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ICEF 3rd Annual Meeting Summary: Concurrent Session - Energy Storage

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ICEF Secretariat Reports/Opinions Team

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Session background and objectives



Long-term Energy storage technologies can contribute to the stabilization of energy system through peak shaving, buffering seasonal variation and providing energy supply in the event of a disaster. To accelerate introduction of energy storage technologies, improvement of their economic viability is an important factor. In this session, current state and pending issues (both technological and policy) which faces energy storage technologies that are able to store energy over a long period of time will be discussed.

Speakers



Itaru Yasui [Chair]

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Honorary Advisor, National Institute of Technology and Evaluation (NITE); Professor Emeritus, The University of Tokyo



Seth Mullendore

[CV](#)

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Project Director, Clean Energy Group

Abstract:

Energy storage systems integrated with renewable energy generation have the ability to provide resiliency, keeping critical electrical loads powered in a disaster situation, while also delivering valuable services to the electric grid during normal operation. To illustrate how these systems can be deployed and the economics opportunities they can be designed to address, two resilient solar photovoltaic and battery storage projects installed in the United States will be presented – a multi-megawatt utility-scale installation and a small building-level installation. Some of the current challenges to deploying renewable resilient power systems will also be discussed.



Takashi Yano

[CV](#)

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General Manager, Business Development Department, Energy System Division, Sumitomo Electric Industries, Ltd.

Abstract:

Sumitomo Electric Industries, Ltd. (SEI) has been the leading company in Flow Battery Systems development and manufacturing. SEI's Flow Battery Systems offer long lifetime and unlimited charge/discharge cycle-life, due to negligible degradation of its electrolyte. The characteristic makes them suitable to bundle multiple energy service applications together, such as mitigation of short duration fluctuation of renewable sources and long duration energy shift, etc. Considering such advantages, flow battery is expected to be an important technology for

stabilizing power grids. This presentation introduces the advantages of SEI's Flow Battery Systems and recent projects including micro-grid applications.

**Ravi Seethapathy**[CV](#)[View and Download Presentation](#)

Adjunct Professor, University of Toronto

Abstract:**Energy Storage Offers Value in Off-Grid Applications**

Energy Storage Systems (ESS) have rapidly developed in 5 years. Today, the entire spectrum (Chemical, Thermal, Cryogenics, Ultra-Capacitors, PCMs, Flywheels, Power-to-Gas and Compressed Air) is commercially available. While the unit cost of ESS (in both power and energy terms) will remain higher than grid supply, its "usefulness and economic value" in "smaller unitized" off-grid applications is becoming more attractive. Increased efficient utilization, energy access/rural development policies, Renewable DERs and LVDC, allow for this ESS cost premium to be narrowed. The author will discuss this aspect in conjunction with the work being done in Cigre, IEEE, IEC, LVDC committees.

**Hiroyuki Ota**[CV](#)[View and Download Presentation](#)

General Manager, New Energy Solution Project, Toshiba Corporation

Abstract:

Toshiba has developed H2one™, a Hydrogen-based autonomous energy supply system towards off-grid local facilities and remote communities. That can supply stable power and hot water corresponding to the demand all around year using only renewable energy without carbon emission despite weather, day and night, which was realized by hybrid energy system comprised of Hydrogen power storage and battery. The H2one™ will be also applicable to shelter in which several hundred evacuees should stay for weeks. In the session, the system configuration, practical installation examples and case study towards small community will be signified.

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