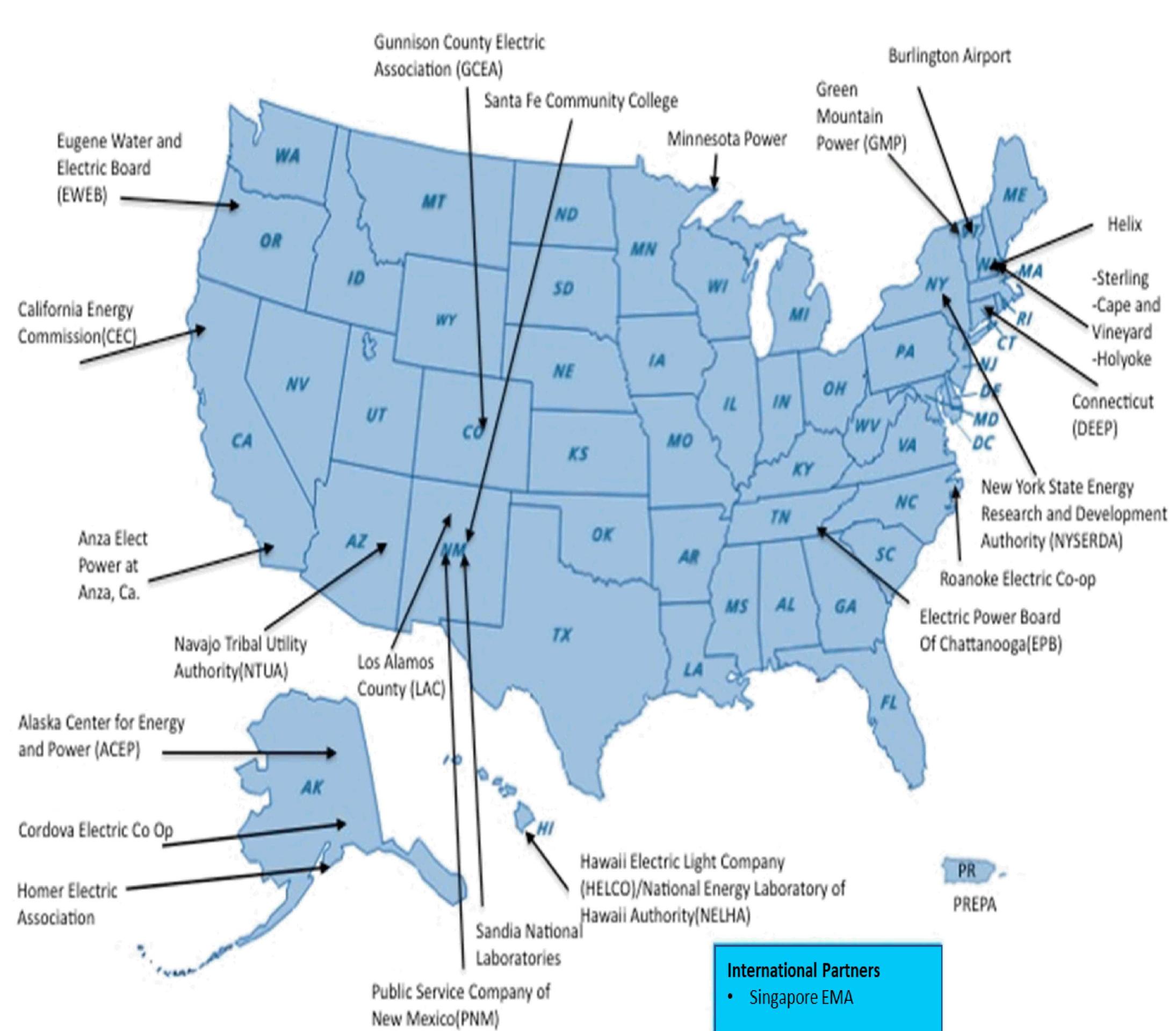




# Sandia National Labs Demonstration Summary

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**Objective:** Energy storage is a key to enabling modernization of the electricity grid, including the successful integration of renewable and distributed energy resources. The DOE OE Energy Storage Program uses its Demonstrations Team at Sandia National Laboratories to address multiple challenges to the widespread deployment of energy storage: cost, creation of an equitable regulatory environment, safety and reliability, and industry acceptance. The team supports development, deployment, and research across multiple storage technologies and applications from transmission constrained regions in Alaska to hurricane-prone Puerto Rico, and from the off-grid rural corners of the Navajo Nation to the leading edge of emerging educational programs.



Project	Technology Development	Analytics (Economic / Technical)	RFP / Commissioning	Data Collection / Performance Evaluation
ACEP		✓		
Albuquerque Public Schools		✓	✓	✓
ANZA			✓	✓
Burlington Airport				✓
California Energy Commission				✓
Cordova Electric Coop				✓
CUNY	✓			
EWEB			✓	✓
EPB				✓
GMP			✓	✓
Gunnison		✓		
HELCO		✓	✓	
Helix	✓			
HOMER		✓		
Los Alamos		✓		
Minnesota Power		✓		
NTUA	✓			
PNM			✓	
Roanoke		✓		
Sandia				✓
SFC				✓
Singapore				✓
SMLD				✓
Villalba		✓		

## Demonstration Milestones in FY19

- Engineering and manufacturing drawings are complete for the prototype 1MW/25kWh flywheel and building the flywheel has been initiated
- Controls for Urban Electric Power ZnMnO<sub>2</sub> for grid tied applications has been completed and will be deployed in Navajo Tribal Utility Authority territory
- Economic Analysis has been completed for Homer Electric Association (Alaska), Gunnison Electric Cooperative (Colorado), Minnesota Power (Minnesota), Roanoke Electric Cooperative (North Carolina) and Villalba (Puerto Rico)
- Completed RFP development and issuance for energy storage system based on Sandia economic analysis for Albuquerque Public Schools (New Mexico), ANZA (California), and Electric Power Board (Tennessee)
- Commissioned 1MW/1MWh energy storage system in Cordova, AK for increasing hydroelectric capacity
- Collected and collecting energy storage data to refine models, develop degradation algorithms and evaluate performance from Cordova Electric Cooperative (Alaska), Green Mountain Power (Vermont), Sterling Municipal Lighting Department (Massachusetts), Eugene Water and Electric Board (Oregon), Sandia (New Mexico), Santa Fe Community College (New Mexico) and Energy Market Authority (Singapore)

## Demonstrations and Analysis Coming Online

- Alliant Energy in Iowa installing a 2 MW / 2.8 MWh energy storage system to increase renewable production capacity
- City College of New York demonstrating a 50kW / 160kWh Zinc Manganese Dioxide system for peak shaving
- Three off-grid Urban Electric Power systems for Native American residential loads in the Navajo Tribal Utility Authority territory
- Seminole Tribe of Florida procuring solar plus storage for 8 buildings to offset daily electric costs
- Energy storage utilization in a resilient microgrid using the campus of Santa Fe Community College
- Evaluate using Sandia analytics to determine the tradeoff between PV curtailment and energy storage within NELHA campus
- Increase analytic capabilities to include an energy storage siting tool