

**Challenges and Opportunities towards a Just Transition and Sustainable Development:
A Workshop**

**Roundtable on Science and Technology for Sustainability
Board on Energy and Environmental Systems
Board on Science Education**

Monday, July 24, 2023
All times are US Eastern Time

The public is invited to [register](#) to join virtually.

AGENDA

Workshop Objectives:

- Reviewing just transition and sustainability initiatives across the globe, including key measurement frameworks and the nexus between a just transition and the Sustainable Development Goals (SDGs)
- Discussing the role of the private sector in supporting a just transition and sustainability, including how small and medium-sized enterprises could benefit from a just transition; and
- Highlighting positive case studies to understand the complexities of just energy transition programs and opportunities for education and inclusive skills development.

- 9:00 am **Welcome from the Roundtable on Science and Technology for Sustainability**
Franklin Carrero-Martínez, National Academies of Sciences, Engineering, and Medicine
Klaus Tilmes, Senior Policy Advisor and Development Consultant, Roundtable Co-Chair
Cherry Murray (NAS/NAE), University of Arizona, Roundtable Co-Chair
- 9:10 am **Workshop Overview and Objectives**
Jeff Martin, Tribal Planet, Workshop Chair
- 9:20 am **Framing Remarks: The Interrelated Concepts of a Just Transition and Sustainable Development**
Brian Motherway, Head of the Energy Efficiency Division, International Energy Agency
- 9:50 am **Panel I: Key Measurement Frameworks for Just Transitions and Sustainable Development**
This panel will focus on what key measures and frameworks have been developed to understand evolving issues of just transitions and sustainable development, including social transformation methodologies and strategies relating to the SDGs.
- Moderator: Nebojsa Nakicenovic, The World in 2050
- Marek Harsdorff, Economist, Green Jobs Programme, International Labour Organization
 - Vicky Sins, Decarbonization and Energy Transformation Lead, World Benchmarking Alliance
 - Noam Lior, Professor of Mechanical Engineering and Applied Mechanics, University of Pennsylvania; President, ECOS International Society

10:40 am	Q&A and Discussion
11:00 am	BREAK
11:15 am	<p>Panel II: Investing for Just Transitions and Sustainable Development <i>This panel will highlight key challenges and opportunities relating to investing for just transitions and sustainable development, including power sector transitions in developing countries, the importance of sectoral partnerships, and federal initiatives to address energy justice research and evaluation.</i></p> <p>Moderator: Beatriz Sanz Sáiz, Ernst & Young</p> <ul style="list-style-type: none"> • Pierre Audinet, Lead Energy Specialist, The World Bank • Riva Krut, Former Chief Sustainability Officer, Linde, PLC • Lupe Villatoro, Social Scientist for Energy Justice, Office of Economic Impact and Diversity and Tania Smith Taylor, Technical Director, Office of Legacy Management, U.S. Department of Energy
12:05 pm	Q&A and Discussion
12:25 pm	LUNCH
1:25 pm	<p>Panel III: Small and Medium-sized Enterprises for Just Transitions and Sustainable Development <i>This panel will discuss the role of small and medium-sized enterprises in addressing just transitions and sustainability progress, including innovative approaches and technologies to address a just transition while also affording resilience and economic vitality to a community.</i></p> <p>Moderator: Anne Roby (NAE), Formerly Linde, PLC</p> <ul style="list-style-type: none"> • Jennifer Holmgren (NAE), Chief Executive Officer, LanzaTech • Natalie Shemwell, Strategic Partnerships Manager, SME Climate Hub • Marcel J. Castro-Sitiriche, Co-Director, Center for Hemispherical Cooperation in Research and Education in Engineering and Applied Science, University of Puerto Rico, Mayagüez
2:15 pm	Q&A and Discussion
2:35 pm	BREAK
2:50 pm	<p>Panel IV: Just Transitions, Education, and Inclusive Skills Development <i>This final panel will focus on the importance of education and inclusive skills development to achieve just transitions and sustainable development, including youth programs across the globe, K-12 STEM education initiatives, and intergenerational and community-led perspectives.</i></p> <p>Moderator: Gillian Hinde, Ernst & Young</p> <ul style="list-style-type: none"> • Andrés Henríquez, Director, STEM Education Strategy, Education Development Center • Brian Mandell, Division Director, Curriculum, Digital Media, and Communications, Smithsonian Science Education Center

- Elizabeth Yeampierre, Co-chair, Climate Justice Alliance and Executive Director, UPROSE

3:40 pm Q&A and Discussion

4:00 pm **A Path Forward: Future Needs and Opportunities**
Based on speaker presentations and panel discussions, participants will discuss opportunities for international collaboration.
 All Participants with Jeff Martin, Tribal Planet, Moderator

4:25 pm **Wrap Up**

4:30 pm **Adjourn**

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Biographies of Invited Speakers

Welcome from the National Academies Roundtable on Science and Technology for Sustainability

FRANKLIN CARRERO-MARTÍNEZ joined the National Academies of Sciences, Engineering, and Medicine in 2018 where he directs the Global Sustainability and Development and the Science and Technology for Sustainability program within the division of Policy and Global Affairs. Prior to this appointment, he was the Acting Deputy Science and Technology Adviser to the Secretary of State. Dr. Carrero-Martínez holds a B.S. in biology, with honors from the University of Puerto Rico (UPR), a Ph.D. in cell and developmental neurobiology, and a certificate in business administration from the University of Illinois at Urbana-Champaign. His multidisciplinary career includes several roles in academia and government: from researcher and educator, science administrator, to science policy and diplomacy. Previously, Dr. Carrero-Martínez held appointments as associate professor at the UPR, Mayagüez, Adjunct Professor at the UPR Medical Science Campus, and as visiting scholar at Duke University, Massachusetts Institute of Technology, and Japan's Institute of Genetics. Dr. Carrero-Martínez started his career in science diplomacy and policy as the American Association for the Advancement of Science's Roger Revelle Fellow in Global Stewardship. He served this prestigious fellowship with a joint appointment between the Office of the Science and Technology Adviser to the Secretary of State (STAS) and the National Academy of Sciences.

KLAUS TILMES (Roundtable Co-Chair) is a Senior Policy Adviser and former World Bank Director with over 30 years of international experience in development policy, strategy development at global, country, and sectoral levels, and program implementation. Since leaving the World Bank, Mr. Tilmes is providing policy advice to international organization, governments, and private sector companies on economic trends, human development, data policies, and technology strategies. As senior expert, he works closely with the African Center for Economic Transformation and the United Nations organizations on science, technology, and innovation. At the World Bank, Mr. Tilmes worked most recently with the Office of the President to develop the institution's strategy on emerging technologies and scaling adoption through financial assistance, policy advice, and public-private partnerships. He served as Director of the Trade and Competitiveness Global Practice, overseeing operations across Sub-Saharan Africa, the Middle East, and North Africa and leading global expert teams on trade competition policy, innovation, and entrepreneurship. During his tenure at the World Bank, Mr. Tilmes also held positions as Operation and Strategy Director for Finance and Private Sector Development; Knowledge Strategy Advisor; and Manager at the Independent Evaluation Group. He earned a Master's in Public Administration from Harvard University as a McCloy Scholar and a Master in Economics from the University of Mannheim.

CHERRY MURRAY (NAS/NAE) (Roundtable Co-Chair) is Professor of Physics and Deputy Director for Research, Biosphere 2 at The University of Arizona. Her current research interests include policy, research, development, education and innovation to sustain human civilization on future Earth. From 1978 to 2004, Dr. Murray held a number of research positions, which culminated in the Senior Vice Presidency of Physical and Wireless Research, at Bell Laboratories, Lucent Technologies, formerly AT&T Bell Laboratories and previously Bell Telephone Laboratories, Inc. She then served at Lawrence

Livermore National Laboratory as Deputy Director for Science and Technology from 2004 to 2007, and as Principal Associate Director for Science and Technology from 2007 to 2009. She was dean of Harvard University's School of Engineering and Applied Sciences from 2009 to 2014. Dr. Murray served as the Director of the U.S. Department of Energy's Office of Science from 2015 until 2017. She served as president of the American Physical Society in 2009, on the National Commission on BP Deepwater Horizon Oil Spill and Offshore Drilling in 2010, has served on numerous National and American Academy, American Association for the Advancement of Science, American Physical Society, Department of Energy and Department of Commerce committees, and currently serves as chair of the board of the Okinawa Institute of Science and Technology Graduate University, director of the American Academy of Arts and Sciences and member of the National Academy of Engineering Council. From 2019-2021, she was elected as co-chair for science and is now treasurer of the Inter Academy Partnership, a partnership of over 140 national and regional science, engineering and medical academies dedicated to providing independent and credible advice to policy makers and to strengthening the role of academies nationally, regionally and globally. In 2021 she was appointed co-chair of the Ten Member Group of the Technology Facilitation Mechanism of the United Nations. Dr. Murray received her B.S. and Ph.D. in Physics from the Massachusetts Institute of Technology.

Workshop Overview and Objectives

JEFF MARTIN (Planning Committee Chair) is Founder and Chief Executive Officer (CEO) of Tribal Planet, Inc. Through the marketing and development of groundbreaking technologies, Mr. Martin has spent his career applying innovation to multimedia product design. Mr. Martin continues to build new mobile commerce channels by changing the way consumers engage with entertainment, industry and philanthropy. In 2001 and 2008, Mr. Martin founded Tribal Brands and Tribal Technologies, respectively. Tribal Brands developed mCommerce solutions for a variety of consumer brands and was one of the first companies to drive more than one billion dollars in mobile-based sales for the entertainment industry through 17 global carrier alliances. Tribal Technologies created the first intelligent database behind mobile applications that predicted consumer behavior and interactions, powering unique mCommerce channels, and providing incentive programs for customers. The extensive mobile analytics platform captured actionable, psychographic data highlighting user tastes and preferences collected through mobile devices. In 2014, Tribal Brands and Tribal Technologies were combined to create Tribal Planet. Prior to Tribal Planet, Mr. Martin helped pioneer the entertainment and new media markets divisions at Apple in the early 1990s for 9 years and was a direct report to Steve Jobs after the NEXT acquisition.

Framing Remarks: The Interrelated Concepts of a Just Transition and Sustainable Development

BRIAN MOTHERWAY is Head of the Energy Efficiency Division at the International Energy Agency (IEA), overseeing a range of analytical and outreach programmes supporting energy efficiency globally. He has many years' experience in clean energy policy and implementation working nationally and globally to support effective, people-centered actions. Prior to joining the IEA, Dr. Motherway was Chief Executive of the Sustainable Energy Authority of Ireland. Dr. Motherway holds Bachelors and Masters degrees in engineering and a Ph.D. in sociology.

Panel I: Key Measurement Frameworks for Just Transitions and Sustainable Development

NEBOJSA NAKICENOVIC (Moderator and Planning Committee Member) is the Executive Director of The World In 2050 (www.TWI2050.org). He is Deputy Chair of the Group of Chief Scientific Advisors to the European Commission, was the Deputy and Acting Director General of the International Institute for Applied Systems Analyses and tenured Professor of Energy Economics at Vienna Technology University. Among other positions, Dr. Nakicenovic has been a member of the Earth League; Earth Commission of the Global Commons Alliance; Multi-stakeholder Technical Group of Advisor on

Sustainable Development Goal 7; Scientific Advisory Boards of the Potsdam Institute from Climate Impact Research; Fondazione Eni Enrico Mattei; Japanese Institute of Environmental Studies; German Aerospace Center; Renewable Energy Policy Network for the 21st Century; OMV Advisory Group on Sustainability; and Climate Change Centre Austria. He has also been a Technology and Innovation Advisor to the Government of Montenegro. He serves on many Editorial Boards of peer-reviewed journals, including *Technological Forecasting and Social Change*; *Climate Policy*; *Energy Policy*; *Institution of Civil Engineers*; *Current Opinion in Environmental Sustainability*; *Energy Sector Management*; *Ecosystem Health and Sustainability*; *Scientific World Journal*; *Environmental Innovation and Societal Transitions*; and the *Energy Strategy Reviews*. Dr. Nakicenovic's research interests include the long-term patterns of technological change, economic development and response to climate change and, in particular, the evolution of energy, mobility, digital technologies. Dr. Nakicenovic holds bachelors and master's degrees in economics and computer science from Princeton University and the University of Vienna, where he also completed his Ph.D. He also holds Honoris Causa Ph.D. degree in engineering from the Russian Academy of Sciences.

MAREK HARSDORFF is currently an economist in the Green Jobs Programme, International Labour Organization, specialized in development cooperation and environmental economics. His main works include economic research on Green Jobs contributing to global reports and country assessments, assistance to countries to develop employment-led green economy strategies and design and management of technical cooperation programmes to create green jobs. Mr. Harsdorff has profound skills in economic input-output modelling of employment effects of green policies and experiences in applying scientific research for informed policy making.

VICKY SINS is Decarbonization and Energy Transformation Lead at the World Benchmarking Alliance. She is responsible for leading the Climate and Energy Benchmark to support the decarbonization of the economy and the Energy transition. She believes in private sector contribution and responsibility by demonstrating how companies in high carbon-emitting industries are contributing to the Paris Agreement and SDG 13, with the aim to enable the required transformation to a low carbon economy. Ms. Sins joined in May 2019 after spending the past 14.5 years working for ABN AMRO Bank and the last 7 years with ABN AMRO Clearing Bank in charge of Energy & Commodity clients. Besides this she was heading up the Corporate Social Responsibility strategy for ABN AMRO Clearing forcing industry dialogue to increase transparency to support safe and orderly capital markets. She was part of the Investor Working Group of the United Nations Sustainable Stock Exchange Initiative and instrumental in setting up partnerships between ABN AMRO Clearing and Frontclear (a developing country capital market infrastructure builder). She has a Master degree in Financial Management and is an alumni to the Prince of Wales' Cambridge Institute for Sustainable Leadership.

NOAM LIOR (B.S., M.S., Technion; Ph.D. University of California, Berkeley) is a Professor of Mechanical Engineering and Applied Mechanics at the University of Pennsylvania, and President of the ECOS International Society. At the university he is also a member of the Faculty Advisory Board of the Institute of Environmental Science, and was member of the Graduate Group of International Studies, Lauder Institute of Management and International Studies, and of the Initiative for Global Environmental Leadership (IGEL) of the Wharton Business School. Much of his work is in close cooperation with colleagues from many countries and he was honored as Guest Professor of the Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing. His main research, education and consulting are in energy/power (renewable, fossil, and nuclear, and their hybrids, power generation in space for terrestrial use), water desalination, and heat&mass transfer, fluid mechanics, and thermodynamics, with increasing focus on the scientific aspects of sustainable development. His work was recognized by a number of national and international awards. He is regularly part of the leadership of international scientific conferences about sustainable development of energy, and often their invited keynote speaker. He served the International Solar Energy Society as Director of the American Section and Chairman of its

Engineering Division. He is current or past member of the editorial boards of 15 international scientific journals, including having been Editor-in-Chief, Energy, The International Journal, 1998-2009, and Editor-in-Chief, Advances in Water Desalination book, John Wiley, 2006. Dr. Lior has more than 350 scientific, technical, and sustainability archival publications.

Panel II: Investing for Just Transitions and Sustainable Development

BEATRIZ SANZ SÁIZ (Moderator and Planning Committee Member) is Global Consulting Data and Analytics Leader for EY. She is a forward-thinking professional with experience in strategy and deep knowledge in artificial intelligence (AI) and analytics. She has been a partner with EY for 15 years. Ms. Sanz served in various roles within Europe, Middle East, India, Africa, and Asia-Pacific and leads more than 9,000 professionals. She is also responsible for analysts relationship in this technical domain where EY has obtained highest ranks by analysts such as Gartner and the International Data Corporation, leapfrogging our direct competitors. In her current role as Global Consulting Data Analytics leader, Ms. Sanz has actively worked Cross Service Lines, defining the Firm broad strategy for Data and AI and is actively driving the execution of the program. She is an advocate for Tech & Sustainability, being the sponsor partner of the “Better Working World” data program, aimed at solving some of the world’s largest issues through Data and AI. During her career, Ms. Sanz has also held senior positions with leading companies in financial services where she was responsible for establishing analytics and innovation as core competencies. She holds a master’s degree in Mathematics and Statistics from Complutense de Madrid. She is a game-changer, thought leader in analytics, customer centricity and Innovation. Awarded Consultant of the year by Consulting Magazine in 2018, she was named a Top Talent Executive Under 40 by AMROP, IESE and Royal House. Ms. Sanz was a speaker at the Emtech China 2019, Europe Money 20/20, Dubai World Government Summit.

PIERRE AUDINET is a Lead Energy Specialist at the World Bank where he currently leads the energy transition global team. Prior to joining the World Bank in 2004, he was with the International Energy Agency (IEA) and the French government. In his 30+ years career, he has advised governments on five continents. He led teams to consistently deliver a successful and innovative portfolio of complex policy dialogues and operations that financed investments in electricity and renewable energy. In recent years, he pioneered the World Bank Battery Storage Initiative launched in 2019. He led investments in large-scale expansion of solar electricity in West Africa and in Southern Africa. He initiated the Global Geothermal Development Plan, an initiative that tripled the volume of development finance for geothermal exploration. Dr. Audinet holds a Ph.D. in Economics from the School of Advanced Studies in Social Sciences (Paris, France), a MPhil and a MSc in Economics from Paris University. He has published 70 books, articles and reports on energy related issues.

RIVA KRUT is a corporate sustainability veteran of more than 30 years. She retired as Vice President and Chief Sustainability Officer of Linde plc in April 2021. At the time of her retirement, she was responsible for sustainable development strategy, targets and reporting; environmental management; human rights; community engagement and workforce development. She was a member of Linde’s Disclosure Committee and led engagements with ESG investors. Dr. Krut is past Chair, GRI (Global Reporting Initiative) Due Process Oversight Committee (three-year term); past member of the Corporate Advisory Group of the Carbon Disclosure Standards Board (CDSB) and has served on the Boards of several nonprofits. She is a member of the Board of the Lands and Conservation Commission of the town of Cumberland, Maine and on their Climate Action Plan Subcommittee. She has taught graduate university classes in corporate sustainability, Impact measurement and ESG at Columbia University, Yale, U North Carolina, NC State and NYU, among others; and is co-author of a book and several articles and reports. Dr. Krut received her Ph.D. in history from London University School of Oriental & African Studies and her B.A.(Hons), 1st Class, from the University of the Witwatersrand, Johannesburg. She completed the Harvard Business School HBX certificate in Sustainable Business Strategy.

LUPE VILLATORO serves as a social scientist in the Office of Economic Impact and Diversity, Office of Energy Justice Policy and Analysis at the U.S. Department of Energy. Ms. Villatoro has over 15 years of experience in the Federal government working at the intersection of energy, natural resources, and environment. Most recently, Ms. Villatoro was the socioeconomic subject matter expert supporting Offshore Wind in the Pacific for the Bureau of Ocean Energy Management (BOEM). Her work centered around developing socioeconomic analysis responsive to the National Environmental Policy Act (NEPA), managing applied social science research, and taking special interest in applying dynamic frameworks such as the coupling of human and natural systems to federal decision-making. In past positions, Ms. Villatoro has supported the development of Justice40 response and benefit methodologies at Federal Emergency Management Agency (FEMA). Ms. Villatoro has also managed research supporting Small Business Administration's (SBA) Office of Economic Research, Office of Advocacy. Prior to that, Ms. Villatoro was an Economist for the Federal Energy Regulatory Commission (FERC) where she developed economic analyses supporting the development of fair and reasonable electric rates, with a special focus on wind energy. She also worked for the Bureau of Labor Statistics in New York where she assisted in gathering price data for the consumer price index (CPI) used to track inflation. Ms. Villatoro has earned her B.S. in Economics from George Mason University, and her M.S. in Applied Economics from Johns Hopkins University. Ms. Villatoro is also a U.S. Air Force veteran where she served as an electronics technician for the 32nd Combat Communications Squadron/447 Air Expeditionary Force in Baghdad.

TANIA SMITH TAYLOR is Technical Director for Long-Term Stewardship for the U.S. Department of Energy's (DOE's) Office of Legacy Management (LM). In this position, she focuses on incorporating science and technology advances into LM's long-term surveillance and maintenance efforts and other activities; enhances collaborations with national laboratories, universities, and other agencies; and oversees LM's international programs. Previously, Ms. Taylor served as the LM Office of Business Operations (OBO) Deputy Director. OBO is responsible for managing LM's real and personal property program and its records and information associated with more than 100 legacy sites in the United States and the territory of Puerto Rico that served to support U.S. activities during World War II and the Cold War. Prior to joining LM, Ms. Taylor worked for the DOE Office of Environmental Management (EM), where she led several improvement initiatives for department-wide programs, EM's crosscutting programs, and for the EM American Recovery and Reinvestment Act Program. In addition to having DOE experience with the Savannah River Site Operations Office and EM Headquarters, Ms. Taylor has extensive experience managing environmental programs for the U.S. Army Corps of Engineers in Afghanistan, Africa, Balkans, Belgium, Germany, Italy, Iraq, and the Netherlands. She has also deployed as a civilian on three separate occasions to both Afghanistan and Iraq. Ms. Taylor has a civil engineering technology degree from South Carolina State University, a Master of Mechanical Engineering from Manhattan College, and a Master of Business Administration from Nova Southeastern University.

Panel III: Small and Medium-sized Enterprises for Just Transitions and Sustainable Development

ANNE ROBY (NAE) (Moderator and Planning Committee Member) is a Former Executive Vice President of Linde PLC. Previously, Dr. Roby served as Senior Vice President of Praxair, Inc., responsible for Global Supply Systems, R&D, Global Market Development, Global Operations Excellence, Global Strategic Sales, Global Procurement, Sustainability and Safety, Health and Environment. From 2011 to 2013, Dr. Roby served as President of Praxair Asia, responsible for Praxair's industrial gases business in China, India, South Korea and Thailand as well as the electronics market globally. Dr. Roby currently serves as chair of the Sustainability Working Group of the National Academy of Engineering (NAE) President's Business Advisory Committee. In addition, Dr. Roby currently serves as Chair, Nuvance Health and is an independent director for Twelve, Rinchem, Rogers Corporation, and AMG, N.V. Dr. Roby was elected to the U.S. National Academy of Engineering for "developments in oxidation processes and leadership in technological developments, safety, and business

growth in global industrial gas companies.” Dr. Roby received her Ph.D. in Chemical Engineering from University of Delaware and her B.Ch.E. in Chemical Engineering from Villanova University.

JENNIFER HOLMGREN (NAE) is Chief Executive Officer of LanzaTech. Under Dr. Holmgren’s guidance, LanzaTech is developing a variety of platform chemicals and fuels, including the world’s first alternative jet fuel derived from industrial waste gases. She is also the Director and Chair of the LanzaJet Board of Directors. Prior to LanzaTech, Dr. Holmgren was Vice President and General Manager of the Renewable Energy and Chemicals business unit at UOP LLC, a Honeywell Company. While there, she was a key driver of their leadership in low carbon aviation biofuels. Dr. Holmgren has authored or co-authored 50 U.S. patents and more than 30 scientific publications and is a member of the National Academy of Engineering. She is on the Governing Council for the Bio Energy Research Institute in India. The institute has been set up by the DBT (Department of Biotechnology, Indian Government) and IOC (Indian Oil Corporation). She also sits on the Advisory Council for the Andlinger Center for Energy and the Environment at Princeton University, the National Academies’ Board on Energy and Environmental Systems (BEES), the Halliburton Labs Advisory Board, the Universiti Teknologi PETRONAS International Advisory Council, and the Founder Advisory for The Engine, a venture capital fund built by MIT that invests in early-stage science and engineering companies. Dr. Holmgren holds a B.Sc. degree from Harvey Mudd College, a Ph.D. from the University of Illinois at Urbana-Champaign and an MBA from the University of Chicago.

NATALIE SHEMWELL is the Strategic Partnerships Manager for the SME Climate Hub with the We Mean Business Coalition. In this role she is responsible for developing and managing partnerships with non-profit, corporate, financial, and government stakeholders to accelerate a global movement mobilizing and incentivizing small and medium business to reduce emissions and take climate action on net zero. Natalie previously provided consulting services to multi-national companies helping them to develop and implement strategies and partnerships in support of corporate social and environmental sustainability goals. Her experience also includes designing strategies and implementing projects for the United States Agency for International Development (USAID) focused on bringing government and corporate stakeholders together to collaborate on shared economic, environmental, and social goals all over the world.

MARCEL J. CASTRO-SITIRICHE is a professor of Electrical Engineering since 2008 and co-director of the Center of Hemispheric Cooperation (CoHemis) since 2015 at the University of Puerto Rico Mayagüez Campus (UPRM). His research interests include energy justice, appropriate technology, rural microgrids, solar home systems, rural electrification, power electronics, and responsible wellbeing. He received a Ph.D. electrical engineering degree from Howard University in Washington, DC in 2007 and his B.Sc. electrical engineering degree from UPRM. He spent the 2014-2015 year at Nelson Mandela African Institution of Science and Technology in Arusha, Tanzania, as a Fulbright Scholar. His latest efforts have been focused on the bottom-up grid concept for remote rural areas and power decentralization for resilience and energy justice.

Panel IV: Just Transitions, Education, and Inclusive Skills Development

GILLIAN HINDE is Global Corporate Responsibility Leader for EY Global Services Limited. She leads implementation of the EY Ripples program to help drive sustainable inclusive growth in its communities, as well as overseeing efforts to embed social and environmental value creation more deeply in everything we do. A native South African, Ms. Hinde moved to Sydney, Australia, where she joined EY in 2010. There, she spent six years with Advisory and Financial Services before joining the global Digital team, helping to develop and package new digital service offerings. Combined with experience at Unilever and then the Standard Bank Group in South Africa, launching new services for the underbanked, this explains her passion for innovating new models and collaborations that can help accelerate the creation of social

and environmental impact at scale. Using the skills, knowledge and experience of EY people, and the influence and convening power of the global EY organization, she and her team seek to build the kind of collaborations that can make a lasting and meaningful difference to the quality of life of millions of people. By working collectively and forging vibrant new ecosystems, she believes she can recast our economic model to one that creates equity of opportunity for all; one that measures progress not just in terms of the rate of growth, but also the quality of that growth and people's "lived experience" of it.

ANDRÉS HENRÍQUEZ is a Director of STEM Education Strategy at the Education Development Center (EDC). He is a national expert in science, educational technology, and policy. He brings extensive experience in philanthropy, having served as a program officer at the National Science Foundation and the Carnegie Corporation of New York. Mr. Henríquez is deeply committed to making a difference in the lives of underserved children. For decades, he has worked to achieve this goal as an educator, researcher, advocate, and funder. He has led work in adolescent literacy and college and career ready standards and assessments, including the writing and adoption of the Next Generation Science Standards. Most recently, Mr. Henríquez led a partnership between the New York Hall of Science, public schools, and first-generation Latinx families in Corona, Queens. Earlier in his career, he worked at EDC's Center for Children and Technology, where he led a partnership between Bell Atlantic and Union City Schools that fueled a community transformation in Union City, New Jersey, and received national recognition from President Clinton. Mr. Henríquez holds an M.A. from Teachers College and a B.A. from Hamilton College.

BRIAN MANDELL is the Division Director of Curriculum and Communications for the Smithsonian Science Education Center (SSEC). In this role, he provides support and direction for the talented Curriculum and Communication staff in the development of world-class print and digital curricular resources. This work includes our new curriculum, Smithsonian Science for the Classroom, which embeds objects and research from the Smithsonian Institution, is built to current science standards, asks students to design solutions to real-world problems, provides research-based support for common student misconceptions, and seamlessly integrates print and digital resources. Dr. Mandell joined the SSEC in 2014 as a Science Curriculum Developer, where he was responsible for developing print and digital curricular materials that were grounded in current scientific, educational and cognitive research, empowered teachers, and helped all students develop a deep understanding of science and engineering practices. Prior to joining SSEC, Dr. Mandell taught middle school science for 13 years in Virginia and Maine. In his free time, he is an adjunct professor at George Mason University teaching classes that focus on curriculum and instruction, learning theory, and instructional design. Dr. Mandell earned his Ph.D. in Educational Psychology with a secondary emphasis in Instructional Design from George Mason University in 2013. Dr. Mandell also has an undergraduate degree in Environmental Science from the University of Delaware and a Master's degree in Education from the University of Southern Maine.

ELIZABETH YEAMPIERRE is an internationally recognized Puerto Rican attorney and environmental and climate justice leader of African and Indigenous ancestry born and raised in New York City. A national leader in climate justice movement, Ms. Yeampierre is the co-chair of the Climate Justice Alliance. She is Executive Director of UPROSE, Brooklyn's oldest Latino community based organization. Her award winning vision for an inter-generational, multi-cultural and community led organization is the driving force behind UPROSE. She is a long-time advocate and trailblazer for community organizing around just, sustainable development, environmental justice and community-led climate adaptation and community resiliency in Sunset Park. Prior to assuming the Executive Director position at UPROSE, Ms. Yeampierre was the Director of Legal Education and Training at the Puerto Rican Legal Defense Fund, Director of Legal Services for the American Indian law Alliance and Dean of Puerto Rican Student Affairs at Yale University. She holds a B.A. from Fordham University, a law degree from Northeastern University.