



**Graduate Seminar (EEL 6936)**  
**Department of Electrical Engineering**  
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**Mr. Matthew Smith**

Senior Engineer, NextEra Energy  
Friday, Nov 15<sup>th</sup>, 2013, 12:55-1:55 p.m.  
Chemistry Building, Room 111 (CHE 111)

**Energy Storage to Enable Renewable Penetration**

**Abstract**

Energy storage is a rapidly growing technology that enables greater renewable penetration. Renewables are inherently intermittent which may cause issues for a poorly planned electricity grid. Energy storage comes in many varieties, each with their strengths and weaknesses. This talk will examine the performance and costs of energy storage technologies. The performance analysis addresses the challenge of pairing the most appropriate energy storage technologies with the needs of the electric grid. The cost analysis allows utilities to plan new growth and budget for operation and maintenance of those assets. Electrical energy storage (batteries) will be the primary technology discussed.

NextEra Energy, Inc. (NEE) is a leading clean-energy company with 2012 consolidated revenues of approximately \$14.3 billion, more than 42,000 megawatts of generating capacity, and nearly 15,000 employees in 26 states and Canada as of year-end 2012. NextEra Energy's principal subsidiaries are Florida Power & Light Company (FPL) and NextEra Energy Resources, LLC which is the largest generator in North America of renewable energy from the wind and sun.

**Biography**



Matthew Smith is a Senior Engineer at NEE where he has held several positions in power generation engineering. He was formerly the thermal performance engineer for utility scale parabolic trough solar thermal plants. His current focus is on energy storage technologies. Matt's experience in photovoltaic and solar thermal is utilized to advance the development of energy storage and renewable assets. Matt is a certified Six Sigma Black Belt and practices statistical problem solving techniques in his work.

Matt earned his Bachelors ('01) and Masters Degrees ('03) in Chemical Engineering at the University of South Florida where he went on to become the Operations Director of USF's Clean Energy Research Center. The extensive exposure to many emerging technologies while at USF continues to drive his career direction.