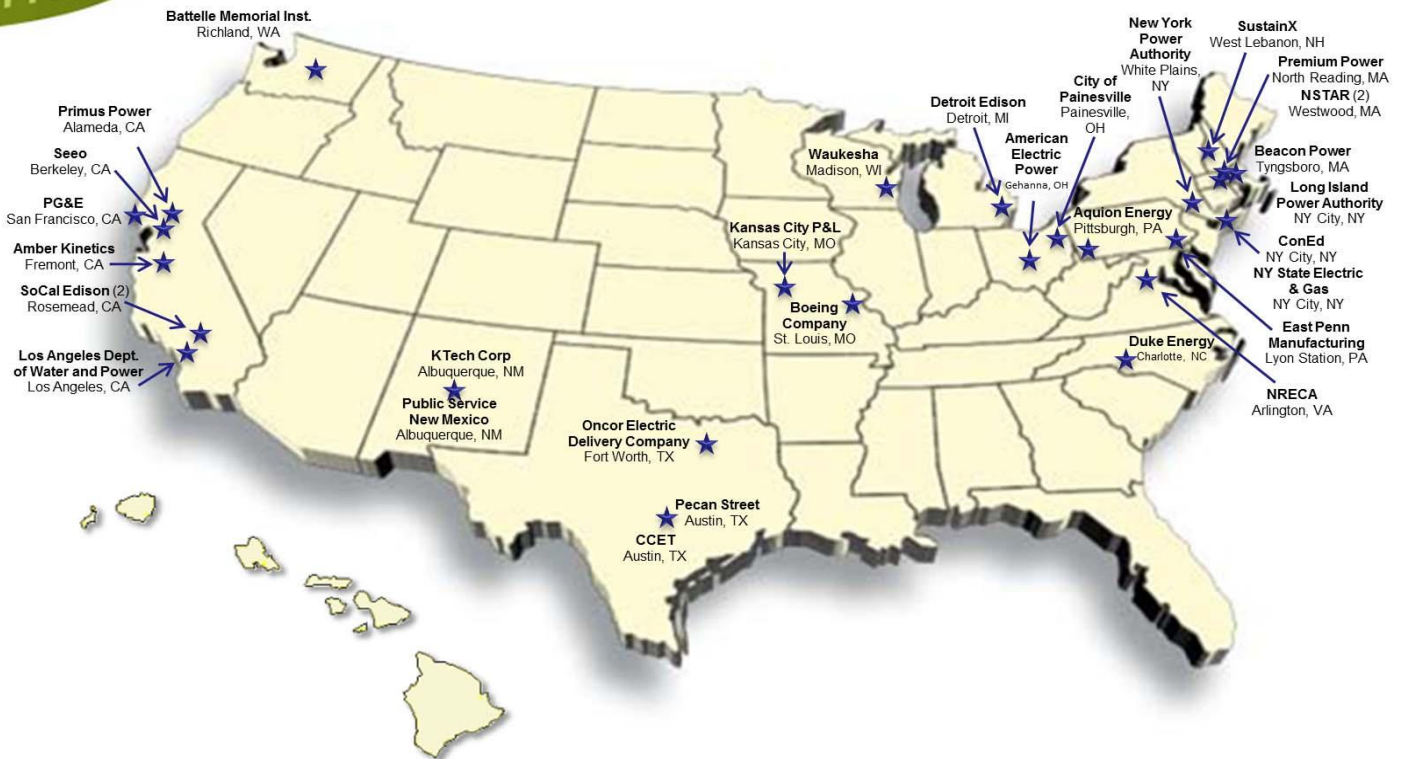




Smart Grid Demonstration Program



Projects demonstrate how a suite of existing and emerging smart grid concepts can be innovatively applied and integrated to prove technical, operational, and business-model feasibility





Demonstration Project Summaries

- **Asset Optimization**
 - NSTAR (Automated Meter Reading-Based Dynamic Pricing)
- **Dynamic Line Rating**
 - New York Power Authority (Evaluation of Instrumentation and Dynamic Thermal Ratings for Overhead Lines)
 - Oncor Electric Delivery Company (Dynamic Line Rating)
- **Low Voltage Network**
 - NSTAR (Urban Grid Monitoring and Renewables Integration)
- **Specialized Technology**
 - The Boeing Company (Boeing Smart Grid Solution)
 - SuperPower, Inc (Fault Current Limiting Superconducting Transformer)



Demonstration Project Summaries

- **Multiple Smart Grid Technologies/End-to-End**
 - AEP Ohio (gridSMARTSM Demo)
 - Battelle (Pacific Northwest Smart Grid Demo)
 - Center for the Commercialization of Electric Technologies (Discovery Across Texas)
 - ConEdison (Secure Interoperable Open Smart Grid Demo)
 - Kansas City Power & Light (Green Impact Zone)
 - Long Island Power Authority (Long Island Smart Energy Corridor)
 - Los Angeles Department of Water & Power (Smart Grid Demo)
 - National Rural Electric Cooperative Association (Enhanced Demand and Distribution Management Regional Demo)
 - Pecan Street Project (Energy Internet Demonstration)
 - Southern California Edison Company (Irvine Smart Grid Demo)



Projects by Category

SGDP Project Recipients	Project Types			
	ETS	EDS	AMI	CS
AEP Ohio		X	X	X
Battelle Memorial Institute		X	X	X
Center for Commercialization of Electric Technologies	X			X
Consolidated Edison Company of New York, Inc.	X	X	X	X
Kansas City Power and Light		X	X	X
Long Island Power Authority	X	X	X	X
Los Angeles Department of Water and Power		X	X	X
National Rural Electric Cooperative Association		X	X	X
NSTAR Electric and Gas Corporation (AMR)			X	X
NSTAR Electric and Gas Corporation (UGM)	X	X	X	
ONCOR Electric Delivery Company	X	X		
Pecan Street Project, Inc.			X	X
Power Authority of New York	X			
Southern California Edison Company	X	X	X	X
SuperPower, Inc.	X	X		
The Boeing Company	X			

Legend:

ETS – Electric Transmission Systems

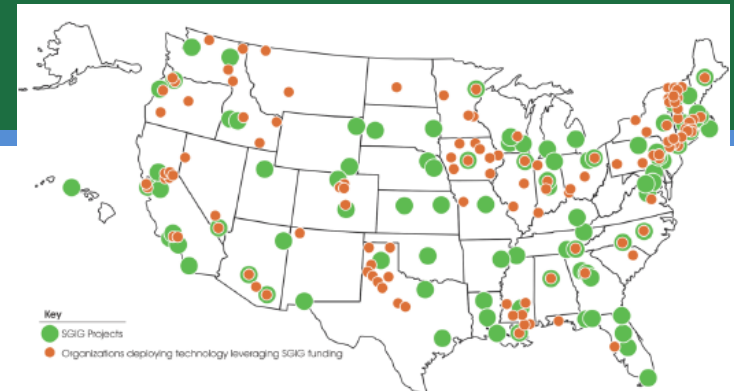
EDS – Electric Distribution Systems

AMI – Advanced Metering Infrastructure

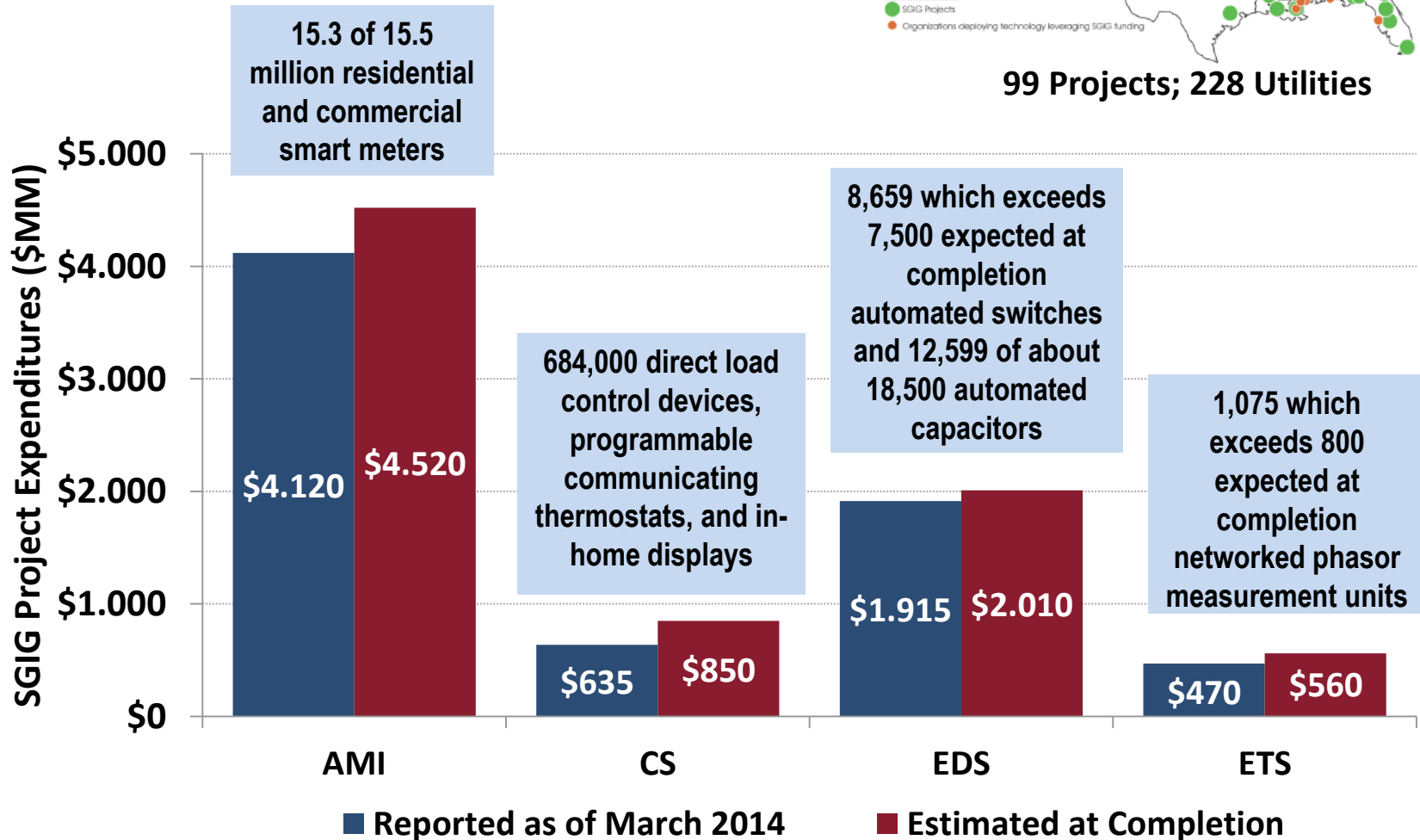
CS – Customer Systems



SGIG Deployment Status



99 Projects; 228 Utilities





Applications and Benefits Matrix

Benefits	Smart Grid Technology Applications					
	Consumer-Based Demand Management Programs (AMI-Enabled)	Advanced Metering Infrastructure (AMI) Applied to Operations	Fault Location, Isolation and Service Restoration	Equipment Health Monitoring	Improved Volt/VAR Management	Synchrophasor Technology Applications
	<ul style="list-style-type: none"> Time-based pricing Customer devices (information and control systems) Direct load control (does not require AMI) 	<ul style="list-style-type: none"> Meter services Outage management Volt-VAR management Tamper detection Back-Office systems support (e.g., billing and customer service) 	<ul style="list-style-type: none"> Automated feeder switching Fault location AMI and outage management 	<ul style="list-style-type: none"> Condition-based maintenance Stress reduction on equipment 	<ul style="list-style-type: none"> Peak demand reduction Conservation Voltage Reduction Reactive power compensation 	<ul style="list-style-type: none"> Real-time and off-line applications
Capital expenditure reduction – enhanced utilization of G,T & D assets	✓			✓	✓	✓
Energy use reduction	✓	✓	✓		✓	✓
Reliability improvements		✓	✓	✓		✓
O&M cost savings		✓	✓	✓		
Reduced electricity costs to consumers	✓				✓	
Lower pollutant emissions	✓	✓	✓		✓	✓
Enhanced system flexibility – to meet resiliency needs and accommodate all generation and demand resources	✓	✓	✓	✓	✓	✓