

Smart Grid Update on US Smart Grid Funding and NERC Smart Grid Task Force

- **U.S. President Obama Announces \$3.4 Billion Investment to Spur Transition to Smart Energy Grid**

U.S. President Barack Obama has announced \$3.4 billion in grant awards which are to be matched by industry funding for a total public-private investment worth over \$8 billion which is to be used to spur that country's transition to the smart grid. The announcement reports that an analysis by the Electric Power Research Institute ("EPRI") estimates that the implementation of smart grid technologies could reduce electricity use by more than 4 percent by 2030.

One-hundred private companies, utilities, manufacturers, cities and other partners received the Smart Grid Investment Grant awards, including Florida Power & Light ("FP&L"), which will use its \$200 million in funding to install over 2.5 million smart meters and other technologies that will cut energy costs for its customers.

The announcement included:

- Empowering Consumers to Save Energy and Cut Utility Bills -- \$1 billion. These investments will create the infrastructure and expand access to smart meters and customer systems to allow consumers to access dynamic pricing information and to be able to save money by programming smart appliances and equipment to run when rates are lowest. This will help reduce energy bills for everyone by helping drive down "peak demand" and limiting the need for "stand-by" power plants.
- Making Electricity Distribution and Transmission More Efficient -- \$400 million. The U.S. Government is funding several grid modernization projects across the country that will significantly reduce the amount of power wasted from the time it is produced at a power plant to the time it gets to the end user. By deploying digital monitoring devices and increasing grid automation, these awards will increase the efficiency, reliability and security of the system, and will help link up renewable energy resources with the electric grid. This will make it easier for a wind farm in Montana to instantaneously pick up the slack when the wind stops blowing in Missouri or a cloud rolls over a solar array in Arizona.
- Integrating and Crosscutting Across Different "Smart" Components of a Smart Grid -- \$2 billion. Much like electronic banking, the Smart Grid is not the sum total of its components but how those components work together. The Administration is funding a range of projects that will incorporate these various components into one system or cut across various project areas – including smart meters, smart thermostats and appliances, synchrophasors, automated substations, plug in hybrid electric vehicles, renewable energy sources, etc.
- Building a Smart Grid Manufacturing Industry -- \$25 million. These investments will help expand the base of manufacturing companies that can produce the smart meters, smart appliances, synchrophasors, smart transformers, and other components for smart grid systems in the United States and around the world – representing a significant and growing export opportunity for the U.S. and new jobs for American workers.

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The combined effect of the investments announced, when the projects are fully implemented, will:

- Install more than 850 sensors - called 'Phasor Measurement Units' - that will cover 100 percent of the U.S. electric grid and make it possible for grid operators to better monitor grid conditions and prevent minor disturbances in the electrical system from cascading into local or regional power outages or blackouts. This monitoring ability will also help the grid to incorporate large blocks of intermittent renewable energy, like wind and solar power, to take advantage of clean energy resources when they are available and make adjustments when they are not.
- Install more than 200,000 smart transformers which will make it possible for power companies to replace units before they fail thus saving money and reducing power outages.
- Install almost 700 automated substations, representing about 5 percent of the U.S. total that will make it possible for power companies to respond faster and more effectively to restore service when bad weather knocks down power lines or causes electricity disruptions.

Regional transmission operators that received federal funding include:

- WECC gets about 54 million to install over 250 phasor measurement units across the Western Interconnection and create a communications system to collect data for real-time situational awareness. Improve integrated systems operation across 11 utility organizations and in all or part of 14 western states, enhancing reliability and reducing energy loss.
- NYISO gets about \$37 million to deploy a range of smart grid technologies, including 35 new phasor measurement units and 19 phasor data concentrators, across NY to allow area-wide control, and an open, flexible, interoperable, secure, and expandable communications system that will work in concert with the existing control and monitoring systems.
- MISO gets about \$17 million to install, test, integrate and monitor 150 phasor measurement units in strategic locations across the Midwest on independent transmissions system operators, which will improve the energy dispatching, system reliability and planning capabilities.
- PJM gets about \$13 million to deploy over 90 phasor measurement units and other digital monitoring and analysis technologies across 10 states that will provide real-time data on the operating conditions of the transmission system, improving reliability and reducing congestion.
- ISO-NE gets about \$3 million to install 30 synchrophasors and connect the independent systems operators in New England to increase response time to real time system events and reduce congestion by being able to collect and share synchrophasor and disturbance data with other regions for wide area monitoring.

[DOE Press Release](#)

[Map of U.S. Smart Grid Projects](#)

- **North American Electricity Reliability Organization Forms Smart Grid Task Force:**

NERC's Planning, Operating, and Critical Infrastructure Committees recently commissioned a "Smart Grid Task Force." The task force will provide a high-level review of the reliability impacts

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of integrating smart grid technology on the bulk power system. It will consider system planning, design, and operations with respect to the bulk power system. The Task Force will prepare a report that reviews Smart Grid characteristics, identifies reliability concerns including cyber-security vulnerability, and provides recommendations to NERC and the industry. The report will:

1. Identify and explain any issues and/or concerns of the Smart Grid with respect to bulk power system reliability, including a definition of Smart Grid in the context of bulk power system reliability.
2. Assess Smart Grid reliability characteristics, including those expected to be significant in the near-term and their potential impacts on bulk power system reliability. In particular, identify aspects that could become material to the reliability of the bulk power system,
3. Determine the cyber-security and critical infrastructure protection implications of Smart Grid technologies and the potential impacts on bulk power system reliability,
4. Identify how the integration of Smart Grid technologies affects bulk power system planning, design and operational processes and the tools that may be needed to maintain bulk power system reliability,
5. Determine which existing NERC Reliability Standards may apply to bulk power system Smart Grid elements, and provide recommendations for areas where technical foundations for standards development work may be needed, and,
6. Present conclusions, recommendations, and a work plan for completing any recommended actions.

View the Group's Scope: http://www.nerc.com/docs/pc/sgtf/SGTF_Scope_07-29-6

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