UNIVERSITY OF TEXAS ARLINGTON | DEPARTMENT OF ELECTRICAL ENGINEERING

Energy Storage and Evolution of the Electric Grid

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ABSTRACT: We are on the verge of a major transformation in the electricity infrastructure over the next ten to twenty years. This is driven by the need to modernize an aging infrastructure, make the grid resilient, and the integration of distributed generation on a large scale. As we transition towards a greater role for renewables and distributed generation, addressing intermittency and providing grid operators flexible assets to efficiently manage the grid is critical. Energy storage is essential for the grid of the future and we will begin to integrate energy storage into the grid infrastructure at a scale we have not considered until now. In this presentation, I will present trends and future of grid modernization, role of energy storage in the grid of the future, discuss gaps in technology and implementation of energy storage in the grid infrastructure, and present an overview of current research in grid energy storage.

BIOGRAPHY: Dr. Babu Chalamala is Head of the Energy Storage Technology and Systems Department and Laboratory Program Manager for Grid Energy Storage at Sandia National Laboratories, Albuquerque, NM. Prior to joining Sandia in 2015, he spent twenty years in industrial R&D, mostly recently as a Corporate Fellow at MEMC Electronic Materials/SunEdison where he led R&D and product development in grid scale energy storage. Before that, he was involved in two startup companies for eight years. He spent early part of his research career at Motorola and Texas Instruments where he made contributions to electronic materials and display technologies. He has a B.Tech. in Electronics and Communications Engineering from Sri Venkateswara University and a PhD in Physics from the University of North Texas. An IEEE Fellow, he served on the editorial boards of Proceedings of the IEEE, IEEE Access and IEEE Journal of Display Technology. He currently serves on the as Vice Chair of IEEE PES Energy Storage and Stationary Battery Committee. He has also been active in the Materials Research Society, where he served as a General Chair of the 2006 MRS Fall meeting and continues to serves MRS in a number of leadership positions. He authored 120 papers, edited volumes, and was awarded 10 US patents.

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