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Recent Advances in Electrochemical Energy Storage

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Distinguished Professor of Chemical Engineering

 Patrick F. Taylor Hall 1106
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Abstract:

Distributed electrical energy storage is of increasingly importance in relieving congestion in transmission networks and in enabling the wide spread deployment of renewable but intermittent energy generation. A key bottleneck has been low cycle life, environmental and safety hazards, high cost of electricity storage systems such as lead acid and lithium ion batteries. Recent work supported by ARPAE of the US DOE has developed zinc anode batteries that have excellent performance cost and safety characteristics. This has been required by overcoming a major technical problem that had prevented their wide spread use in rechargeable form, namely the formation of zinc dendrites on cycling. The technology developments in this direction will be discussed together with results on grid-connected performance of zinc anode battery systems. Costs and the impact on grid reliability and potential renewables penetration based on such technology will also be assessed.

Speaker's Bio:

Sanjoy Banerjee is a CUNY Distinguished Professor of Chemical Engineering and Director of the CUNY Energy Institute, headquartered at The City College of New York. Until March 2008, Banerjee was Professor in the Chemical Engineering Department, with joint appointments in the Mechanical Engineering Department and the Bren School of Environmental Science, at the University of California, Santa Barbara, where he had been since 1980. Banerjee was Department Chair for an extended period of and is considered to be largely responsible for bringing the UCSB Chemical Engineering Department into the top 10 in the country. Previously, he held appointments at the University of California, Berkeley, McMaster University in Canada and Atomic Energy of Canada, ultimately serving as its acting director of applied science. He is a member of the U.S. Advisory Committee on Reactor Safeguards, which is congressionally mandated to maintain oversight over nuclear power. He also is on the Reference Board of the Norwegian Govt.-Oil Industry Consortium for Oil-Gas Flow Assurance Project. Banerjee also helped to establish several companies based on research collaborations. He has received numerous recognition for his research amongst them are, the ASME Melville Medal, AIC hE/ICHEM Danckwerts Memorial Lectureship, AIC hE Donald Q Kern Award and the ASME Heat Transfer Memorial Prize.

