"Energy Storage and Integration to Energy Systems" (Seven speakers)

Proposal for a combined Energy Storage & Energy Management Industry Session for APEC 2024

Long Beach Convention Center

Long Beach, California
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PSMA Energy Storage & Energy Management *JOINT INDUSTRY* Session Proposal Committee
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The PSMA Energy Storage Committee along with the Energy Management Committee proposes an Industry Session for APEC2024. The subject will be "Energy Storage and Integration to Energy Systems". We plan to have seven speakers addressing a variety of energy storage and energy management devices and applications.

Energy storage plays a critical role in energy systems to improve efficiency, resiliency and security. We note that many energy storage systems store and return energy to the grid. Others supply energy to a micro-grid, an office park or residences. Energy storage may be incorporated into PV inverters and other equipment. Others energy storage systems are in small, self-contained systems as portable devices or remote sensors for the Internet of Things.

The proposed Industry Session is not a clone of the dozens of battery and super-capacitor forums that are proliferating now. The Industry Session will target the specific interests of the PSMA and APEC audience, by covering the topics including many kinds of energy storage, their control, their protection, and their integration into power grid systems.

Power converter manufacturers with limited resources face the problem of incorporating energy storage into their systems. What kind of energy storage should be chosen for different applications? How does energy storage interact with other parts of the energy system and even impact the overall power architecture? What are the practical challenges and opportunities for large-scale, storage-integrated energy systems? What are the cybersecurity concerns?

This Industry Session will address those questions by showing different kinds of energy storage including battery and hydrogen and providing practical storage-integrated system examples such as wind-power and DC grid. The challenges of an inverterized grid with PFC and the opportunity of grid support, taking advantage of load flexibility and bi-directionality, will be discussed. The cyber-physics security problem of such a system will be presented, with a special emphasis on touchscreen security.

Preliminary Confirmed Speakers (7 + 1 back-up)

	Topic	**Speaker**	**Affiliation**
1	Hydrogen as an Energy Storage Medium	TBD	TBD
2	Grid-Forming Wind Power Solutions with Energy Storage Integration	Rui Sun	Goldwind
3	Cyber-Physical System Security Challenges	Shuo Wang	University of Florida
4	Grid Supportive Loads	Michael Blonsky	NREL
5	Challenges of Inverterized Grid with PFC	Jason Autry	Southern Company
6	DC Homes, DC Microgrids	Nihal Kularatna	University of Waikato
7	State of Battery Health Battery Management System	Babu Chalamala	Sandia National Labs
8	Battery Safety	Dr. Ji-yeong Kim	Korea Electric Power Safety Institute