Studies and the policy director for Climate and Energy Economics at the Brookings Institution. Her research informs critical decisions related to climate change, energy, and tax policy. She is a leading global expert on the design of carbon pricing policies. She joined Brookings in July 2008 from the Joint Economic Committee (JEC) of the U.S. Congress, where she advised members and staff on economic, energy, and environmental policy. Before her work in Congress, Morris was the lead natural resource economist for the U.S. Treasury Department for nine years. In that position, she informed and represented Treasury's positions on agriculture, energy, climate, and radio spectrum policies. On assignment to the U.S. Department of State in 2000, she led negotiations on land use and forestry issues in the international climate change treaty process. Prior to joining the Treasury, she served as the senior economist for environmental affairs at the President's Council of Economic Advisers during the development of the Kyoto Protocol. Morris began her career at the Office of Management and Budget, where she oversaw rulemaking by agriculture and natural resource agencies. She holds a Ph.D. in Economics from Princeton University, an M.S. in Mathematics from the University of Utah, and a B.A. from Rice University.

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Jacquelyn Pless
Massachusetts Institute of Technology
Invited Expert
Jacquelyn Pless is the Fred Kayne (1960) Career Development Professor of Entrepreneurship and an Assistant Professor in the Technological Innovation, Entrepreneurship, and Strategic Management group at the MIT Sloan School of Management. She is also an Honorary Research Associate with the University of Oxford. Her research focuses on developing a better understanding of how to foster innovation that drives social progress with a particular focus on energy innovation. She previously held positions with the Oxford Martin Programme on Integrating Renewable Energy in the Smith School of Enterprise and the Environment, the National Renewable Energy Laboratory, the World Bank, and the National Conference of State Legislatures. She holds an MS and PhD in mineral and energy economics from the Colorado School of Mines, and a BA in economics and political science from the University of Vermont.

Louis Schick
Clean Energy Ventures
Invited Expert
Louis (Lou) Schick is the Director of Investments for Clean Energy Ventures. Over his career, he has built deep skills in energy technology as well as extensive investing experience. He brings more than twenty years of experience as a technologist in large and small companies and investing in early and growth stage companies. In his investing role Schick worked with deal teams to source, screen and diligence new investments, as well as supporting portfolio companies on technology, markets, strategy and commercialization. Prior to joining CEV, from 2008-18, Schick was co-founder, partner and CTO at NewWorld Capital, which focused on investments in later stage clean energy companies. Prior to NewWorld, Schick served as a Managing Director at Ritchie Capital, a hedge fund, where he oversaw a legacy portfolio of energy and environmental businesses. Prior to Ritchie he also ran the high-power product line of direct methanol fuel cells for MTI micro overseeing a team of engineers developing battery replacement technologies for military and civilian application. Schick is an advisor to Posigen Solar, a company that provides unique energy efficiency and PV installations serving low- and moderate-income clients, supporting the company in the areas of strategy and executive development. He also is currently serving on the advisory committee for National Academies of Sciences Engineering and Medicine Climate Communications Initiative and has participated in expert panels and the assessment of ARPAe awards. He holds a BS in Physics and Phi Beta Kappa from Union College and an MS in Physics from Cornell University.

Chris Tomassi
ClearPath
Invited Expert
After 15 years on Capitol Hill, Chris joined ClearPath as Government Affairs Director in August 2018. He served on the Senate Appropriations Committee as the primary staffer focused on the Environmental Protection Agency and the U.S. Fish and Wildlife Service. He was previously Senior Counsel and a Professional Staff Member on the Senate Environment and Public Works Committee and handled energy, environment, budget, and energy tax issues for Sen. Mike Enzi (R-WY). He received a B.A. in Political Science and Speech Communication from Gonzaga University, J.D. from George Washington University.

David Victor
UC San Diego
Invited Expert

David Victor is a professor of innovation and public policy at the School of Global Policy and Strategy at UC San Diego where he co-directs two research centers. One, the Laboratory on International Law and Regulation (ILAR), studies how nations and firms cooperate to address global problems. The other, a campus-wide Deep Decarbonization Initiative (D2I), focuses on the engineering, economic and political challenges associated with bringing the world to nearly zero emissions of warming gases. Dr. Victor is an adjunct professor in Climate, Atmospheric Science & Physical Oceanography at the Scripps Institution of Oceanography and affiliated with the Mechanical and Aerospace Engineering Department in the School of Engineering. Prior to joining the faculty at UC San Diego, Dr. Victor was a professor at Stanford Law School where he taught energy and environmental law. His research focuses on regulated industries and how regulation affects the operation of major energy markets. Much of his research is at the intersection of climate change science and policy. Victor authored "Global Warming Gridlock," which explains why the world hasn't made much diplomatic progress on the problem of climate change while also exploring new strategies that would be more effective. Dr. Victor was a convening lead author for the Intergovernmental Panel on Climate Change (IPCC), a United Nations-sanctioned international body with 195 country members that won the Nobel Peace Prize in 2007. Victor has been tapped by Southern California Edison to lead the company's Community Engagement Panel for decommissioning of the San Onofre Nuclear Power Plant, a nationally visible and unique effort to engage the community systematically through the process of shutting down one of the world's most controversial power plants. In 2016 Victor was appointed to Co-Chair, The Brookings Institution, Initiative on Energy and Climate. He is a member of the World Economic Forum's Global Future Council on Energy, where his work focuses on the role of natural gas as a transition fuel to deep decarbonization as well as a member of the Council on Foreign Relations. In 2020, Victor was elected to the American Academy of Arts and Sciences, one of the one of the oldest and most esteemed honorary societies in the nation. His Ph.D. is from the Massachusetts Institute of Technology and A.B. from Harvard University.

Jay Whitacre
Carnegie Mellon University
Invited Expert

Jay F. Whitacre started his career at the California Institute of Technology/JPL where he studied the fundamental and applied aspects of electrochemically functional materials. He came to CMU in 2007, and focuses on the synergistic fields of energy storage and energy systems. He also developed a novel battery chemistry that is manufactured and sold by Aquion Energy, a company he founded in 2008. His current work includes novel polymer and ceramic, using cutting-edge computational techniques to optimize the experimental exploration of electrochemical materials, and techno-economic assessments of energy systems. He is the recipient the 2017 Leigh Ann Conn Prize for Renewable Energy, the 2015 Lemelson Prize, the 2014 Caltech Resnick Institute Resonate Award, and is a Fellow of the National Academy of Inventors. He has authored over 100 peer review papers and over 30 patents. He earned his B.A. degree in Physics from Oberlin College in 1994, and a Masters (1997) and Ph.D. (1999) in Materials Science and Engineering from the University of Michigan.

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Session 6: Advanced Manufacturing and the Climate Crisis: Changes and Opportunities

Peter Green
National Renewable Energy Laboratory
Invited Speaker
Peter F. Green is the deputy laboratory director for Science and Technology and the chief research officer for the National Renewable Energy Laboratory (NREL).In his role, Green is responsible for NREL's science and research goals, strengthening the laboratory's core capabilities, and enhancing NREL's research portfolio. In addition, he oversees the Laboratory Directed Research and Development Program, NREL-university interactions, and the postdoctoral research program. Prior to his appointment at NREL, Green spent 20 years in academia and 11 years at Sandia National Laboratories, where his professional career began in 1985. At Sandia, he became manager of the Glass and Ceramics Research department in 1990. He subsequently moved to The University of Texas in 1996, where he became a professor of chemical engineering and the B.F. Goodrich Endowed Professor of Materials Engineering. In 2005, he moved to the University of Michigan, where he was the Vincent T. and Gloria M. Gorguze Endowed Professor of Engineering as well as professor of chemical engineering, applied physics, and macromolecular science and technology. He served as chair of the Department of Materials Science and Engineering and the director of the Energy Department's Energy Frontiers Research Center: Center for Solar and Thermal Energy Conversion.
Green's prior leadership experience includes serving as president of the Materials Research Society, with members from more than 50 countries, in 2006. He has been a member of a number of advisory boards for the national academies, national laboratories, scientific journals, and universities. His awards include election to position of fellow of a number of societies: the American Physical Society, the American Ceramics Society, the Royal Society of Chemistry, and the American Association for the Advancement of Science. He holds bachelor's and master's degrees in physics from Hunter College and a master's and doctorate in materials science and engineering from Cornell University.

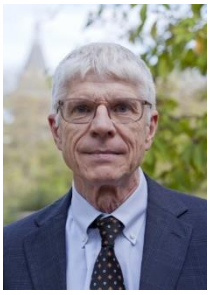
Mary Maxon
Lawrence Berkeley National Laboratory
Invited Speaker
As Associate Laboratory Director for Biosciences, Mary Maxon oversees over 650 people at Berkeley Lab who are focused on using biosciences to solve national-scale challenges in energy, environment, and biomanufacturing. She believes that cultivating talent and promoting inclusion is central to the creation of a successful work environment driven by a diversity of partners working toward shared objectives. Before joining Berkeley Lab, Dr. Maxon was Assistant Director for Biological Research at the Office of Science and Technology Policy. Previously, Dr. Maxon ran the Marine Microbiology Initiative and co-developed the California Science and Technology Policy Fellows Program for the California Legislature at the Gordon and Betty Moore Foundation. Dr. Maxon's policy experience also includes drafting the intellectual property policies for the California Institute for Regenerative Medicine. Dr. Maxon received her Ph.D. from UC Berkeley in Molecular Cell Biology and did postdoctoral research in biochemistry and genetics at UC San Francisco. Dr. Maxon's research experience includes working in the biotechnology and pharmaceutical sectors.

and chemistry from the State University of New York, Albany, and her graduate degree in molecular cell biology from the University of California, Berkeley.

John Wall
Cummins (Retired)
Invited Speaker
John C. Wall has more than 40 years of industry experience in internal combustion engine technology, fuels and emissions, and in global engineering organization development. Most recently, Wall served as Chief Technical Officer of Cummins Inc., the world's largest independent manufacturer of diesel engines and related technologies, retiring in 2015. As he progressed from research and product engineering into engineering leadership, Wall remained directly involved in the most critical technology programs for low emissions, powertrain efficiency and alternative fuels and with environmental policy. Prior to joining Cummins in 1986, Wall led Diesel and Aviation Fuels Research for Chevron, where his team was first to discover the important contribution of fuel sulfur to diesel particulate emissions. He is currently an advisor to the DOE Joint BioEnergy Institute and Cyclotron Road energy incubator, to the International Council of Clean Transportation and to the Institute of Transportation Studies at the University of California – Davis, is chair of the Board of Achates Power and also on the Board of ClearFlame Engines. He is a member of the National Academy of Engineering, where he serves on the Board on Energy and Environmental Systems and Board on Science, Technology and Economic Policy, and is a Fellow of the Society of Automotive Engineers. He has been recognized with the California Air Resources Board Haagen-Smit Clean Air Award and US EPA Thomas W. Zosel Individual Achievement Award for career accomplishments in diesel emission control. Wall studied mechanical engineering at MIT, where he received his SB and SM degrees from the Mechanical Engineering Honors Program in 1975 and ScD in 1978.

Catherine Wotecki
Iowa State University
Invited Speaker
Catherine Woteki is President of the Charles Valentine Riley Memorial Foundation and holds positions as Professor of Food Science and Human Nutrition at Iowa State University and Visiting Distinguished Institute Professor in the Biocomplexity Institute of the University of Virginia. She served as Chief Scientist and Under Secretary for USDA's Research, Education, and Economics (REE) mission area from 2010 to 2016. In that role, she developed the Office of the Chief Scientist, established the USDA Science Council, instituted the Department's first scientific integrity and open data policies, and was a founding member of the Meeting of Agricultural Chief Scientists held under the auspices of the G-20. Dr. Woteki is an advocate for building the platforms needed to enhance domestic and international food and agricultural research. Prior to joining USDA, Dr. Woteki served as Global Director of Scientific and Regulatory Affairs for Mars, Incorporated, where she managed the company's scientific policy on matters of health, nutrition, and food safety. From 2002 to 2005, she was Dean of Agriculture and also head of the Agricultural Experiment Station at Iowa State University. Dr. Woteki served as the first Under Secretary for Food Safety at the U.S. Department of Agriculture (USDA) from 1997 to 2001, where she oversaw the safety of meat, poultry and egg products. Dr. Woteki served in the White House Office of Science and Technology Policy (OSTP) as Deputy Associate Director for Science from 1994 to1996. During that time, she co-authored the Clinton Administration's policy statement, "Science in the National Interest."

Dr. Woteki has also held positions in the National Center for Health Statistics of the U.S. Department of Health and Human Services (1983-1990), the Human Nutrition Information Service at USDA (1981-1983), and as Director of the Food and Nutrition Board of the Institute of Medicine at the National Academy of Sciences (1990-1993). In 1999, Dr. Woteki was elected to the Institute of Medicine of the National Academy of Sciences, Engineering and Medicine where she has chaired the Food and Nutrition Board (2003 to 2005). She received her M.S. and Ph.D. in Human Nutrition from Virginia Polytechnic Institute and State University. Dr. Woteki received her B.S. in Biology and Chemistry from Mary Washington College.



Henry Kelly
Boston University
Session moderator
Henry Kelly is a Non-resident Senior Fellow at Boston University's Center for Sustainable Energy. He has held a number of positions in the federal government including the US Department of Energy (Principle Deputy Assistant Secretary and later acting Assistant Secretary for Energy Efficiency and Renewable Energy), the White House Office of Science and Technology Policy (Associate Director for Technology, Principal Assistant Director for Environment and Energy and Senior Advisor to the Director), the US Arms Control and Disarmament Agency, and the Congressional Office of Technology Assessment. He has also served as the Assistant Director of the Solar Energy Research Institute (now the National Renewable Energy Laboratory), and President of the Federation of American Scientists. He is an elected fellow of the AAAS and the American Physical Society and is a member of the Advisory Board for the Energy and Environment Directorate of the Pacific Northwest National Laboratory. He has a PhD in physics from Harvard University and a BA in physics from Cornell University.

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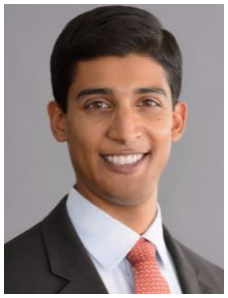
Session 7: Thinking Globally

Laura Diaz Anadon
University of Cambridge
Invited Speaker
Laura Diaz Anadon is Professor of Climate Change Policy at the University of Cambridge. She is the incoming director of the Centre for Energy Environment and Natural Resource Governance (C-EENRG), an associate at the Belfer Center for Science and International Affaris at Harvard. An engineer-economist, her research on energy and climate policy and technology innovation has been published widely and focusses on understanding how government policy can contribute to the transition to a carbon neutral future and on the links between climate and other sustainable development goals. She has advised international and domestic policy makers across the globe, with a particular focus on the United States and China. Prof. Diaz Anadon is a Lead Author in the 6th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) Working Group III on Climate Change Mitigation, a Member of the Breakthrough Ideas Steering Committee of the Carbon Trust, a Member of the UK Innovation Caucus (advising UK industrial strategy) and was awarded the XVII Fundacion Banco Sabadell Prize for Economic Research in 2018 for the best young Spanish economics researcher. Prof. Diaz Anadon also has engaged with various international efforts to mitigate climate change, including the UN Global Sustainable Development report, the Global Energy Assessment and the "Accelerating Energy Innovation" project at the International Energy Agency and has worked as a consultant for various organisations (i.e., Climate Strategies on a World Bank project, UNFCCC, and OECD). She is member of the Editorial Advisory Panel in Nature Energy, editor of Sustainable Production and Consumption, and member of the editorial board of Energy Research & Social Science and Environmental Research Reviews.

John Melo
Amyris
Invited Speaker
John Melo is Director, President & Chief Executive Officer of Amyris.
Melo has 30 years of combined experience as an entrepreneur and thought leader in developing and growing technology companies and as a senior executive in the Oil & Gas industry. As President and Chief Executive Officer, Melo has led Amyris through successful technology development, industrial start up, product development and commercialization and a series of funding rounds, including the initial public offering. Before joining Amyris in 2007, Melo served in various senior executive positions at BP Plc (formerly British Petroleum) most recently as President of U.S. fuels operations where he successfully led a business transformation and significantly improved the financial performance. During his tenure at BP, Melo also served as Chief Information Officer of the refining and marketing segment; Senior Advisor for e-business strategy to Lord Browne, BP group chief executive; and Director of global brand development. In this last role, he helped develop the “Helios” re-branding effort. Before joining BP, Melo was with Ernst & Young. Melo currently serves on the board of directors of Renmatix Inc., serves on the board of directors of BayBio, serves on the Bio Industrial and Environmental section governing board, is a member of the Council for the Portuguese Diaspora and is a member of Young Presidents’ Organization (YPO). He was formerly an appointed member to the U.S. section of the U.S.-Brazil CEO Forum.

Willy Shih
Harvard Business School
Invited Speaker
Willy C. Shih is a Professor of Management Practice at Harvard Business School, having joined Technology and Operations Management in January 2007. He teaches Technology and Operations Management in the first-year required curriculum, as well as Building and Sustaining a Successful Enterprise in the second-year elective curriculum. Prior to joining the Harvard Business School, Professor Shih spent 18 years in the computer industry, 14 of those at IBM, mostly in product development. Most recently, he was an Executive Vice President at Thomson, based in Paris, France, where he was co-head of the Technology Group. He oversaw Corporate Research, Intellectual Property & Licensing, and two smaller businesses.



Varun Sivaram
Columbia University
Invited Speaker
Varun Sivaram is a physicist, bestselling author, and clean energy technology expert with experience spanning the corporate, policy, and academic sectors—most recently as Chief Technology Officer of ReNew Power Limited, a multibillion-dollar renewable energy firm that is India's largest. He is currently a visiting senior fellow at the Columbia University Center for Global Energy Policy. His previous roles include director of the energy program at the Council on Foreign Relations, senior energy advisor to the Los Angeles Mayor and New York Governor, professor at Georgetown University, and consultant at McKinsey & Co. He serves on the boards of the Stanford University energy and environment institutes and is a senior fellow at the Aspen Institute and Information Technology and Innovation Foundation. TIME Magazine named him to its TIME 100 Next list of the next hundred most influential people in the world. He is the author of "Taming the Sun: Innovations to Harness Solar Energy and Power the Planet" (MIT Press, 2018) and "Digital Decarbonization: Promoting Digital Innovations to Advance Clean Energy Systems" (CFR Press, 2018). A Rhodes and Truman Scholar, he holds a Ph.D. in condensed matter physics from Oxford University and undergraduate degrees from Stanford University.

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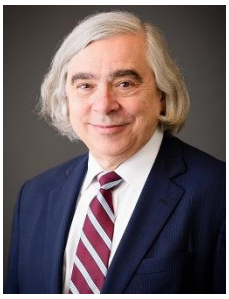
Session 8: Next Steps



Ernest Moniz
Energy Futures Initiative
Invited Speaker
Ernest J. Moniz is the CEO of EJM Associates and Energy Futures Initiative (EFI). He served as the thirteenth United States Secretary of Energy where he advanced energy technology innovation, nuclear security and strategic stability, cutting-edge capabilities for the American scientific research community, and environmental stewardship. He strengthened the Department of Energy (DOE) strategic partnership with its seventeen national laboratories while producing analytically-based energy policy proposals that attracted bipartisan support. He also led an international initiative that placed energy science and technology innovation at the center of the global response to climate change and negotiated the historic Iran nuclear agreement alongside the Secretary of State. Previously, Moniz served as Under Secretary of Energy from 1997 until January 2001. Before that, he was the Associate Director for Science in the Office of Science and Technology Policy where he was responsible for the physical, life, and social sciences. He was a member of the President's Council of Advisors on Science and Technology, the Defense Threat Reduction Advisory Committee, and the Blue Ribbon Commission on America's Nuclear Future.

From 1973 to 2013, Moniz was a member of the Massachusetts Institute of Technology faculty . Today, he is the Cecil and Ida Green Professor of Physics and Engineering Systems emeritus at MIT, as well as the Special Advisor to the MIT President. He is co-chairman of the Board of Directors and CEO of the Nuclear Threat Initiative. Moniz was the Founding Director of the MIT Energy Initiative (MITEI) and Director of the Laboratory for Energy and the Environment. Since 2001, his primary research has focused on energy technology and policy, giving him a leadership role in MIT multidisciplinary technology and policy studies addressing pathways to a low-carbon world. He received a Bachelor of Science degree summa cum laude in physics from Boston College, a doctorate in theoretical physics from Stanford University, and several honorary doctorates. He is a member of the Council on Foreign Relations and the International Advisory Board of the Atlantic Council. He is a Fellow of the American Physics Society, the American Association for the Advancement of Science, the Humboldt Foundation, and the American Academy of Arts and Sciences where he received the Public Service Award in 2019.

Norman Augustine
Lockheed Martin (Retired)
Invited Speaker
Norman Augustine served as Under Secretary of the Army and Acting Secretary of the Army, as Chairman and CEO of Lockheed Martin Corporation, and as Lecturer with the Rank of Professor at Princeton University. Augustine was Chairman of the American Red Cross, the Council of the National Academy of Engineering, the Association of the United States Army, the Aerospace Industries Association, and the Defense Science Board. He is a former President of the American Institute of Aeronautics and Astronautics and the Boy Scouts of America. He was a Regent of the University System of Maryland, Trustee of Princeton and MIT, and is a Trustee Emeritus of Johns Hopkins He served on advisory boards to NASA, the Departments of Homeland Security, Energy, Defense, Commerce, Transportation, and Health and Human Services (NIH), and served for 16 years on the President's Science Advisory Board.

He is a founder of the American Energy Innovation Council, a member of the Secretary of Energy's Advisory Board, and chairman of the External Advisory Board of the MIT Energy Initiative.

He is a member of the National Academy of Sciences, the National Academy of Engineering, the American Philosophical Society, the American Association of Arts and Sciences, Phi Betta Kappa, Tau Beta Pi, Sigma-Xi, the Council on Foreign Relations, and a fellow of the Explorers Club. Augustine has been presented the National Medal of Technology by the President of the United States, the Joint Chiefs of Staff Distinguished Public Service Award and the NASA Distinguished Public Service Medal. He has five times received the Department of Defense's highest civilian decoration, the Distinguished Service Medal. Augustine received a BSE and MSE in Aeronautical Engineering from Princeton University.

Arati Prabhakar
Actuate
Invited Speaker
Arati Prabhakar is founder and CEO of Actuate, a nonprofit organization to research and demonstrate breakthrough solutions for societal challenges. Actuate aims to develop new forms of innovation that contribute to opportunity and good health for every person, trustworthy information, and climate stability. Prabhakar was a fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford University during 2017-18. Her public service includes serving as the director of the Defense Advanced Research Projects Agency (DARPA) 2012-17 and the director of the National Institute of Standards and Technology (NIST) 1993-97. In between, she worked in Silicon Valley as a senior executive at Raychem and at Interval Research and then for a decade as a partner at U.S. Venture Partners. Dr. Prabhaker holds a B.S. in electrical engineering from Texas Tech University and an M.S. in electrical engineering and a Ph.D. in applied physics from the California Institute of Technology. She is a fellow of the Institute of Electrical and Electronics Engineers and a member of the National Academy of Engineering.

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Staff

K. John Holmes
National Academies of Sciences
Planning Staff
John Holmes is the director and scholar for the National Academies' Board on Energy and Environmental Systems (BEES). The portfolio for BEES is broad and includes activities on climate mitigation and assessment, electricity system modernization, fuel economy technologies for light-duty vehicles, and energy innovation. Dr. Holmes is currently initiating a major Academies consensus study "Accelerating Decarbonization in the United States: Technology, Policy, and Societal Dimensions" to consider the technological, societal, and policy issues related to scaling up deep decarbonization in the energy sector. His other recent activities include co-directing a study on negative emissions technologies, directing a study on electricity system resiliency, and organizing a workshop on sub-national climate assessment. He has directed studies and published on a range of topics including vehicle technologies, mobile source emissions, renewable electricity, climate change, air quality management, stratospheric ozone depletion and carbon emissions trading. He has a personal interest in the long-term development of technology and policy, and has published papers such as "A historical perspective on climate change assessment"; "A century of environmental technologies for light-duty vehicles"; and "The early development of systems analysis in natural resources management" related to these interests. He received a B.S. from Indiana University, M.S.E. from University of Washington, and Ph.D. from The Johns Hopkins University.

Brent Heard
National Academies of Sciences
Planning Staff
Brent Heard is an Associate Program Officer of the Board on Energy and Environmental Systems at the National Academies of Sciences, Engineering and Medicine. He is developing and facilitating work to inform policy- and decision-makers on energy, environmental, and sustainability topics. He led the organization of the workshop on enhancing federal clean energy innovation, and contributes to consensus studies on electric grid modernization, light-duty vehicle fuel economy, and the National Science Foundation's approach to earth systems science. Brent previously worked with the Academies' Science and Technology for Sustainability program as a Sustainability Fellow and as a Consultant. He completed his PhD examining the sustainability implications of expansions and innovations in refrigerated food supply chains from the University of Michigan's Center for Sustainable Systems, publishing in high-impact journals including Environmental Science & Technology and having his research featured by news outlets including NPR, TIME, Forbes, and The Guardian. He earned a B.S. in Economics with an additional major in Environmental Policy from Carnegie Mellon University.

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Michaela Kerxhalli-Kleinfield
National Academies of Sciences
Planning Staff

Michaela Kerxhalli-Kleinfieldis a Research Associate on the Board on Energy and Environmental Systems at the National Academies of Sciences, Engineering, and Medicine where she supports projects related to energy policy including electric grid innovation, vehicle energy efficiency, and accelerating deep decarbonization. Prior to joining the Board in 2017, Michaela completed internships with the Alliance to Save Energy, Cadmus Group, and the Audubon Society. Her undergraduate research focused on the adoption of community microgrids in New York State. She holds a B.A. in Environmental Studies from Skidmore College.