

Grid Modernization: Challenges, Opportunities, and Solutions

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Abstract: Our aging grid infrastructure faces increasing challenges from multiple sources including greater demand variability, stricter environmental regulations and growing cyber security concerns. Advanced smart grid technologies provide possible solutions to tackle these challenges. Meanwhile how to best utilize these new devices and technologies such as PMUs and electric vehicles remains a challenge by itself. In this talk, I will address various topics which span a multitude of areas including demand response, stochastic optimization for renewable integration, microgrids and cyber security. I will present the technical issues in implementing these technologies and corresponding potential solutions.