



— 2023 · 2024 —

ENERGY
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*CRITICAL ISSUES
IN ENERGY*

**THE GULF COAST HYDROGEN ECOSYSTEM:
OPPORTUNITIES & SOLUTIONS**



UH Energy

UNIVERSITY OF HOUSTON

ABOUT THE

SYMPOSIUM

As the world looks to keep up with energy demands and create a supply that is affordable, accessible, reliable and clean, hydrogen has emerged as an important player in the energy transition arena.

Low-carbon hydrogen is viewed as a key component of most credible and sustainable energy scenarios of the future, and as the industry continues to evolve, present and future professionals and decision-makers must be prepared to do the same. It is vitally important that current and prospective energy professionals, stakeholders and decision makers understand the opportunities and solutions offered by the growing hydrogen sector and are equipped to be an integral part of the changing economy as Houston –and the Gulf Coast region –has been identified as an area with significant potential to anchor a global-leading hydrogen ecosystem. With this in mind, the University of Houston will lead conversations that examine opportunities and solutions across the gulf coast hydrogen ecosystem. Today's symposium will feature an in-depth analysis across four critical areas: (1) technology, (2) business, (3) policy, regulatory, and safety (4) community engagement. UH experts and energy industry partners will comprehensively explore the various aspects surrounding the integration of hydrogen into the energy landscape.

I extend my sincere gratitude and appreciation to industry partners, faculty and community leaders who have joined alongside us in this educational endeavor. Additionally, I wish to thank each of today's session leads: Joe Powell, Alan Rossiter, Melvin White, Gail Butterff, Ram Seetharam and Greg Bean. Your expertise, insights, and dedication to helping us advance our stakeholders' understanding of critical energy topics are invaluable, and on behalf of UH Energy, we are deeply thankful for your time, expertise, and commitment to the pursuit of solutions.

Of course, I would be remiss if I did not recognize the efforts of those working behind the scenes, as this symposium - especially one of this scale - would not be possible without them. The leadership, guidance and advisement of Vice President for Energy and Innovation Ramanan Krishnamoorti and UH Energy Program Director Dr. Deidra Perry coupled with the efforts of UH Energy Program Manager Riane Harris and our communications team are what helped make the organization, marketing and promotional efforts of this event a success. We could not have done it without you, nor could we have done it without the planning, administrative and technical help of the entire UH Energy staff. Lastly, I thank each and every one of you who have chosen to attend this event. I have no doubt that you will be able to take something from this event that can assist you or your organization in contributing to the needed advancements on the road to the energy transition.



Paul Doucette

*Hydrogen Program Officer
UH Energy*

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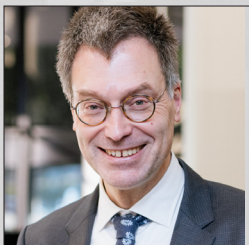
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A SNEAK PEAK OF
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KEYNOTE SPEAKERS



Brett Perlman, CEO, *Center for Houston's Future*

Brett A. Perlman serves as the CEO of the Center for Houston's Future, a nonprofit organization working to address matters of highest importance to the long-term future of the greater Houston region. His career has spanned senior positions in business, government and community service organizations. Perlman served for four years as a Commissioner on the Public Utility Commission of Texas, where he was appointed in 1999 by then-Governor George W. Bush. He holds advanced degrees in public policy from Harvard University and in law from the University of Texas, and was a Phi Beta Kappa graduate of Northwestern University.



Dr. Steven Libbrecht, Interim Executive Director, *Hydrogen Council*

Steven joined the Hydrogen Council in 2021, as the Director Operations and PMO. His first mission was to establish the Council's headquarters in Brussels, hiring the Secretariat team, managing the operations, governance processes and the membership base as well as organizing the support for the Hydrogen Council studies and initiatives. Since September 2023, he has been the Interim Executive Director. He started his career in the Shell Group of Companies, with positions in Belgium, Italy, France, in R&D, project management, sales and marketing. For several years he has been the Executive Director of a family owned Belgian SME active in the cork sector (120 staff).



Dr. Prasanna V. Joshi, Vice President, Low Carbon Solutions Technology
ExxonMobil Technology and Engineering Company

As the Vice President for Low Carbon Solutions Technology, Prasanna leads a team of Scientists and Engineers focused on technology delivery in Carbon Capture, Carbon Storage and Transport, Hydrogen, Low Emissions Fuels, Lithium and Carbon Offsets. His mission is to deliver the technology solutions that will be critical for ExxonMobil to lead in the energy transition. Prasanna joined the Company in 1998 and during the course of his career he has held a variety of roles including research engineer at the development labs in Baton Rouge, leadership roles in process and modeling research, planning for research and engineering, supply and transportation and global marketing and sales. In 2018, he was named Global Sales Director for the Specialty Elastomer business and was based in Shanghai, China and in 2020, Prasanna became the Corporate Strategic Research Director before assuming his current position in April 2022. Prasanna earned his bachelor's degree in Chemical Engineering from the University of Mumbai, received an MBA with a major in Finance from Tulane University and a Ph.D. at the University of Delaware. Prasanna has served on the advisory board of the United Way of Hunterdon County, the Chemical Reaction Engineering Division of AIChE and the Catalysis Center for Energy Innovation (CCEI) at the University of Delaware.

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TECHNOLOGY



TECHNOLOGY SESSION 1: HYDROGEN PRODUCTION



Joe Powell, Founding Executive Director, *UH Energy Transition Institute* (**SESSION MODERATOR**)

Joe Powell (Joseph B. Powell, PhD) is Executive Director of the University of Houston Energy Transition Institute, a member of the U.S. National Academy of Engineering, Fellow and former Director of the American Institute of Chemical Engineers. Powell served as Shell's first Chief Scientist (Chemical Engineering) from 2006 to 2020, culminating a 36-year industry career where he led R&D programs in new chemical processes, biofuels, enhanced oil recovery, and advised on global strategy for the energy transition to a net-zero carbon economy. Powell is co-inventor on more than 125 patent applications (60 granted), has received AIChE / ACS / R&D Magazine awards for Innovation, Service, and Practice, and is co-author of *Sustainable Development in the Process Industries: Cases and Impact* (2010). Previously, he chaired the U.S. Department of Energy Hydrogen and Fuel Cell Technical Advisory Committee (HTAC), served two terms on the U. S. National Academy Board on Chemical Sciences and Technology and on the editorial board of *Annual Review of Chemical and Biological Engineering*, and serves as climate advisor for the U.S. Business Council for Sustainable Development. Powell has served as crosscutting team lead for *Mission Innovation Carbon Capture Utilization and Storage* (2017), and currently serves on the National Academy Carbon Utilization Infrastructure, Markets, Research, and Development Committee and DOE's Industrial Technology Innovation Advisory Committee. Powell earned his Ph.D from the University of Wisconsin-Madison and his bachelor's from the University of Virginia, both in chemical engineering.



Anthony Borski Director, Project Management Office, *Nel Hydrogen*

Anthony is the Director of the PMO Office for the Western Hemisphere headquartered in Houston. His role oversees the business development, tendering, project engineering, purchasing, manufacturing, delivery, and installation of the company's large multi-megawatt projects. His team also leads the new product development for balance of stack and balance of plant systems, focusing on value engineering and prototype manufacturing. Before joining Nel, Anthony spent 15 years in oil and gas with Schlumberger and Cameron in deepwater drilling and production systems. He has a deep history of large EPC projects and cutting-edge technology development covering nearly \$1.5 Billion in equipment deliveries. Anthony was responsible for establishing the PMO office for Nel and responsible for migrating the integration of the balance of system of the Electrolyzers into API Q1 facilities. Anthony studied Technology Development at Texas A&M University and holds a master's in finance from the University of Houston. Anthony is an active member in PMI, BSA, and the Red Cross. Away from work, he loves spending time outdoors with his two small children and flying.



Eric McFarland, *Professor of Chemical Engineering, University of California Santa Barbara*

Professor Eric McFarland has devoted his career to the science and engineering of energy conversion. He studied Nuclear Engineering and received his Ph.D. from the Massachusetts Institute of Technology. Since 1991 he has worked in catalysis and reaction engineering in the Department of Chemical Engineering at UCSB. His work is both fundamental and applied. McFarland has always worked closely with industry and has held executive positions in several chemical technology companies and continues to serve as a Board member and advisor. He is the founder and Chief Technology Officer of CZero a company developing technology to use fossil resources to produce solid carbon and hydrogen without carbon dioxide emissions.



Kevin Topolski, Hydrogen Infrastructure Analyst, *National Renewable Energy Laboratory*

Kevin Topolski is a Hydrogen Infrastructure Analyst at the Center of Integrated Mobility Sciences within the National Renewable Energy Laboratory (NREL), holding 9 years of experience in energy system analysis, chemical processes and process controls spanning renewables, fossil fuels and petrochemicals. Kevin's work at NREL is focused on techno-economic analysis (TEA) regarding hydrogen infrastructure, covering production, transportation, storage, and end use. His current research at NREL focuses on hydrogen production cost modeling considering variable renewable energy sources, TEA of hydrogen blending into natural gas transmission pipelines, and general TEA support for several hydrogen hubs. Prior to NREL, Kevin has spent 2 years as a process control support engineer at ExxonMobil. Kevin holds a B.S. and Ph'D in Chemical Engineering from Purdue and Texas A&M University, respectively. The latter of which where Kevin's research focused on integrating chemical manufacturing facilities into Eco-Industrial Parks to improve material and energy efficiencies.



Michael Wang, Distinguished Fellow and Systems Assessment Center Director, *Argonne National Laboratory*

Dr. Michael Wang is a Distinguished Fellow and the Director of the Systems Assessment Center at Argonne National Laboratory. Dr. Wang leads the ongoing development of Argonne's GREET model for life cycle analysis of transportation fuels, technologies, and energy systems (see greet.anl.gov for details). At present, there are nearly 60,000 registered GREET users globally. The GREET model and its results have been used by agencies such as the California Air Resources Board, the U.S. Environmental Protection Agency, the U.S. National Highway Traffic Safety Administration, the International Civil Aviation Organization, and the hydrogen and fuel incentive provisions of the Inflation Reduction Act. Besides, the model and results are used by automotive companies, energy companies, and others to address the greenhouse gas footprints of their businesses, products, and technologies. Dr. Wang is a fellow of the Society of Automotive Engineers. He is on the editorial boards of four international journals. He has over 330 publications in the areas of transportation energy and environment effects.

TECHNOLOGY SESSION 2: HYDROGEN DEMAND AND USE



Joe Powell, Founding Executive Director, *UH Energy Transition Institute* (**SESSION MODERATOR**)

Joe Powell (Joseph B. Powell, PhD) is Executive Director of the University of Houston Energy Transition Institute, a member of the U.S. National Academy of Engineering, Fellow and former Director of the American Institute of Chemical Engineers. Powell served as Shell's first Chief Scientist (Chemical Engineering) from 2006 to 2020, culminating a 36-year industry career where he led R&D programs in new chemical processes, biofuels, enhanced oil recovery, and advised on global strategy for the energy transition to a net-zero carbon economy. Powell is co-inventor on more than 125 patent applications (60 granted), has received AIChE / ACS / R&D Magazine awards for Innovation, Service, and Practice, and is co-author of *Sustainable Development in the Process Industries: Cases and Impact* (2010). Previously, he chaired the U.S. Department of Energy Hydrogen and Fuel Cell Technical Advisory Committee (HTAC), served two terms on the U. S. National Academy Board on Chemical Sciences and Technology and on the editorial board of *Annual Review of Chemical and Biological Engineering*, and serves as climate advisor for the U.S. Business Council for Sustainable Development. Powell has served as crosscutting team lead for *Mission Innovation Carbon Capture Utilization and Storage* (2017), and currently serves on the National Academy Carbon Utilization Infrastructure, Markets, Research, and Development Committee and DOE's Industrial Technology Innovation Advisory Committee. Powell earned his Ph.D from the University of Wisconsin-Madison and his bachelor's from the University of Virginia, both in chemical engineering.



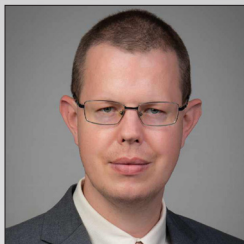
Zhifeng Ren, Paul C. W. Chu and May P. Chern Endowed Chair in Condensed Matter Physics and director of the Texas Center for Superconductivity, *University of Houston* (**CO-PRESENTER**)

Zhifeng Ren is the Paul C. W. Chu and May P. Chern Endowed Chair in Condensed Matter Physics, and the Director of the Texas Center for Superconductivity at the University of Houston (TcSUH). He received his BS in 1984 from Sichuan Institute of Technology, MS in 1987 from Huazhong University of Science and Technology, and PhD in 1990 from the Institute of Physics, Chinese Academy of Sciences. His research focuses on catalysts, water treatment, membrane, and electrolyzer for H₂ generation via water electrolysis, thermoelectric materials and devices for cooling and power generation, boron arsenide single crystals for high thermal conductivity and carrier mobility, sodium nanofluids for enhanced oil recovery and cleaning, superconductors levitated high speed vehicles, heated HEPA filters for catching and killing SARS-CoV-2 causing COVID-19 pandemic, recycling of spent batteries, etc.



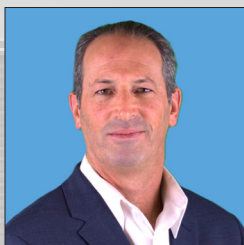
John Holler, Low-Carbon Fuels and Transportation Senior Fellow, *Climate and Energy Solutions*

John Holler is the Low-Carbon Fuels and Transportation Senior Fellow at the Center for Climate and Energy Solutions (C2ES). He researches and analyzes the technologies, markets, and policies required to advance widespread adoption of low-carbon fuels toward the decarbonization of hard-to-abate sectors. Mr. Holler engages with the organization's technology working groups, regional roundtables, and policy advocacy campaigns. Before joining C2ES, Mr. Holler led the World Wildlife Fund's aviation decarbonization program with a specific focus on alternative fuels. Under this work, Mr. Holler advanced policy and corporate frameworks for the sustainable production and uptake of low-carbon fuels and their feedstocks, including US policy advocacy and international engagement under the International Civil Aviation Organization (ICAO). Prior to the World Wildlife Fund, Mr. Holler worked on sustainability standards, where he supported the operation and development of carbon market and sustainable development standards. Mr. Holler holds a Master of Environmental Law and Policy from Vermont Law School and BAs in political science and environmental studies from the University of Vermont.



Hack Heyward, Hydrogen and Fuel Cell Expert, *NeedStack*

Hack Heyward has worked in the hydrogen energy and fuel cell industry for more than a decade. Notable projects include fuel cell vehicle fleets in China, green hydrogen projects in the US, and policy analysis in Europe. Hack specializes in market applications for fuel cells and has delivered projects in the materials handling, heavy duty trucking, maritime, and data center back-up power applications. Hack is currently based in Houston, TX, where he supports the local hydrogen energy ecosystem.



Uzi Hadar, Head of Corporate Development and CEO, *EdgeCloudLink*

Mr. Hadar, CFA, is a seasoned finance, corporate development and alternative investments executive driving all aspects of ECL's financing strategy and corporate development efforts including cultivating partnerships across the hydrogen ecosystem. ECL is the first off-grid, hydrogen-powered, highly efficient data center-as-a-service provider. Prior to joining ECL, Uzi led both liquid and illiquid investment strategies as a private equity sponsor and advisor, as well as having a background in investment banking. Throughout his career, Uzi advised and collaborated with investors and companies on strategic, corporate development and financial initiatives, and has broad industry relationships with emerging growth companies, industry leaders, alternative investment firms, family offices, institutional and strategic investors. Mr. Hadar is a Chartered Financial Analyst (CFA) and earned his MBA from the Darden School at the University of Virginia.



Jason Lankford, Energy and Climate Senior Technology Center Director, *Dow*

Jason Lankford has been the Energy and Climate Senior Technology Center Director for Dow since 2018. In this role, Jason directs the strategic technology plans for Dow's power and utility assets in manufacturing sites around the world focusing on safety, reliability, sustainability and affordability. Prior to his current role, Jason held various manufacturing leadership roles throughout North America including site and production leadership. Prior to joining Dow, Jason served as an officer in the United States Navy in various roles for 7 years. Jason earned his Bachelor of Science degree in chemical engineering from Tulane University in New Orleans, LA, in 1995, and his Master of Engineering degree (Engineering Management focus) from Cornell University in Ithaca, NY, in 2001. Jason currently lives and works out of the Houston, Texas area.



Kirk Waltz, Director of Business Development - Clean Energy Transition, *American Bureau of Shipping*

Kirk Waltz is Director of Business Development for Clean Energy Transition opportunities with American Bureau of Shipping (ABS). Kirk is an Environmental Engineer with fifteen plus years of experience as an environmental consultant in heavy industry spanning the carbon lifecycle from upstream oil and gas, production, midstream and refining, to disposal. Kirk is the business development lead for ABS's contributions to domestic maritime energy transition and decarbonization, with a focus on research, development, demonstration and deployment projects of future fuels and alternative power options enabling just energy transitions in the blue economy. He also leads in developing public private partnerships for launching Green Shipping Corridors globally.

TECHNOLOGY SESSION 3: HYDROGEN SUPPLY CHAIN AND DISTRIBUTION



Ram Seetharam, Energy Center Officer - ROICE Program, *University of Houston/UH Energy*
(SESSION LEAD)

Ram currently serves as the Program Lead for ROICE (Repurposing Offshore Infrastructure for Clean Energy) at UH Energy, a multi-disciplinary energy research program at the University of Houston. ROICE is an Industry-Academia-Government-Public consortium developing an offshore green wind and hydrogen demonstration project in the Gulf of Mexico. Ram is also a managing partner at EnergeX Consultants, offering consulting services in carbon capture and sequestration (CCS). Ram retired as a senior executive at ExxonMobil after a 33-year career in the Upstream industry. His Upstream experience includes subsurface, concept selection, project and oilfield economics, asset valuation and technical support to major capital projects. He has held multiple key managerial and technical leadership positions influencing major upstream projects in the industry including Kazakhstan, Russia, North Sea, Middle East and Unconventionals. Ram was recognized as an Engineering Distinguished Alumni by the UH Cullen College of Engineering. He has Masters and Ph.D. degrees in Chemical Engineering from the University of Houston, and a Bachelors in Chemical Engineering from the Indian Institute of Technology, Madras.



Sam Porter, CEO, *NeuVentus*

Sam Porter is founder and CEO of NeuVentus. NeuVentus is a salt cavern storage and pipeline developer focused on the growing clean hydrogen space. NeuVentus's first salt cavern storage project is located on the Moss Bluff salt dome, midway between Houston and Beaumont and in the heart of many clean hydrogen and carbon sequestration projects, including the HyVelocity Hydrogen Hub. Before founding the predecessor to NeuVentus in 2020, Sam practiced law in the Project Finance group of Norton Rose Fulbright in Austin, where his practice focused on representing developers and sponsors of wind, solar, storage and electric grid transmission projects. Prior to joining Norton Rose Fulbright, Sam held legal and commercial positions at SunPower and Corpus Christi Natural Gas. Sam started his legal career in the M&A group in the New York and Tokyo offices of Simpson Thacher & Bartlett. He earned his law degree from Columbia University in New York and his undergraduate degrees from the University of Utah.



Dr. Krishna Reddi, Principal Energy Systems Analyst, *Argonne National Laboratory*

Dr. Krishna Reddi is a Principal Energy Systems Analyst at the Argonne National Laboratory (ANL). He developed the Hydrogen Station Cost Optimization and Performance Evaluation (H₂SCOPE), a tool that has been used to conduct detailed analyses of hydrogen refueling station design configuration, refueling protocols, and optimization methods, including the analysis of hydrogen precooling system and its impact on the fueling cost to customers. His research focuses on modeling the hydrogen delivery infrastructure including pipelines, hydrogen carriers and hydrogen refueling stations. His research also includes the life cycle analysis of hydrogen production and delivery pathways using the Argonne's GREET model. He updates and expands the suite of ANL's techno-economical models, including the HDSAM and HDRSAM models, to incorporate new technologies and component costs and informs of the levelized delivery and refueling costs to stakeholders. He developed several licensed patents related to hydrogen fueling methods. He published extensively in the hydrogen delivery and refueling area. He has authored and coauthored over 45 technical reports and journal articles. His research interests include sustainable energy systems, and life cycle analysis. Dr. Reddi obtained his Ph.D in mechanical and aerospace engineering from Syracuse University.



Dr. Christine Ehlig-Economides, Professor and Hugh Roy and Lillie Cranz Cullen Distinguished University Chair, *UH Cullen College of Engineering*

Dr. Christine Ehlig-Economides is Professor and Hugh Roy and Lillie Cranz Cullen Distinguished University Chair at the University of Houston. Prior to her current position, Ehlig-Economides taught at Texas A&M University for ten years and worked twenty years for Schlumberger. Ehlig-Economides was elected to the U.S. National Academy of Engineering in 2003 and became an Honorary Member of the Society of Petroleum Engineers in 2018. She chaired The Academies of Medicine, Engineering, and Science in Texas (TAMEST) shale task force in 2017. Ehlig-Economides earned a Bachelor of Arts in Math-Science from Rice University, a Master of Science in chemical engineering from the University of Kansas, and a Ph.D. in petroleum engineering from Stanford University.



Mehdi Rafiee, CEO and Co-Founder, *Gemini Energy*

Mehdi Rafiee is the CEO and co-founder of Gemini Energy, a hydrogen technology company based in Los Angeles, CA. He was previously an investment manager at Equinor Ventures active in early-stage investments in energy startups. In this role, Mehdi witnessed hydrogen's critical role in the shift toward a sustainable energy future and seized the opportunity to make a meaningful contribution. Prior to his venture tenure, Mehdi served as a technologist at Equinor Technology for five years where he developed and commercialized several key technologies rooted in energy. Mehdi holds M.Sc and Ph.D degrees in Petroleum Engineering from Texas Tech University.

TECHNOLOGY SESSION 4: GEOLOGIC HYDROGEN



Joe Powell, Founding Executive Director, *UH Energy Transition Institute* (**SESSION MODERATOR**)

Joe Powell (Joseph B. Powell, PhD) is Executive Director of the University of Houston Energy Transition Institute, a member of the U.S. National Academy of Engineering, Fellow and former Director of the American Institute of Chemical Engineers. Powell served as Shell's first Chief Scientist (Chemical Engineering) from 2006 to 2020, culminating a 36-year industry career where he led R&D programs in new chemical processes, biofuels, enhanced oil recovery, and advised on global strategy for the energy transition to a net-zero carbon economy. Powell is co-inventor on more than 125 patent applications (60 granted), has received AIChE / ACS / R&D Magazine awards for Innovation, Service, and Practice, and is co-author of *Sustainable Development in the Process Industries: Cases and Impact* (2010). Previously, he chaired the U.S. Department of Energy Hydrogen and Fuel Cell Technical Advisory Committee (HTAC), served two terms on the U. S. National Academy Board on Chemical Sciences and Technology and on the editorial board of *Annual Review of Chemical and Biological Engineering*, and serves as climate advisor for the U.S. Business Council for Sustainable Development. Powell has served as crosscutting team lead for *Mission Innovation Carbon Capture Utilization and Storage* (2017), and currently serves on the National Academy Carbon Utilization Infrastructure, Markets, Research, and Development Committee and DOE's Industrial Technology Innovation Advisory Committee. Powell earned his Ph.D from the University of Wisconsin-Madison and his bachelor's from the University of Virginia, both in chemical engineering.



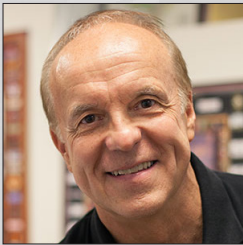
Dirk Smit, Independent Energy Transition Consultant and Corporate Chief Scientist, *Shell* (retired)

Dirk graduated from Utrecht University in 1989 with a PhD in Mathematical Physics, String Theory. He went on to complete a postdoc at Berkeley and was awarded a subsequent postdoc at Harvard University. He joined Shell's Geophysics R&D department in the Netherlands in 1992. He retired from Shell as Corporate Chief Scientist in November 2023. He was awarded an Oxford University stipend scholarship and will join Oxford Univ (Martin School and Earth Sciences) for a year. He has furthermore become an affiliate of the MIT Energy Initiative and the School of Earth, Atmospheric and Planetary Sciences. While at Shell he has held numerous positions, including Chief Geophysicist for Shell UK, and Vice President Exploration and Upstream Technology. From 2015 as VP Research Strategy his work shifted to "systems thinking and engineering" aspects of the energy transition to a net-zero emission system and became Shell's first Corporate Chief Scientist (Chief Science Officer) in 2019. He is frequently asked as a keynote speaker in Europe, US and Asia, and writes about aspects of the energy transition. In his role as Corporate Chief Scientist he has been advising Shell's Executive Committee and Board.



Jane Zhang, Business Fellow, *Breakthrough Energy*

Jane Zhang is a Business Fellow at Breakthrough Energy, advising climate-tech startup companies in energy transition innovation, including industrial decarbonization (steel, cement, and chemicals), carbon capture and removal, clean hydrogen, and renewable energies (offshore wind). Jane began her career as a mechanical engineer. She worked on various assignments at Shell – downstream and upstream, where she held technical and management positions in R&D, operation, engineering, capital projects, technology, and innovation investment. She was General Manager of Global Deepwater Technology from 2010 to 2016 and General Manager of Shell Technology Brazil based in Rio de Janeiro from 2016 to 2021. Jane holds a BS in Engineering Mechanics from Tsinghua University and a PhD in Theoretical and Applied Mechanics from Cornell University.



Rob Stewart, Professor of Geophysics, Cullen Chair in Exploration Geophysics, and director of the Allied Geophysical Laboratories, *University of Houston*

Robert Stewart is Professor of Geophysics, holds the Cullen Chair in Exploration Geophysics, and is Director of the Allied Geophysical Laboratories at the University of Houston. Prior to his current position, he was employed with Chevron's Oil Field Research Lab in California; ARCO in Dallas; and Veritas Software in Calgary. Stewart was Professor of Geophysics at the University of Calgary, held its Chair in Exploration Geophysics, and co-founded the CREWES Project, a university-industry consortium. He received the Natural Sciences and Mathematics Teaching Excellence Award from the University of Houston in 2013 and was presented with the UH Provost's Teaching Excellence Award in 2014. Rob is a licensed geoscientist in Alberta (P. Geo.) and Texas (P.G.). Stewart was a Society of Exploration Geophysicists' (SEG) Distinguished Educator and received the SEG Lifetime Membership Award. He also served as President of the Canadian SEG and received its Honorary Membership Award and Medal. He served as Vice President of the Geophysical Society of Houston and is currently Vice President of the SEG. Stewart received his Bachelor of Science in physics from the University of Toronto and a Ph.D. in geophysics from the Massachusetts Institute of Technology.

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BUSINESS





Greg Bean, Executive Director, Gutierrez Energy Management Institute at the Bauer College of Business, *University of Houston* (**SESSION MODERATOR**)

Greg Bean is the Executive Director of the Gutierrez Energy Management Institute in the Bauer College of Business at the University of Houston. In this position, he is responsible for energy-related curriculum, student experiential learning, research, industry events and industry outreach at Bauer. He is also the Faculty Director of the Master of Science in Global Energy Management Degree Program and an Adjunct Faculty member. His teaching and research focus is on the transition to a sustainable energy system. Greg has over forty years of energy-related experience in industry, management consulting, and higher education.



Brian Maxwell, Founder and CEO, *Green Hydrogen International*

Brian Maxwell is the CEO and Founder of Green Hydrogen International. He is a trained geologist with 15 years' experience as a successful renewable energy developer. Realizing the critical importance of salt-cavern storage in green hydrogen production, Brian led GHI's successful acquisition of a global portfolio of strategic storage-grade salt rights and is now developing giga-scale green hydrogen projects around these assets. GHI's flagship development is the industry-leading Hydrogen City Project in South Texas. Prior to founding GHI, Brian was CEO of EastEdge Energy, a Japanese solar development company, and NowSolar Inc, an independent Canadian solar developer. He holds a BSc (Honors) in Geology from Queen's University in Ontario, Canada.



Cindy Jia, Director - Sustainable Finance, *ING*

Cindy Jia is a seasoned energy industry professional with a career spanning across project finance, technology development, and business strategy. In her current role as a Director in ING's Sustainable Finance team, she advises clients in the energy and energy-intensive sectors on financing solutions to advance sustainability projects and goals. Prior to joining ING, Cindy led an energy technology start-up specializing in high temperature/pressure heat exchangers and reactors, helping the company and its partners win multiple awards from the US Department of Energy with projects funded by Argonne National Lab, Naval Nuclear Lab, the Small Business Innovation Research program, the Solar Energy Technologies Office, Office of Fossil Energy and Carbon Management, and Office of Nuclear Energy. Cindy was also first inventor of a novel heat exchanger that was selected for funding by the Advanced Research Projects Agency – Energy, one of the DOE's most selective programs sponsoring transformational research, alongside the likes of MIT, GE, and Boeing. Cindy has a BS in Economics from the Wharton School of the University of Pennsylvania and a J.D. from the St. Francis School of Law. Cindy is admitted to the California Bar.



Chris Angelides, Managing Director, Oil and Gas Consulting, *Ernst & Young, LLP*

Chris Angelides is Managing Director in Oil and Gas Consulting at the Ernst & Young LLP (EY) Houston office, where he supports EY clients in their energy transition and sustainability journeys. Angelides' expertise includes integration of new and conventional energy, mobility, hydrogen economy, CCUS, ESG for industry, and more. Angelides has three decades of international, technical, and commercial, experience in the energy industry, with senior leadership roles in strategic planning, operations, and stakeholder management. Angelides retired from Shell USA in 2023, after directing Shell U.S. Energy Transition Integration. He is an Adjunct Professor at the Bauer College of Business, where he teaches Intro to Oil & Gas Strategy and Sustainability & ESG for Industry. He serves on the Bauer College Advisory Board, and as an Advisory Board member of the Consortium for Energy Corporate Social Responsibility (CECSR) at UH Energy.



Nigel Jenvey, Vice President - Energy Transition Project Development, *Baker Hughes*

Nigel is an industry leader in the Energy Transition, Decarbonization and Carbon Management, and an expert in Carbon Capture, Use and Storage (CCUS), Hydrogen and Energy Storage. With over 25 years of global energy industry experience with major international energy companies Shell and bp, Nigel has lead public-private partnership technology programs, policy and regulatory development organizations, project development and operations, and capability building efforts in low carbon energy. This includes roles such as global head of CCUS at bp, chair of the CO₂ Capture Project, chair of the North American CCS Association, peer-reviewer for International Energy Agency reports, and alternate chair for execution of the National Petroleum Council CCUS Study. At Baker Hughes, Nigel guides the company's strategy and growth initiatives to advance new frontiers for energy that will position the company to help meet global energy demand by offering lower carbon solutions across industries. Nigel also is an industry lecturer at the University of Houston in their executive education courses on CCUS and the Hydrogen Economy. He also serves as an independent board director for Natural Gas Services Group, and is chair of the Safety and Sustainability Committee and member of the Audit and Nominating & Governance Committees. Nigel graduated from Imperial College, London with a Master's degree in Petroleum Engineering, and from The University of Leeds, UK with a Bachelor's degree with honors in Mining Engineering. Nigel now lives in Houston, Texas with his wife and 2 children.



Chris Shugart, Senior Vice President - Development, *Ambient Fuels*

Chris comes to Ambient Fuels with over 25 years of experience in renewable and industrial and energy projects including wind, solar, battery storage, high voltage transmission, and cogeneration. Chris is responsible for leading the development, execution, and operations of the Ambient Fuels' project pipeline. Prior to his current role, Chris was a member of the executive management teams at leading renewable energy firms Pattern Energy and Rev Renewables (LS Power). In these roles, Chris had diverse leadership roles spanning project development, construction, project operations, asset management, corporate operations, supply chain and construction management of renewable energy and storage projects. Prior to Pattern, Chris worked in power project development roles at Calpine Corporation, including extensive work helping energy intensive industrial clients to improve the efficiency and environmental footprint of their operations. Chris earned an MBA from the University of Phoenix and a Bachelor of Science in Mechanical Engineering from Virginia Tech. He resides in Houston TX with his wife and has three children.



Scott Nyquist, Senior Advisor, *McKinsey & Company* (**SESSION MODERATOR**)

Scott Nyquist is a senior advisor and former senior partner in the management consulting firm McKinsey & Company. He serves energy and industrial companies on matters of strategy, organization, and performance improvement. During his 35-plus year tenure, Nyquist has advised oil and gas companies, power companies/utilities, chemical companies, and mining companies. Additionally, he has counseled private equity and industrial firms that support the energy industry. Nyquist joined McKinsey in 1984 in the firm's London office until 1998, when he transferred to Houston. His main firm leadership roles included directing McKinsey's European and North American oil and gas practices, and co-leading McKinsey's Global Energy and Materials sector and Sustainability and Resource Productivity practices. A member of McKinsey's board of directors, Nyquist participated in McKinsey's review committees for partner performance. He was on the extended board of the McKinsey Global Institute, which is McKinsey's internally funded think tank. Nyquist has initiated and led numerous published research projects on topics related to energy, sustainability, and the U.S. economy. Nyquist graduated from the University of Michigan with a B.S. in chemical engineering in 1980, worked for Exxon Production Research in Houston from 1980-1982, and obtained an M.B.A. from Harvard Business School in 1984.



Andy Steinhubl, Founding Board Member, *Green Hydrogen International*

Andy Steinhubl serves on the boards of Green Hydrogen International, a global green hydrogen project developer, and the Center for Houston's Future, where he formerly served as Chairman. He has led several initiatives underpinning the energy transition in Greater Houston, including developing a vision for Hydrogen in the future energy system, in collaboration with the University of Houston (UH). Subsequently, during his term as Chair, the Center catalyzed the formation of the HyVelocity hub. Andy also serves as a lecturer for UH energy transition and business of hydrogen courses, and as a Bauer Business School Energy Program Advisor. Previously, he served as an Independent Director and interim CEO of FlexGen Power Systems, a leading Battery Energy Storage System provider. Earlier consulting career roles included launching the energy and chemicals strategy practice of KPMG and playing various national and global energy sector leadership roles as a senior partner at McKinsey and at Booz & Company. Andy earned a BSChE at Purdue University and an MBA from Stanford University's Graduate School of Business.



Gus Eghneim, Senior Vice President and Chief Compliance Officer, *PROENERGY*

Gus Eghneim is Senior Vice President and Chief Compliance Officer at PROENERGY, a vertically integrated aeroderivative power services company offering equipment manufacturing; engineering, procurement, and construction (EPC); and power plant operations and maintenance. PROENERGY owns and operates the world's largest commercial LM gas turbine fleet, including 2.4 GW of gas-fired peaking power plants in the greater Houston area with an added 1.6 GW under construction. In his role, Gus leads all aspects of regulatory and ethics compliance, sustainability, enterprise risk management, and quality assurance. Gus started his career as a regulation writer at the Texas Commission on Environmental Quality. Over a span of 30 years, primarily in the power industry, he has held senior technical and management roles at companies including Enron, Duke Energy, Wood Group, and EthosEnergy. A Licensed Professional Engineer in Texas, Gus received bachelor's and master's degrees in mechanical engineering from Oklahoma State University, a Ph.D. in mechanical engineering from the University of Houston, and an executive MBA from the University of Houston.



Rick Westerdale, Executive Director, *Energy Futures Initiative*

Richard (Rick) W. Westerdale II is an Executive Director at the Energy Futures Initiative (EFI), a Washington, D.C.-based nonprofit think tank. Rick has over 30 years of international business and government experience. EFI is a Washington-based nonprofit organization dedicated to harnessing the power of technology and policy innovation to accelerate the clean energy transition. During his years in government service, Rick was a senior advisor at the U.S. Department of State, where he counseled senior principals up to the Secretary, on the nexus of energy with U.S. national security and international energy policy priorities. With a focus on international energy affairs and their effect on U.S. business interests, he represented the United States in a variety of bilateral and multilateral fora and established agreements on a range of energy initiatives. He helped establish the Energy Resources Bureau within the Department and served as the inaugural Director of Policy Analysis and Public Diplomacy. In industry, Rick served as Senior Vice President and on the Board of Directors for Jiangnan Environmental Protection Group, an environmental technology provider, where he was responsible for oil and gas strategy. During his nearly two-decade tenure with ExxonMobil, he worked domestically and globally in multiple senior-level positions. At Exxon, Rick developed Exxon's first equity marketing strategy for liquified natural gas in Asia. Rick received a Bachelor of Science in Civil Engineering from the University of Kentucky and is a registered Professional Engineer. He also earned an MBA from Averett University. His continuing education has included executive programs at UNC's Kenan-Flagler Business School and the Thunderbird School of Global Management. Rick is a U.S. Army veteran and lives with his family in Northern Virginia.



Christi Knox, Senior Business Development Manager - Energy Transition, *Bechtel*

Christine Thoms Knox is a Senior Business Development Manager specializing in Energy Transition at Bechtel. With a strong focus on advancing hydrogen value chain projects in North America, Christine brings extensive expertise in hydrogen, ammonia, and e-methane technologies, bolstered by her deep understanding of licensor technologies and electrolyzers. Prior to her current role, Christine led Innovation and Digital Solutions for Bechtel Energy, where she spearheaded technology-driven strategies to enhance productivity, sustainability, and customer value. Her adeptness in fostering collaborative relationships with customers, technology licensors, OEMs, and start-ups has been instrumental in driving project advancements aligned with decarbonization goals. Previously, Christine held the position of Senior Vice President and Chief Innovation Officer at CB&I. Christine boasts over two decades of leadership experience spanning various domains including construction, energy, strategic planning, innovation, change management, investor relations, communications, marketing, organizational behavior, mergers and acquisitions, market research and development, and governance. She holds a master's in business administration from Duke University's Fuqua School of Business and a bachelor's degree in advertising from The University of Texas. Christine also holds certifications from Harvard Business School and Michigan Ross School of Business. Her commitment to community engagement is reflected in her board membership with United Way of Greater Houston. Christine was also recognized as one of the 'Top 20 Under 40' by Engineering News Record (ENR), 'Top 40 Under 40 Professionals' by the Houston Business Journal, and as a 'Power 50 Recipient' by the National Diversity Council.



Alex Rozenfeld, Founder, *Climate Impact Capital*

Alex Rozenfeld founded Climate Impact Capital, LLC in 2016, filling the market gap for early-stage ClimateTech companies and strategic investors. With 25 years of energy and innovation experience, he has been a leading voice for deep corporate partnerships with start-ups to accelerate climate change solutions. Alex has been investing since 2001, including hydrogen, fuel cells, Agtech, EV infrastructure, and grid resiliency. Alex is an active supporter of the energy entrepreneurship community through The Center for Houston's Future, Advisory Board of the Rice Alliance for Technology and Entrepreneurship, and Advisory Council for the Houston Advanced Research Center. Notable past roles include President at Shell Technology Ventures, LLC. His work also includes international roles, such as the Advisory Board to the Energy Innovation Initiative at World Economic Forum (WEF). Under Alex's leadership, Climate Impact Capital launched Texas Innovates in 2019, a non-profit hardtech incubator working on energy and water challenges, where Alex is President of the BoD. In 2024 they launched the Carbon and Hydrogen Innovation and Learning Incubator (CHILI) with regional university and corporate partners. Alex also co-founded CIC Energy Holdings in 2021 to bring solar microgrids and resiliency to underrepresented communities. In 2023 CIC Energy was awarded the American Made Community Power Accelerator prize from the Department of Energy (DOE). Alex holds BSE Mechanical and Aerospace Engineering magna cum laude and an International Policy certificate from Princeton University, and an MBA from MIT's Sloan School of Management.

BUSINESS SESSION 3: HYDROGEN DISTRIBUTION CHALLENGES



Brian Weeks, Senior Director, R&D Development, *GTI Energy* (**SESSION MODERATOR**)

Brian Weeks is the Senior Director, R&D Development for GTI Energy. GTI is an independent, not-for-profit research and development institute that has been bringing innovative technology to the energy industry for 80 years. In his current role, Mr. Weeks leads large-scale technology demonstration and validation programs for public-private partnerships, primarily with the U.S. DOE and GTI Energy's many industry clients. These programs address advanced fuel infrastructure systems for hydrogen, natural gas, and hybrid electric vehicles. A recent key role was his leadership in organizing the Gulf Coast clean regional hydrogen hub (HyVelocity) where he continues to lead stakeholder outreach initiatives. Mr. Weeks also serves on the Board of the Clean Hydrogen Futures Coalition and was appointed to the Texas Railroad Commission's hydrogen advisory council. He is a sought-after advisor on technical, market, and regulatory issues surrounding the introduction of emerging energy technologies – especially those involving hydrogen, in which he has over 20 years of experience. Mr. Weeks is a graduate of Vanderbilt University where he received his undergraduate engineering degree. He also has an MBA and is a registered Professional Engineer in the State of Texas.



Jeff Jung, Pipeline Engineering Specialist - New Technologies, *Enbridge*

Jeff is a professional engineer and Pipeline Engineering Specialist with Enbridge's New Energy Technologies Group. Jeff supports an array of low-carbon projects across the company including in hydrogen, ammonia, renewable natural gas and carbon capture, utilization and sequestration. Jeff has supported the launch of North America's first utility-scale power-to-gas hydrogen blending facility, hydrogen-fuelled combined heat and power system as well as engineering assessments for hydrogen blending in existing natural gas systems. Jeff serves on various research and standards bodies including the Pipeline Research Council International's Emerging Fuels Institute, Canadian Standards Association's hydrogen task force and American Society of Mechanical Engineers' CO₂ task group.



Jordan Spradling, Senior Manager of Logistics, *Pilot Flying J*

Jordan currently oversees all logistics and transportation functions for Pilot Flying J including 1,500 trucks and 2,500 drivers across 46 states and 5 Canadian provinces. Additionally, he began the hydrogen logistics division in 2021, delivering compressed gas and cryo liquid hydrogen in California and all across the U.S. This division safely delivers over 200,000 kilograms per month to multiple customers. Jordan has been with Pilot Flying J since 2012 in the company's logistics and optimization division. Jordan graduated from the University of Tennessee with a degree in industrial engineering.



Allen Toweill, Strategy Development Principal, *Chevron Technology Ventures*

Allen (Al) Toweill is a Strategy Development Principal with Chevron Technology Ventures and has been with Chevron for 24 years. His current focus areas include hydrogen and other lower carbon fuels. Before joining CTV, Al managed Chevron's Biofuels Compliance Strategy (including California's Low Carbon Fuel Standard compliance program), was a project manager for the West Coast Supply Chain Optimization group and held positions of increasing responsibility within Richmond and El Segundo refineries in process engineering and planning. Al joined Chevron in 2000 as a Chemical Engineer from University of Washington. Al enjoys backpacking and other outdoor endeavors.



Margaret Ferez, Director, Commercial Strategy & Planning, *Air Liquide Hydrogen Energy @ Mobility, North America*

In her current role, Margaret manages various aspects of the hydrogen value chain, fostering partnerships with leaders within the hydrogen industry and exploring collaboration opportunities and business strategies in line with Air Liquide's ambitions. To maintain a competitive advantage, she is responsible for producing deliverables and negotiating agreements related to hydrogen energy development, multiple supply, and contractual models with partners and customers. Margaret joined Air Liquide Leading EXcellence (ALLEX) in 2012 as an engineer in the training and development program and has since held various leadership positions within the company including her most recent role as Project Development Manager for Capital Implementation, Air Liquide Americas. In addition, Margaret holds a Bachelor's of Science degree in Chemical Engineering.



Mothusi Pahl, Vice President Of Business Development & Government Affairs, *Modern Hydrogen*

Mothusi Pahl has spent two decades leading new technology introduction in energy, infrastructure, utilities and heavy industry. With a background managing teams building and operating large, embedded power plants, Mothusi leads Commercial Operations at Modern Hydrogen, a Seattle-based energy technologies company backed by NextEra Energy and National Grid. Focused on accelerating the marketplace for delivery of decarbonized natural gas (DNG), Mothusi's experience working with client utilities covers the spectrum from small rural cooperatives to large public utility holding companies, and state-owned utilities in emerging international markets. The former Chief Commercial Officer at infrastructure-focused private equity firm B3, Mothusi served as President at powerline inspection technology company VOLT. A repeat entrepreneur, Mothusi cofounded the early field operations augmented reality company Ondaka and is an active alumnus at Stanford University's startup accelerator StartX.



Greg Bean, Executive Director, Gutierrez Energy Management Institute at the Bauer College of Business, *University of Houston* (**WRAP-UP LEADER**)

Greg Bean is the Executive Director of the Gutierrez Energy Management Institute in the Bauer College of Business at the University of Houston. In this position, he is responsible for energy-related curriculum, student experiential learning, research, industry events and industry outreach at Bauer. He is also the Faculty Director of the Master of Science in Global Energy Management Degree Program and an Adjunct Faculty member. His teaching and research focus is on the transition to a sustainable energy system. Greg has over forty years of energy-related experience in industry, management consulting, and higher education.

PRESENTATION: THE NATIONAL PETROLEUM COUNCIL HYDROGEN STUDY TEAM

THE GULF COAST HYDROGEN ECOSYSTEM: OPPORTUNITIES & SOLUTIONS

- 2023 · 2024 -

ENERGY
SYMPOSIUM
SERIES

CRITICAL ISSUES
IN ENERGY



POLICY, REGULATORY & SAFETY





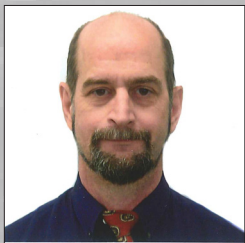
Alan Rossiter, Executive Director, External Relations and Educational Program Development
University of Houston/UH Energy (SESSION CHAIR)

Dr. Alan Rossiter is UH Energy's Executive Director, External Relations & Educational Program Development. In this capacity, he oversees UH Energy's micro-credential portfolio, including The Hydrogen Economy program. Prior to joining UH Energy, Dr. Rossiter served in a variety of engineering and management positions with two major chemical companies, Imperial Chemical Industries (ICI) in England, and Saudi Basic Industries (SABIC) in Saudi Arabia. He also worked for the industrial energy efficiency and waste minimization consulting firm Linnhoff March in the US, as a senior consultant, operations manager, and interim president. Later he ran his own independent consulting firm. Dr. Rossiter obtained his bachelor's, master's, and doctoral degrees in chemical engineering from the University of Cambridge. He is a licensed professional engineer (Texas). He is the lead author of *Energy Management and Efficiency for the Process Industries* (AIChE / Wiley, 2015), and he was the contributing editor for *Chemical Processing's* award-winning monthly *Energy Saver* column from 2019-2022.



Nick Barilo, Executive Director, Center for Hydrogen Safety, *American Institute of Chemical Engineers (PRESENTER)*

Nick Barilo is the Executive Director of the Center for Hydrogen Safety (CHS) at the American Institute of Chemical Engineers (www.aiche.org/chs). He is also the Hydrogen Safety Program manager at the Pacific Northwest National Laboratory (PNNL). CHS is a global nonprofit organization that promotes the safe handling and use of hydrogen in various industrial and consumer applications during the energy transition. As the Executive Director of CHS, Nick facilitates access to hydrogen safety experts, leads the development of comprehensive safety guidance, outreach, and education materials, and expands a platform to partner on worldwide technical solutions. Nick is a licensed fire protection engineer with over 35 years of experience and has dedicated his career to reducing risks to personnel and property. Nick has served on the NFPA 2 Hydrogen Technologies Code committee and played a crucial role in developing the document's fundamental chapters. His work at PNNL provides critical hydrogen safety support for the U.S. Department of Energy's Hydrogen and Fuel Cells Office. In this role, he leads safety knowledge dissemination and directs the U.S. Hydrogen Safety Panel activities. Nick is also an accomplished author, having written papers and journal articles, and has presented nationally and internationally on hydrogen safety.



Kelly Thomas, Vice President and Manager - Blast Effects, *BakerRisk (PRESENTER)*

Dr. Kelly Thomas is a vice-president and manager of the blast effects section at BakerRisk. He graduated with a Ph.D. in nuclear engineering from Texas A&M University, where he worked primarily in the areas of advanced nuclear fuels and space nuclear power systems. Dr. Thomas worked at the Department of Energy's Savannah River Site until 1999, with a focus on nuclear fuels and materials, accident analysis, and flammability and explosion issues. Dr. Thomas joined BakerRisk in 1999, where his primary focus has been on the characterization, modeling and testing of flammability & explosion related phenomena, explosion consequence assessments, and the investigation of accidental explosions. He serves on the NFPA Explosion Protection Systems Technical Committee and the Hydrogen Safety Panel.



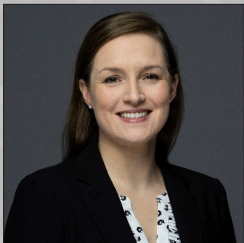
Susan M. Shifflett, Executive Director, *Texas Hydrogen Alliance* (**SESSION MODERATOR**)

Susan M. Shifflett has worked in the Clean Fuel markets for more than 25 years. Currently, Mrs. Shifflett serves as the Executive Director of the Texas Hydrogen Alliance. Previously, she served as President of the Texas Clean Fuels Alliance, formerly the Texas Natural Gas Vehicle Alliance. Ms. Shifflett focused on developing new and expanding natural gas transportation markets and refueling stations in the State of Texas using industry initiatives, government programs, energy education and community relations. She worked closely with her Alliance members to craft and promote natural gas legislation in Austin and Washington DC. Her company, S3 Services provides safety training, permitting assistance, and grant writing to private and public companies making the switch to cleaner sustainable fuels. Additional work experience includes marketing coordinator for the Alternative Fuels Research and Education Division at the Railroad Commission of Texas and the Dallas Fort Worth Clean Cities Coordinator for the North Central Texas Council of Governments. She holds a BS and MS in Environmental Science from Texas Christian University. She currently resides in Burton, Texas with her husband, Ron.



Jeff Pollack, Chief Strategy and Sustainability Officer, *Port of Corpus Christi Authority*

Jeffrey Pollack is the Chief Strategy and Sustainability Officer at the Port of Corpus Christi Authority, where he oversees all planning, environmental, and Geographic Information Systems (GIS) functions. Jeff leads the Port's energy transition and decarbonization strategies, including commercialization of all links in the hydrogen production and export value chain as well as deployment of both onshore and offshore carbon capture and geologic storage. Jeff joined the Port in mid-2018 as its inaugural Director of Planning, with responsibility for organizational strategic planning, land-use master planning (with an emphasis on coastal resilience), transportation planning, federal and state grant pursuits, and Technology Advancement Program. Prior to joining the Port, Jeff served as the Executive Director for the Corpus Christi Metropolitan Planning Organization. Jeff specializes in growth and development issues in coastal zones and brings specialized experience in multi-modal transportation and watershed planning. He holds a Bachelor's degree in Environmental Science from Northwestern University and a Master's degree in Coastal Environmental Management in Coastal Environmental Management from Duke University, where he was a Doris Duke Conservation Fellow. Jeff is a certified planner through the American Institute of Certified Planners and is an Envision Sustainability Professional through the Institute for Sustainable Infrastructure.



Katie Zimmerman, Decarbonization Director - Americas, *Wood*

Wood's Katie Zimmerman is a prominent energy industry leader highly experienced in engineering and technical solutions for energy transition. Named one of the industry's Top 50 women in hydrogen by the Hydrogen Economist and a Woman Who Means Business by the Houston Business Journal, Katie is an expert in hydrogen and carbon capture - two of the world's fastest growing clean energy solutions. Based in the world's energy capital, Houston, Texas, Katie's own career story began in oil and gas as a process engineer for offshore and shale market sectors. Seeing the opportunities for new energies to achieve net zero, Katie now plays a leading role in developing solutions for decarbonization to reduce emissions and helping the world's energy companies effectively deliver major clean hydrogen and carbon capture projects.



Craig Chick, Founder and Principle, *Capitol Partners Consulting*

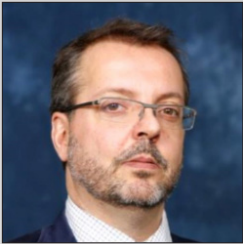
Craig Chick is the founder and principle of Capitol Partners Consulting bringing extensive experience in the sunset advisory process, drafting legislation, authoring interim reports, and directing political campaigns. Craig is known as one of the most honest voices in Texas politics and is well regarded by both Republicans and Democrats. He is unique among legislative consultants because of his rare combination of knowledge of the internal and parliamentary procedures of both the House and Senate. His relationships and reputation combined with his procedural experience are at the core of what differentiates him. For years, Craig has been ranked as a top 20 lobbyists in Texas in the Texas Lobby Power Rankings published by veteran capitol reporter, Mike Hailey, at CapitolInside.com. Prior to re-entering private practice at his founding firm Capitol Partners, for six years Craig led the Government Solutions practice for Foley and Lardner, LLP, a nationally recognized law firm. Craig was a former senior advisor to Speaker Joe Straus on issues impacting business, energy, and government efficiency. Craig has been instrumental in the development of Texas' public policy approach to hydrogen energy through his representation of a diverse alliance of hydrogen companies. He has also represented the Texas Association of REALTORS as the organization's director of political affairs. Over his 30 years in Texas politics, Craig has been engaged in 15 regular and 18 special sessions of the Texas Legislature. He has experience in both chambers of the Texas Legislature, having worked for House and Senate offices and committees. He has authored three published legislative interim committee reports on a variety of issues that range from land use to tort litigation.



Bryan Lethcoe, Director, Southwest Region, Office of Pipeline Safety, *PHMSA*

Bryan served in the U.S. Navy for 20 years, both as an active-duty submarine officer and in various leadership and staff roles in the Navy Reserve, retiring with the rank of Commander. Since leaving active duty, Bryan has over 20 years of experience working in a variety of segments in the Oil and Gas industry in Houston, including onshore and offshore pipeline integrity technology development, pipeline integrity consulting, offshore drilling technical audit and field support, LNG technical audit and operational excellence, and High Reliability Organization consulting. Prior to joining PHMSA, Bryan was the Director, Office of Program Management Support, Office of Defense Programs for the National Nuclear Security Administration (NNSA) in Albuquerque, NM.

HYDROGEN POLICIES IN TEXAS AND THE NATION



David Bastidas, Integrity Engineer, *ROSEN (SESSION MODERATOR)*

Dr. David M. Bastidas is an Integrity Engineer with ROSEN based in Houston (US). He is a Materials and Corrosion consultant within the Integrity Solutions Group. He has a large background in Corrosion and Materials R&D and Education, alongside 20+ years' experience in corrosion control and management, including electrochemical mechanisms and materials characterization, performance in service, surface science, and failure analysis. Specialty in environmental assisted cracking, localized corrosion, atmospheric corrosion, MIC, coatings and inhibitors formulation solutions for corrosion protection. David gained his PhD in Material Science and Engineering at the University of Barcelona (Spain). David is serving in different technical and research committees, as well as symposium chair in AMPP (Association for Materials Protection and Performance). David is the subject editor for Corrosion Engineering in the Engineering Failure Analysis journal (Elsevier), and associate editor for Corrosion and Materials Degradation journal. David has been distinguished among Top Researchers for 2023 by The Stanford University Ranking of The World's Top Contributors to their fields of Science. He is the inaugural winner of the new ECS Corrosion Division Rusty Award for Mid-Career Excellence 2022, also he is the recipient of the National Corrosion Award of Excellence 2020.



Josie Long, Senior SMS and Safety Culture Consultant, *Process Performance Improvement Consultants*

Josie has over 15 years of oil and gas pipeline industry experience in safety and regulatory programs with gas transmission, hazardous liquids, and natural gas distribution pipeline operators and trade associations. She provides process-based solutions that can be integrated into strategies and programs for pipeline operators to achieve sustainable improvement. Her focus is on safety management systems, safety culture assessments and regulatory and compliance issues. She has participated in the University of Houston Hydrogen and Carbon Capture, Use and Storage (CCUS) Executive Programs—specifically on CO₂ pipelines, pure hydrogen, and hydrogen/natural gas blending applications. Josie has led pipeline industry initiatives with operators and trades for gas emission quantification/reduction efforts, cost-benefit analysis of proposed regulations, economic impact assessments of new pipelines, including advocacy efforts. She serves as the technical advisor for American Petroleum Institute, Interstate National Gas Association of America, and Northeast Gas Association on safety culture initiatives, resulting in research from over 50 pipeline operators for over 10 years. She also actively works with the Center for Hydrogen Safety (CHS) on promoting hydrogen safety culture. Josie is a Senior Consultant for Process Performance Improvement Consulting (P-PIC) and responsible for research with energy pipeline operators to gather organizational safety insights to reduce system risk and develop continuous improvement plans.



Bryan Lethcoe, Director, Southwest Region, Office of Pipeline Safety, *PHMSA*

Bryan served in the U.S. Navy for 20 years, both as an active-duty submarine officer and in various leadership and staff roles in the Navy Reserve, retiring with the rank of Commander. Since leaving active duty, Bryan has over 20 years of experience working in a variety of segments in the Oil and Gas industry in Houston, including onshore and offshore pipeline integrity technology development, pipeline integrity consulting, offshore drilling technical audit and field support, LNG technical audit and operational excellence, and High Reliability Organization consulting. Prior to joining PHMSA, Bryan was the Director, Office of Program Management Support, Office of Defense Programs for the National Nuclear Security Administration (NNSA) in Albuquerque, NM.



Clay Atwood, Director of Project Execution for New Energy Projects, *The Williams Companies*

Clay Atwood is the Director of Project Execution for New Energy Projects at The Williams Companies. Clay is responsible for the technical research, development and execution of projects supporting the Williams energy transition including wind, solar, waste heat recovery, hydrogen and CCUS. Clay has over 30 years of experience in project execution, operations, and maintenance management in both engineering and operating companies. Prior to his role at Williams, Clay worked as the Director of Engineering for Linde Engineering North America supporting the natural gas, hydrogen, and air separation sectors. Clay has a Master of Science degree in Mechanical Engineering from Texas A&M University and a Master of Business Administration degree from Southern Methodist University.

SAFETY AND REGULATION FOR HYDROGEN PIPELINES



Matthew Holland, Regional Hubs Manager - Gulf Coast, *Clean Air Task Force (PRESENTER)*

Matthew Holland is CATF's Gulf Coast Regional Hubs Manager. He works alongside the Zero-Carbon Fuels and Carbon Capture teams to advance the decarbonization of industrial emission sources in the Gulf of Mexico region. In his role as a Hubs Manager, Matthew facilitates communication, education, and policy advocacy among a wide range of stakeholders with a focus on carbon capture, hydrogen, and ammonia production in the region. His work in the Gulf Coast is part of a broader effort by CATF to partner with regional, state, and local policy makers to identify paths to decarbonization that effectively reduce emissions, create economic opportunity, and address environmental harms from incumbent industries. Prior to joining CATF in 2023, Matthew worked as a data analyst and research associate at the Kathleen Babineaux Blanco Public Policy Center. His research experience includes examining regulatory approaches for offshore wind and utility-scale solar, facilitating stakeholder engagement processes for statewide planning efforts, and authoring legislative policy briefs on a wide range of topics. Matthew holds a B.S.B.A. in Economics from the University of Louisiana at Lafayette and currently resides in his hometown of Lafayette, LA.



Michael Wang, Distinguished Fellow and Systems Assessment Center Director, *Argonne National Laboratory (PRESENTER)*

Dr. Michael Wang is a Distinguished Fellow and the Director of the Systems Assessment Center at Argonne National Laboratory. Dr. Wang leads the ongoing development of Argonne's GREET model for life cycle analysis of transportation fuels, technologies, and energy systems (see greet.anl.gov for details). At present, there are nearly 60,000 registered GREET users globally. The GREET model and its results have been used by agencies such as the California Air Resources Board, the U.S. Environmental Protection Agency, the U.S. National Highway Traffic Safety Administration, the International Civil Aviation Organization, and the hydrogen and fuel incentive provisions of the Inflation Reduction Act. Besides, the model and results are used by automotive companies, energy companies, and others to address the greenhouse gas footprints of their businesses, products, and technologies. Dr. Wang is a fellow of the Society of Automotive Engineers. He is on the editorial boards of four international journals. He has over 330 publications in the areas of transportation energy and environment effects.

LIFE CYCLE ANALYSIS AND TAX CREDITS

THE GULF COAST HYDROGEN ECOSYSTEM: OPPORTUNITIES & SOLUTIONS

- 2023 · 2024 -

ENERGY
SYMPOSIUM
SERIES

CRITICAL ISSUES
IN ENERGY

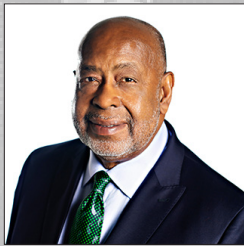


COMMUNITY ENGAGEMENT

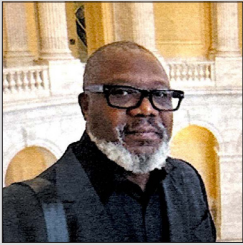


**Melvin White, President, MRSW Management, LLC (SESSION MODERATOR)**

Melvin White is president of MRSW Management, LLC, which focuses on bridging the gap of underutilized groups and the need for skilled laborers in the information technology industry at private and public sectors. White, a Beaumont native, also is the founder and program director of Digital Workforce Academy and the Golden Triangle Empowerment Center, which aim to address unemployment and workforce shortage issues. White also heads the Golden Triangle Business Incubator, which provides needed resources and advisement to aspiring entrepreneurs and startup businesses. White has worked with the Houston Advanced Research Center and NREL, launching a solar panel installation training and battery storage for commercial scale for resilient communities. White earned a bachelor's degree in business from Stephen F. Austin State University in 1986 and was inducted into the university's football hall of fame in 2004.

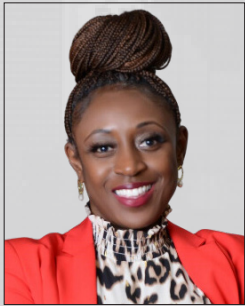
**John Hall, President and CEO, Houston Advanced Research Center**

John Hall is the President and CEO of the Houston Advanced Research Center (HARC), a nonprofit research hub providing independent analysis on energy, air, water, resilience, and climate equity. HARC's research activities support the implementation of policies and technologies that promote sustainability based on scientific principles, and the organization works to identify and implement scalable solutions to Texas' extensive climate resilience and climate equity challenges. Mr. Hall has been a thought leader and practitioner regarding the impacts of energy on air quality, the environment, communities, and climate for the past thirty years. His policy and research expertise includes environmental justice, clean energy, climate resilience, and emerging technologies that may be deployed to reduce air and climate pollution and support economic growth and new job creation. He works to connect HARC's policy-related research with federal, state, and local officials, community leaders, partners, and funders. Mr. Hall previously chaired the Texas Natural Resource Conservation Commission (TNRCC), the predecessor agency to the Texas Commission on Environmental Quality (TCEQ). His key accomplishments include merging environmental programs from several state agencies to form the TNRCC; creating a framework to manage the Edwards Aquifer that was subsequently enacted into state statute; establishing Texas' first Task Force to identify and assess environmental justice issues; and developing and implementing a set of pollution prevention initiatives that resulted in major reductions in air toxics and hazardous waste in the state. He left a lasting mark on TCEQ by implementing the Mickey Leland Environmental Internship Program, which to date has provided internships to nearly 3,000 Texas college students. As the Founder of John Hall Public Affairs, he played a leadership role in effectively addressing ozone non-attainment challenges in the Houston-Galveston and Dallas-Fort Worth metropolitan areas, including his service as Executive Director of the Texas Environmental Research Consortium (TERC) at HARC. He has also served in leadership roles at the Environmental Defense Fund (EDF), directing the organization's clean energy efforts in ten of the largest states in the nation, and implementing vehicle electrification initiatives in Texas. Mr. Hall currently sits on the Boards of Texas PACE Authority and Texas Water Trade.



Hilton Kelley, Director, *Community In-Power & Development Association*

Community In-Power & Development Association (CIDA), is a grassroots EJ community organization founded by Hilton Kelley, recipient of the Goldman Award for his efforts, including Port Arthur's designation as an EPA EJ Showcase Community. Hilton Kelley is a community leader/environmental justice activist, who pushes for cleaner safer communities for all, but more so for the disadvantaged due to their disproportionate exposure to toxic chemicals in industrialized cities and towns usually because of their close proximity to big polluters or unsafe living conditions. He is the winner of many environmental awards, to name a few - the APHA Damu Smith Environmental Health Achievement Award in 2008, the Sierra Club EJ Award in 2002, the UTMB NIEHS HERO Award in 2009, the Goldman Environmental Prize for North America 2011, and most recent the AARP "Inspire award" for 2012. His goal is to protect human health and build safe, clean, healthy, vital communities.



LaTisha Grant, Executive Managing Broker, *Acres Homes Neighborhood Association*

Energetic, Electric, Excellent... Meet Celebrity Real Estate Broker, LaTisha Grant. A proven authority in the art of leading a team of fearless and dedicated entrepreneurs in the world of Real Estate, this proud Houston native is a graduate of The University of Houston-Downtown earning a Bachelor's Degree in Interdisciplinary Studies. Upon graduation, she entered the financial service industry as a Lending Processing Specialist for several Fortune 50 and Fortune 500 Companies. Ameriquest, Countrywide and Universal American Mortgage Company- A Lennar Builders Preferred Lender, was the training ground where she gained her tenacious spirit, aggressively focused mindset and successful strategies needed to become a fearless force in her sphere of influence. Ms. Grant entered the field as a Public-School Educator to fulfill her passion for math by teaching 6th grade for three years. As her passion for the next level increased, she decided to integrate her love for education and finance by becoming a Real Estate Profession in 2007 and forming her personal Brokerage in 2011 (TAS Realty Group).

ENERGIZING COMMUNITIES WITH THE PROMISE OF HYDROGEN



Gail Buttorff, Instructional Assistant Professor and Director, Survey Research Institute, Hobby School of Public Affairs, *University of Houston* (**SESSION MODERATOR**)

Gail Buttorff is an Instructional Assistant Professor at the Hobby School of Public Affairs, where she also serves as the director of the school's Survey Research Institute. Having joined the Hobby School as a Visiting Assistant Professor in 2017, Buttorff holds a Ph.D. and M.A. in Political Science from the University of Iowa, and a B.A. from New York University in Economics and Political Science. Her research interests focus on elections, gender, and public policy in the Middle East and Gulf Cooperation Council countries, quantitative and survey methodologies. She is the author of *Authoritarian Elections and Opposition Groups in the Arab World*. Her work has also been published by *Electoral Studies*, *Journal of Theoretical Politics*, and by the Baker Institute for Public Policy, among others. Her research has been supported by the National Science Foundation and the Council of American Overseas Research Centers.



Carlos Gamarra, Senior Research Scientist and Director of Clean Energy, *Houston Advanced Research Center*

Dr. Carlos Gamarra is a Senior Research Scientist and the Director of Clean Energy. He also serves as the Director of the US DOE's Southcentral Onsite Energy Technical Assistance Partnerships (TAPs) where he leads a team promoting the deployment of onsite clean energy technologies in five states across the US. Dr. Gamarra began his career designing, constructing, and commissioning industrial plants, power lines, and renewable power plants. His experience as an Assistant Professor at the University of Burgos increased his interest in research. But before switching to the research field, he worked as an energy engineer in optimizing industrial and commercial facilities. He joined HARC in 2017 and his research explores the intersection of energy efficiency, distributed generation, community and industrial microgrids, district energy systems, artificial intelligence, energy planning processes and tools, and clean software development. Since 2019, he has served as the principal investigator on three separate DOE-funded projects. Dr. Gamarra is pushing the boundaries of innovation in commercial buildings in his role as the Energy Manager of HARC's Living Lab, a mid-size commercial office building that is certified LEED Platinum, certified LEED Zero Energy, and holds an Energy Star Rating of 99/100. The facility is a living lab where different technologies and operation strategies are tested and showcased for other users to adopt. Dr. Gamarra received his Doctorate in Community Energy Systems Planning from the University of Burgos, where he developed an agile screening method to identify business opportunities for community microgrids. In 2023, he received the Young Professional Award from the Combined Heat and Power (CHP) Alliance for his work on promoting the deployment of distributed generation technologies through the DOE's Southcentral CHP TAP.



Krystal York, Engineer/Analyst IV, *Electric Power Research Institute*

Krystal York is an Engineer/Analyst IV at the Electric Power Research Institute (EPRI) and a member of the Low-Carbon Resources Initiative (LCRI) technical team. The LCRI aims to identify, research, develop, and demonstrate the technology advancements needed to achieve a decarbonized future. The program focuses on production, transportation, delivery, and end uses of alternative energy carriers and low-carbon fuels (hydrogen, ammonia, biofuels, synthetic fuels, etc.) Dr. York is the co-principal investigator for the Hydrogen Education for a Decarbonized Global Economy (H2EDGE) initiative, which is a program currently aimed at preparing the emerging hydrogen workforce through a combination of professional development activities and targeted instruction at the university level. Her current role also focuses on conducting research on hydrogen production from electrolysis and the power quality implications of connecting electrolyzers to the grid. She is the co-lead on the Environmental Aspects and Safety Technical Subcommittee, contributing to its success by engaging with members, coordinating external communications, and fostering a collaborative environment. Finally, Krystal is dedicated to making sure equity and environmental justice considerations are integrated into the research across the LCRI, and she leads the equity, environmental justice, and community engagement work within the initiative.

***ENGAGING FOR IMPACT -
HYDROGEN BENEFITS FOR COMMUNITIES***



Robert Belanger, Associate Partner, *McKinsey & Company* (**SESSION MODERATOR**)

Robert Belanger is an Associate Partner at McKinsey & Company where he advises energy companies on strategy, organization, and operations topics. He previously worked at ExxonMobil Corporation as a Financial Analyst. He holds a BBA in Finance and BA in Government from The University of Texas at Austin.



Shannon Polite, Director - Human Resources, *Fluor Corporation*

Shannon Polite is a certified Senior Professional in Human Resources (SPHR) with 22 years of experience as an HR practitioner in the Oil, Gas and Energy industry. She currently holds the position of Director, Human Resources Operations for the US Central Region at Fluor Corporation, a global Fortune 500 Engineering, Procurement, and Construction company. Shannon believes that “HR issues” are business issues and is passionate about building relationships and partnering with stakeholders in the organization to align human capital strategies to goals. Specific areas of expertise include Strategy and Organization Development, Performance Management, Executive Compensation, Engagement, Employee Relations, Diversity Equity and Inclusion. Shannon is involved in professional organizations including the Society of Human Resources Management (SHRM), and in her community. On occasion she has been invited to panel and present to her industry peers on trending topics in HR. Shannon earned an Executive Master of Science in Human Resource Development from the University of Houston in 2020, and graduated with honors from Florida Agricultural & Mechanical University with a bachelor’s degree in Public Relations in 2002. Shannon lives with her husband and two children in Richmond, TX. In her free time, she enjoys traveling, cooking, and spending quality time with family and friends.



Dorian Cockrell, Vice President & Central Program Officer - Global Philanthropy, *JPMorgan Chase*

Dorian Cockrell is the Vice President and Central Program Officer in Global Philanthropy with JPMorgan Chase covering Houston, Central Texas, and Oklahoma markets. He sets the strategic direction, as well as, oversees Chase’s philanthropic investments in these regions. Prior to joining JPMC, he was the Workforce Operations Manager for Houston-Galveston Area Council. As operations manager, Dorian was responsible for providing strategic planning and direction for the workforce investment board that serves the 13-County Houston-Galveston region. He also worked at United Way of Greater Houston as Senior Manager for Workforce Development. During his time at United Way, he led United Way THRIVE’s workforce efforts to help hard-working families improve their incomes, build savings, and acquire assets to help them secure better futures. Dorian serves on several statewide education and workforce advisory councils and boards in Texas. Dorian is a prestigious Houston Business Journal 40 Under 40 Honoree, and an American Leadership Forum, Senior Fellow of Class 55. Dorian is also a member of the Honor Society of Phi Kappa Phi and Pi Alpha Alpha. Dorian earned both his Master of Public Administration and Bachelor’s Degree from University of Texas at Arlington, and is a proud Graduate Archer Fellow.



Peter Beard, Senior Vice President - Regional Workforce Development, *Greater Houston Partnership*

Peter Beard serves as Senior Vice President for Regional Workforce Development at the Greater Houston Partnership whose mission is to make the Houston region the best place to live, work and build a business. He leads the Partnership's UpSkill Houston initiative—a nationally recognized employer-led collaborative table of business, industry, education, and community leaders focused developing a “work-ready workforce” in Houston. In support of this work, Peter is a member of the Federal Reserve Bank of Dallas Business and Community Advisory Council and serves on the boards of directors for Gulf Coast Workforce Solutions, Construction Career Collaborative (C3), Artspace Projects, and Houston LISC's Local Advisory Committee. He is also a Talent Pipeline Management® faculty member and fellow at the U.S. Chamber of Commerce Foundation and is a senior fellow with the American Leadership Forum in Houston. Prior to joining Greater Houston Partnership, Peter served in executive roles at United Way Worldwide (Alexandria, VA) and the Fannie Mae Foundation (Washington, DC). Prior to Fannie Mae Foundation, he served as the general counsel at Habitat for Humanity International (Americus, GA), and was in private legal practice at Semmes, Bowen & Semmes (Baltimore, MD). Peter received his A.B. in economics from Davidson College (NC) and J.D. (magna cum laude) from Syracuse University College of Law (NY).

SKILL NEEDS FOR THE HYDROGEN WORKFORCE



Robert Belanger, Associate Partner, *McKinsey & Company* (**SESSION MODERATOR**)

Robert Belanger is an Associate Partner at McKinsey & Company where he advises energy companies on strategy, organization, and operations topics. He previously worked at ExxonMobil Corporation as a Financial Analyst. He holds a BBA in Finance and BA in Government from The University of Texas at Austin.



Krystal York, Engineer/Analyst IV, *Electric Power Research Institute*

Krystal York is an Engineer/Analyst IV at the Electric Power Research Institute (EPRI) and a member of the Low-Carbon Resources Initiative (LCRI) technical team. The LCRI aims to identify, research, develop, and demonstrate the technology advancements needed to achieve a decarbonized future. The program focuses on production, transportation, delivery, and end uses of alternative energy carriers and low-carbon fuels (hydrogen, ammonia, biofuels, synthetic fuels, etc.) Dr. York is the co-principal investigator for the Hydrogen Education for a Decarbonized Global Economy (H2EDGE) initiative, which is a program currently aimed at preparing the emerging hydrogen workforce through a combination of professional development activities and targeted instruction at the university level. Her current role also focuses on conducting research on hydrogen production from electrolysis and the power quality implications of connecting electrolyzers to the grid. She is the co-lead on the Environmental Aspects and Safety Technical Subcommittee, contributing to its success by engaging with members, coordinating external communications, and fostering a collaborative environment. Finally, Krystal is dedicated to making sure equity and environmental justice considerations are integrated into the research across the LCRI, and she leads the equity, environmental justice, and community engagement work within the initiative.



Michael Webster, Associate Vice Chancellor - Workforce Instruction, *Houston Community College*

Dr. Michael Webster is the Associate Vice Chancellor for Workforce Instruction at Houston Community College where he has served for over five years. He has 15 years of experience in workforce development having served as Director of Workforce Development at the Greater Houston Partnership, Assistant Superintendent for Career Readiness at Houston ISD, and as an Industry Liaison at the Gulf Coast Workforce Board. He is a Senior Fellow from Education Class Four of the American Leadership Forum and alum of the Center for Houston's Future Leadership Academy. Dr. Webster currently sits on the Gulf Coast Workforce Board, the Greater Houston Partnership's UpSkill Houston Executive Committee and serves as a member of East Harris County Manufacturing Association's Workforce Development committee. Most recently, he was appointed by the Lieutenant Governor to the Industry-Based Certification Advisory Board. Dr. Webster started his career as a high school English and Journalism teacher in Houston ISD and continues to pursue a passion for literature. He received his PhD in English and American Literature at the University of Houston with a specialization in eighteenth-century British fiction.

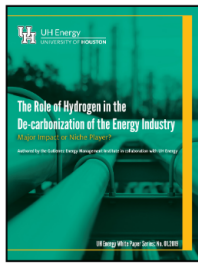


Melvin White, President, *MRSW Management, LLC* (**WRAP-UP LEADER**)

Melvin White is president of MRSW Management, LLC, which focuses on bridging the gap of underutilized groups and the need for skilled labors in the information technology industry at private and public sectors. White, a Beaumont native, also is the founder and program director of Digital Workforce Academy and the Golden Triangle Empowerment Center, which aim to address unemployment and workforce shortage issues. White also heads the Golden Triangle Business Incubator, which provides needed resources and advisement to aspiring entrepreneurs and startup businesses. White has worked with the Houston Advanced Research Center and NREL, launching a solar panel installation training and battery storage for commercial scale for resilient communities. White earned a bachelor's degree in business from Stephen F. Austin State University in 1986 and was inducted into the university's football hall of fame in 2004.

COLLABORATIVE PATHWAYS TO A HYDROGEN WORKFORCE

UH ENERGY WHITE PAPERS



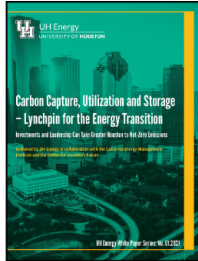
THE ROLE OF HYDROGEN IN THE DECARBONIZATION OF THE ENERGY INDUSTRY

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THIS IS UH ENERGY.

UH Energy is an umbrella for efforts across the University of Houston system to position the university as a strategic partner to the energy industry by producing trained workforce, strategic and technical leadership, research, industry education and development for needed innovations and new technologies. UH Energy encompasses eight energy-related colleges, 77 undergraduate and graduate programs -- several of them nationally-ranked -- and research centers aimed to ensure UH leads the problem-solving efforts in a rapidly changing energy marketplace. UH Energy encompasses an aggressive pursuit to reiterating the University of Houston as **THE Energy University** and leading the conversation about the future of energy.



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