

Superconducting Magnet Energy Storage System with Direct Power Electronics Interface

Project Partners **ABB**

BROOKHAVEN
NATIONAL LABORATORY

SuperPower Inc.

UNIVERSITY of
HOUSTON

- Project Goal: Competitive fast response grid-scale MWh superconducting energy storage system, demonstrated through a small scale 20 kW, 2.5 MJ demonstrator and direct connection power electronics converter

Project Progress:

- Late start, but aggressively redrawn timelines
- Mini double pancake coils successfully tested to verify design and construction concepts
- Proof of principle design of grid scale (2 GJ) coil indicates no show stoppers
- Conductor deliveries on schedule (1.5 km, 12 mm wide)
- MOCVD reactor modeled to understand manufacturing process related issues
- Upgraded reactor being installed
- Two stage interface for connection to grid; modified ac chopper for ac-dc and VSC topology selected for ac-dc

