Energy Storage for Manufacturing and Industrial Decarbonization Workshop

"Energy StorM"

Enabling Carbon-Free Energy for Industrial Decarbonization

February 8-9, 2022

Hosted by:

Electrochemical Storage Panel

Panel Chairs:

Amy Marschilok, Manager, Energy Storage Division, Energy Systems Division, Brookhaven National Laboratory

Boryann Liaw, Directorate Fellow, Idaho National Laboratory

Panelists:

Lakshimi Srinivasan, Sr. Technical Leader, Energy Storage and Distributed Generation Power Research Institute

Sanjoy Banerjee, Distinguished Prof. & Director, CUNY Energy Institute, Urban Electric Power

Carlo Brovero, Founder & CEO, StorEn

Hongtao Ma, Sr. Engineer, North American Electric Reliability Corporation

Jamie Link, VP, Solar & Storage Product Management, EDF Renewables North America

Biographies

Amy Marschilok is at Stony Brook University, where she is Co-Director of the Institute for Electrochemically Stored Energy and an Associate Professor in the Department of Chemistry with an adjunct appointment in the Department of Materials Science and Chemical Engineering. She holds a joint appointment as Scientist in the Interdisciplinary Science Department at Brookhaven

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National Laboratory, where she also serves as Manager of the Energy Storage Division and the Energy Systems Division. Amy was an inaugural cohort member of the DOE Oppenheimer Science and Energy Leadership Program. She previously employed as a Senior Scientist in Medical Battery R&D at Greatbatch Inc., where she was recognized as a Visionary of the Year. She has mentored over 50 student researchers and co-authored over 200 publications.

Dr. Boryann Liaw currently is a Directorate Fellow at Idaho National Laboratory (INL). He joined INL in May 2016 as Department Manager of Energy Storage and Advanced Vehicles. The department operates Battery Technology Center (BTC), Non-destructive Battery Laboratory for Evaluation (NOBLE), and Electric Vehicle Infrastructure Laboratory (EVIL) with facility and a wide range of testing capabilities to conduct performance, reliability, safety, and failure analyses of energy storage systems, advanced vehicles, charging devices and infrastructure, grid and behind-the-meter storage, and cybersecurity studies. Since early 1990s, Dr. Liaw has been involved in R&D activities comprising laboratory and real-life battery and vehicle testing, data collection and analysis, battery modeling and simulation, battery performance and life prediction, battery fast charging technology development, and battery failure mode and effect analyses. Before joining INL, Dr. Liaw was a faculty member at University of Hawaii at Manoa for 28 years, co-founder of Ambient Micro and founder of High Power Research Laboratory. He received his bachelor's in chemistry from National Tsinghua University in Taiwan, his master's in chemistry from University of Georgia, and doctorate in materials science and engineering from Stanford University. Dr. Liaw is a Fellow of the Electrochemical Society, actively involving in professional services which include membership in several editorial boards, executive boards and associate editorships. He is past President of International Battery Materials Association (IBA) and serves as scientific advisors for several international and national programs including Department of Energy's Energy Frontier Research Center at Stony Brook University. His recent accomplishments include Asian American Engineer of the Year (2019) and IBA Technology Award (2020).

Lakshmi Srinivasan is a Sr. Technical Leader within the Energy Storage program at EPRI, focusing on battery safety, controls, and emerging technologies. Lakshmi has ten years of experience in commercializing various storage technologies, including Compressed-Air Energy Storage, Lithium-ion batteries and flow batteries. In roles prior to EPRI, Lakshmi conducted failure modes and effects analyses (FMEAs), developed controls architectures, and designed safety systems for storage products. Lakshmi also developed and executed test plants to verify storage system performance and certify systems for interconnection. She served on technical panels for industry standards, such as CSA's new Battery Management System Standard covering design, performance and safety of battery management systems. Lakshmi was a contributor to Energy Storage Association's policy working groups on storage as a transmission asset, multi-use storage and state-level storage policies. Lakshmi earned a B.E. in Mechanical Engineering from Dartmouth College and a M.Sc in Energy Science and Technology from ETH Zurich.

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Sanjoy Banerjee is CUNY Distinguished Professor of Chemical Engineering and Director of the CUNY Energy Institute, headquartered at City College, City University of New York (CUNY). He is also the Founder and Executive Chairman of Urban Electric Power Inc., a spinoff from the CUNY Energy Institute that manufactures and markets zinc-based energy storage systems. Till March 2008, Sanjoy Banerjee, was Professor Abovescale at UC Santa Barbara, where he served as the Chemical Engineering Department Chair for an extended period with the Dept. rising to the top 10 nationally under his leadership. Previously, he held appointments at UC Berkeley, McMaster University (Canada), and Atomic Energy of Canada (AECL) —ultimately serving as AECL's Acting Director of Applied Science. From 2006-2016, he was a member of the US Advisory Committee on Reactor Safeguards (ACRS), congressionally mandated to maintain oversight over nuclear power, and served on the Reference Board of the Norwegian Govt.-Oil Industry Consortium for Oil-Gas Flow Assurance Project (FACE). He received the 2020 ECS New Electrochemical Technology (NET) Award for Urban Electric Power and the 2019 ACS/EPA Green Chemistry Challenge Award. Other recognitions include: AIChE Donald Q. Kern Award for energy conversion, ASME Heat Transfer Memorial Award and ASME Melville Medal (ASME's highest literature award), ANS Technical Achievement Award, IChemE Danckwerts Lecturership, Mitsubishi Professor Tokyo University, Burgers Professor University of Delft, Dow-Sharma Professor University of Mumbai. Prof. Banerjee's main area of research has been on the behavior of systems far from equilibrium, including rapid phase transitions, turbulence and most recently nonlinear phenomena such as dendrite formation and control in electrochemical energy storage systems.

Carlo Brovero has served as our chief executive officer, treasurer and director since our inception in January 2017. As chief executive officer, Carlo is responsible for our general management, strategy and the execution of our business plan. Between March 2013 and January 2019, Carlo served as a consultant for eCaral Ltd., a management consulting firm, where he completed several consulting assignments in a variety of industries. Between March 2013 and May 2015, Brovero served as an advisory board member for Proxhima S.r.l., a vanadium flow battery company, which was sold to the Gala Group, a utility listed on the Milan Stock Exchange. Between September 2010 and November 2016, Carlo served as International Sales and Marketing Director for iVis Technologies, the manufacturer of an excimer laser therapeutic and refractive platform for corneal surgery.

Carlo started his career in corporate finance in 1991 at County Natwest in London, the merchant banking division of the National Westminster Bank. In 1996, Carlo opened the Milan office of Market Capital Corporation, a London-based corporate finance boutique, and was a director at Accretive International. Carlo managed several IPOs on four different European Exchanges for fast-growth technology companies such as the IPOs of the first Italian companies on Le Nouveau Marchè in Paris and NASDAQ EUROPE in Brussels, as well as NYSE Alternext in Paris and Nuovo Mercato in Milan. Carlo holds a MBA degree from Aston University in Birmingham, UK.

Hongtao Ma received the Ph.D. in Electrical Engineering at the Missouri University of Science and Technology (Missouri S&T) Dr. Ma joined Siemens Wind Power as an electrical Engineer, where he focused on wind plant modeling and integration. He joined North American Electric Reliability Corporation (NERC) for power system modeling, reliability analysis and standard development for the grid transformation with increasing penetration of renewable energy resource of wind, solar and energy storage.

Jamie Link leads the Solar & Storage Product Management team which is responsible for reducing the levelized cost of EDFR's solar and storage technology products as well as for new product development. She has been with EDFR for nine years in a variety of roles spanning commercial, technical, and innovation topics. Prior to joining EDFR, Jamie was a Senior Technical Advisor and Acting Lead of the Advanced Manufacturing Office at the U.S. Department of Energy.

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