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Energy Storage for the Electric Grid – MegaWatts from picoWatts

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The rapid expansion of non-dispatchable renewable generation onto the US electric grid is driving the need for new grid energy storage options. The impetus for this need is largely based on the variable nature of renewable energy, which can cause instabilities in power delivery and directly impact our daily lives (e.g. our ability to watch Netflix). However, the deployment of energy storage technologies is hampered by high initial cost, often inadequate service lifetimes, and the low monetary value of the services provided. In this presentation, we will discuss the current state of drivers for the utilization of grid energy storage and dive into a few specific examples of how nano-science is being used to understand and control degradation in Li-ion batteries.

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