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UNIVERSITY OF CALIFORNIA, SAN DIEGO
MECHANICAL & AEROSPACE ENGINEERING

Wednesday, February 25, 2015 – Energy Series

“Electrical Energy Storage Research at UC San Diego”

by

Bill Torre

Center for Energy Research, UCSD

Wednesday, February 25, 2015

11:00 a.m. – 12:00 p.m.

EBUII, Room 479

ABSTRACT: The integration of energy storage to accommodate higher levels of renewable and distributed energy sources is very important to ensure that full operational benefits are realized. This presentation will describe the ongoing work at the UCSD, to integrate energy storage with renewable generation and other distributed energy sources, laboratory testing, and grid connected testing.

This presentation will cover the University’s aggressive plan to install additional renewable generation and energy storage to reduce the campus overall carbon footprint, and create a self sustaining campus. Highlights of the presentation will include the overview and operations of: Current PV installations of 2.3 MW, and the planned PV installation of 0.8MW. Integration of a planned SGIP funded Energy Storage system that will consist of seven systems at a total capacity of 2.5 MW/ 5 MWh that will increase the utilization of the distributed PV generation. Also UCSD has or will be installing vendor funded energy storage demonstrations that will consist of 108kW/180 kWh of Lithium-ion batteries used EV batteries, a 125 kW/300 kWh flow battery energy storage system, and a 30 kW/30 kWh Lithium-ion battery energy storage system, 28 kW supercapacitor energy storage system, and a 25 kW flywheel energy storage system. Some of which will be integrated with existing rooftop PV, or CPV generation. This research is focused on identifying new types of more efficient and cost effective type of energy storage systems to support higher penetration of renewable generation and improve overall power delivery efficiency and performance.

BIO: Bill Torre is Program Director of Energy Storage at the Center for Energy Research, University of California – San Diego. He directs research for the UCSD microgrid, energy storage, and renewable resource integration. He recently retired as Manager of Research and Development and Chief Engineer at San Diego Gas and Electric Co. (SDG&E), in charge of implementation and testing of new technology and developing smart grid projects. Bill has worked at various management and engineering positions at SDG&E for 30 years. He earned his Bachelor’s Degree in Electrical Engineering at the University of Missouri – Rolla, and holds a Masters Degree in Electrical Engineering from California Polytechnic University, he is a senior member of IEEE, and is a registered professional engineer in California. He has authored numerous technical publications, and has spoken at many technical conferences, holds one patent and has several pending on new smart power system technology. Bill also helped to establish a power engineering program in electrical engineering at San Diego State Univ. where he taught electrical engineering classes for 7 years. He has also worked at General Atomics on various power system research projects and at Pacific Gas and Electric Co.