U.S. Department of Energy

Office of Electricity Delivery and Energy Reliability

North American SynchroPhasor Initiative

DOE Update and Projects Intro

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Huntington Beach, CA

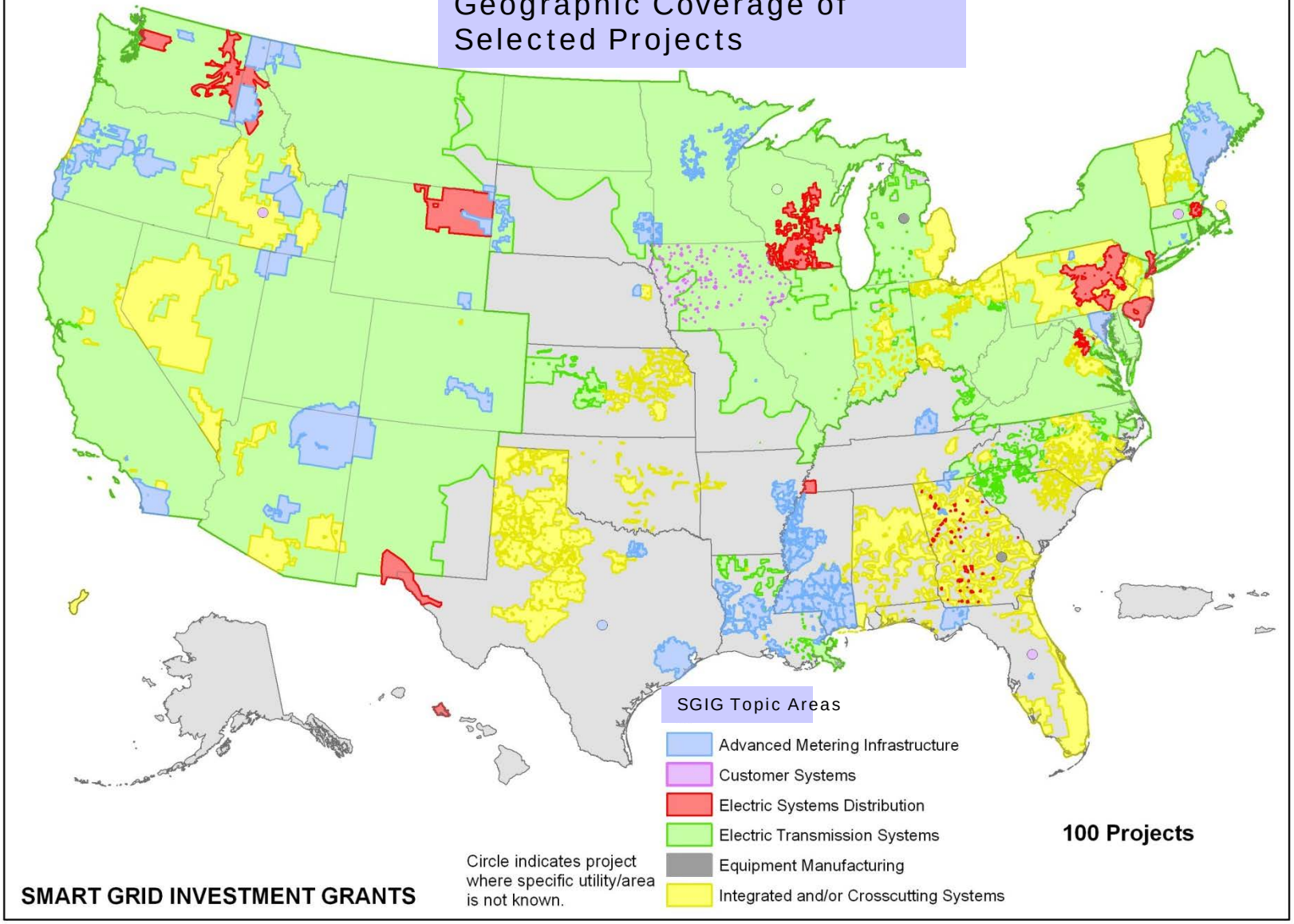
February 20, 2013

SGIG Electric Transmission Systems Projects

American Transmission Company, LLC (PMU)	$2.7*
American Transmission Company, LLC (SCADA)	22.9
Duke Energy Carolinas, LLC	7.8
Entergy Services, Inc.	9.2
Midwest Energy, Inc	1.4
Midwest ISO, Inc – 15 trans owner partners	34.5
ISO New England, Inc – 7	18.1
New York ISO, Inc - 8	75.7
PJM Interconnection, LLC – 12	27.8
Western Electricity Coordinating Council – 18	107.8

* Total Project Cost

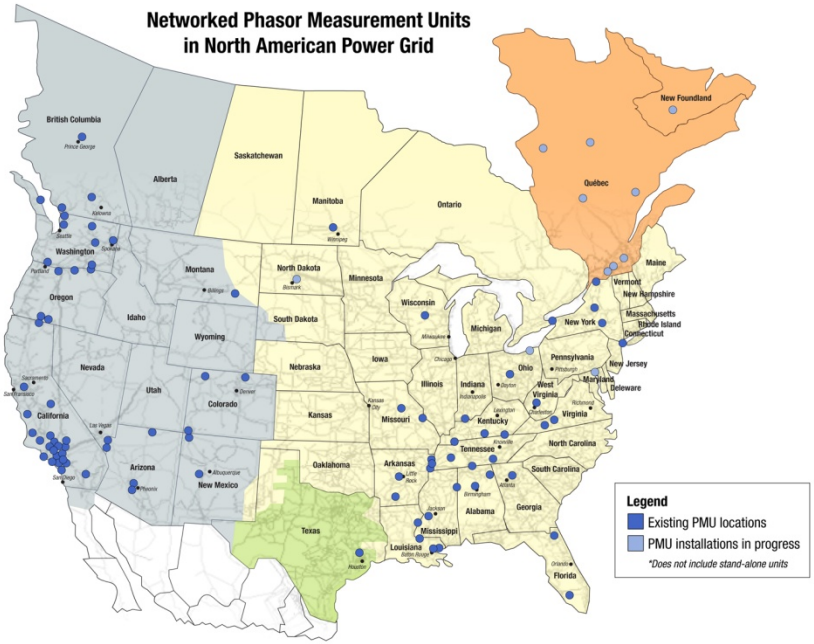
Geographic Coverage of Selected Projects



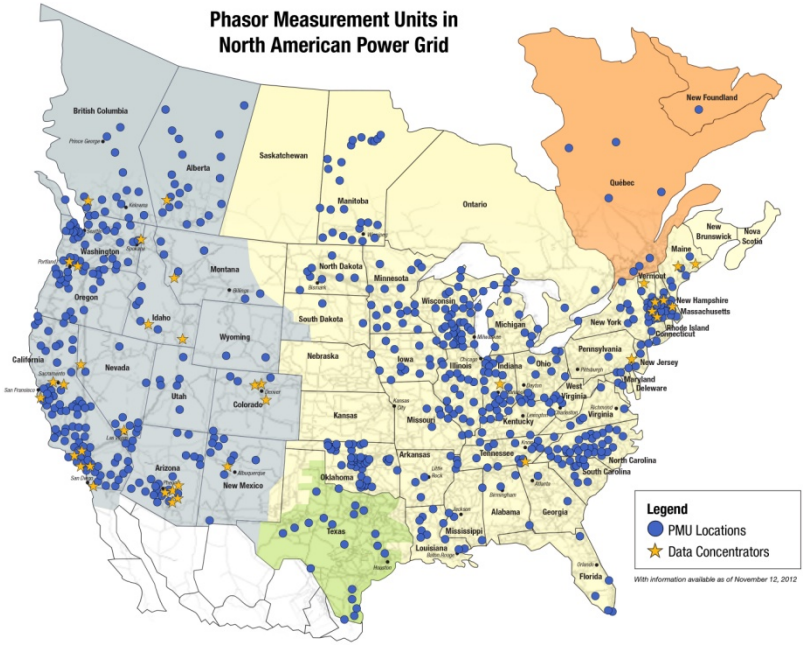
Oct 21, 2009

Recovery Act Grants Have Accelerated Synchrophasor Deployment

April 2007



November 2012



NASPI North American SynchroPhasor Initiative

Advanced SynchroPhasor Research Projects

$4.3 million awarded to four, 3-year projects

- Regents of University of California
  - Security-Dependability Adaptive Protection System
  - Alarms for Power Swing Encroachment on Relay Characteristics
  - Visualization
- Virginia Polytechnic Institute and State University
  - Develop and Implement Synchrophasor-Based State Estimator
  - Develop Transducer Calibration Techniques
  - Characterize and Analyze Unbalanced Conditions
  - Develop Tools to Determine Optimum Islanding Strategies During Catastrophic System Events
  - Develop Visualization Tools for the 3-phase Tracking State Estimator

Advanced SynchroPhasor Research Projects (con't)

- Georgia Tech Research Corporation
  - Real-Time Implementation of the Distributed Dynamic State Estimation and Wide-Area Transient Stability Analysis
  - Apply to On-Line Generator Parameter Identification to Generators in the NYPA System
  - Implement Transient Stability Monitoring at other Plants/Substations
- Electric Power Research Institute
  - Wide-area, Real-time Visualization of Frequency ,Voltage and Current Contours for Security Monitoring
  - On-Line Identification of Major Events
  - On-Line Event "Instant" Replay

Advanced SynchroPhasor Research Projects (con't)

- Washington State University

Power Grid Reliability and Security – Analysis and Simulation for a Secure Communication Network from PMU to Synchrophasor Applications

NSF/DOE University of Tennessee/Knoxville Engineering Research Center (ERC)

- University of Tennessee Knoxville - ERC

  Center for Ultra-wide-area Resilient Electric Energy Transmission Network (CURENT)

  - Monitoring and Sensing
  - Communications and Cyber Security
  - Computation and Modeling
  - Control and Actuation
  - Economic Analysis

Contact Information

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