

Impressive Line-up of Invited Speakers for SusTech 2016 Conference ***Registration for SusTech 2016 Is Still Open***

Phoenix, AZ. In addition to technical papers, posters, and professional development courses and workshops, the SusTech 2016 Conference on Technologies Driving Sustainability has an exciting line-up of invited speakers who are experts in their fields. Their presentations will include recent developments and applications of science, technology, engineering, and math (STEM) that promote sustainability. The invited speakers by track are:



Renewable Energy Track: Speaker - Mitchell Lee, Engineer, First Solar; Topic - Effect of Spectral Shift on Solar PV Performance

Abstract: Photovoltaic module performance is defined at standard test conditions, which includes a defined spectral irradiance distribution. However, environmental conditions in the field often differ from the standard spectrum; this change in spectrum is known as spectral shift or spectral mismatch. Mitchell will discuss the impact of spectral shift on various PV technologies and presents models that have been proposed to characterize this effect when

modeling PV system performance.



Speaker - Glynne Townsend, VP Business Development, North America, Fluidic Energy; Topic - Zinc-air Batteries Gain Momentum in Long Duration Applications

Abstract: Fluidic Energy invented and commercialized the first rechargeable and long duration Zinc-air energy storage technology - an optimal technology for long duration applications. With over 40 MWh energy storage and strong momentum, Fluidic Energy's rechargeable Zinc-air technology is filling a void in

the clean energy market unlocking commercial viability. His talk will cover how Fluidic solutions in these types of applications are going well beyond the chemistry itself to provide vertically integrated solution and a whole product approach.



Smart Grid Track: Speaker – Paras Mandal, Director, Power & Renewable Energy Systems (PRES) Lab, University of Texas at El Paso; Topic - Transactive Energy Market

Abstract: The concept of transactive energy (TE) in power grids is in its infancy, however, TE is an area of great opportunities to improve smart grid operations. This talk presents a) a decentralized TE market mechanism to improve the efficiency, reliability, and performance of the electric power grid

in the path towards a sustainable future, and b) some of the value drivers for the deployment of TE systems. His talk will also highlight the importance of TE market mechanism to provide an interface for distributive and transmission system operations (DSO and TSO) to manage the increasing complexity of the grid effectively.



Speaker - Timothy McJunkin, Idaho National Laboratory; Topic - Sustainable System Assessment with Resilient Control Systems Metrics

Abstract: A relatively new area of research and development known as *resilient control systems* seeks the means to make systems that may be complex and distributed, and have human as a necessary or required element of the control loop, maintain acceptable levels of performance in the presence of disturbances generated by nature or man. This talk will discuss distribution system metrics and discuss possible consideration to a more

difficult problem of assessing the resilience of proposals for improving sustainability.



Speaker - Sumit Paudyal, Michigan Technological University; Topic - Optimal Real-time Demand Dispatch in Smart Grids

Abstract: With the implementation of Smart Grid technologies, such as sensors, smart meters, smart appliances, more than one-fourth of the U.S. total electricity demand could be dispatchable. A complete demand dispatch solution that benefits the customers and the grid involves a large scale optimization problem with underlying complex transmission and distribution grid models. A practical way to solve this problem is to use hierarchical and

distributed computing approaches, where information exchange occurs between the different levels in the hierarchy. This talk presents hierarchical framework to a) optimally dispatch electric vehicle (EV) loads in vehicle-to-grid interaction (V2G), and b) optimally dispatch commercial building loads in building-to-grid (B2G) interaction. The case studies demonstrate the benefits of optimal demand dispatch of EV and building loads to the customers and distribution grid operation.



Speaker: Apurba Sakti, Research Scientist, MIT Energy Initiative; Topic - Enhanced Representations of Lithium-ion Batteries in Power Systems Models and Their Effect on the Valuation of Energy Arbitrage Applications

Abstract: A techno-economic analysis of the performance of a 10MWh lithium-ion battery system testing the effect of a 5-min vs. a 60-min price signal on profits using real time prices from a selected node in the MISO electricity market was conducted. Results show that models of lithium-ion batteries

where the power limits and efficiency are held constant overestimate profits by 10% compared to those obtained from an enhanced representation that more closely matches the real behavior of the battery. When the battery system is exposed to a 5-min price signal, the energy arbitrage profitability improves by 60% compared to that from hourly price exposure. These results indicate that a more accurate representation of lithium-ion batteries as well as the market rules that govern

the frequency of electricity prices can play a major role on the estimation of the value of battery technologies for power grid applications.



Track - Societal Implications/Quality of Life: Speaker - Dr. B.L. Ramakrishna, Emeritus Professor, Arizona State University; Topic - Humanitarian Engineering and Sustainable Global Development

Abstract: The speaker will a) Illustrate that scientific and technological innovation is key for achieving sustainable development to address the grand challenges especially in developing economies of the world, b) Enumerate how designing for the developing world can boost agricultural productivity, provide clean drinking water, expand educational opportunities, empower women, improve child & maternal health and combat infectious diseases and in addition promote environmental sustainability, c) Highlight a few examples in the energy, water/sanitation, health and other sectors to show the power of design under extreme constraints to address the needs of more than 2 billion people at the bottom of the pyramid, and d) Point out the important considerations at the intersection of science, technology & policy and the need for inventive business models for scaling and sustainability.

In addition to the invited speakers list above, SusTech 2016 previously announced the selected keynote speakers - Mark Goldstein, President, International Research Center, Karin Harris, President, eGreen-IT Solutions, LLC and Grady Gammage, Jr., Partner - Gammage & Burnham, Morrison Institute for Public Policy – for this event. Each keynote speaker has been scheduled on the program for Monday, October 10, 2016,

The conference will be held on October 9-11, 2016 at the Phoenix Airport Marriott, 1101 North 44th Street, Phoenix, Arizona 85008, USA.

Registration for SusTech 2016 is still open. For more details go to: <http://sites.ieee.org/sustech/>

About SusTech: [SusTech](#) is an IEEE Region 6 conference hosted by IEEE Phoenix section, and is co-sponsored by the IEEE Phoenix and Oregon Sections, IEEE Region 6 and IEEE-USA. With technical sponsorship by the IEEE SSIT (Society for Social Implications of Technology). Past SusTech conferences were held in Portland (OR) and Ogden (UT).

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