# SMART ENERGY GRID AWARDS

*Fact Sheet*

The Obama Administration is investing **$3.4 billion** through the American Recovery and Reinvestment Act, to help fund the largest single energy grid modernization in U.S. history. **One-hundred private companies, utilities, manufacturers, cities and other partners** will receive grant awards tomorrow ranging from about **$400,000 to $200 million** to help build a nationwide smart energy grid that will cut costs for consumers, make the grid stronger and more reliable, and increase accessibility to clean, low-cost renewable energy sources for American homes and businesses. An analysis by the Electric Power Research Institute estimates that implementation of smart grid technologies could reduce electricity use by more than **4 percent by 2030**, saving **$20.4 billion** for businesses and consumers across the country.

The awards are part of the Administration's over **$100 billion** investment through the Recovery Act in innovation, technology and laying a new foundation to keep America competitive in the 21st century. They are not only expected to create **tens of thousands** of jobs during these challenging economic times, but help build a lasting infrastructure that will be the foundation of the growing American renewable energy industry. Because of this investment in a smart energy grid, the U.S. will be better able to harness the abundance of sunlight in the West and wind in the Midwest to power communities across the country – including many that do not have the capacity to generate these low-cost energy sources on their own. The awards will also fund more widespread installation of smart meters in homes and businesses, empowering consumers to carefully monitor and control their own energy use and creating new high-tech manufacturing opportunities for American companies. And before a single dollar is disbursed, the program has already helped bring private sector capital from the sidelines, with the winning applicants securing **$4.7 billion** in private investment to match their awards, multiplying the overall economic impact.

Together, these awards represent the largest group of Recovery Act awards ever made in a single day and the largest batch of Recovery Act clean energy grant awards made to-date.

The $3.4 billion in smart energy grid awards will:

- Create tens of thousands of jobs across the country. These jobs include high paying career opportunities for smart meter manufacturing workers; engineering technicians, electricians and equipment installers; IT system designers and cyber security specialists; data entry clerks and database administrators; business and power system analysts; and others.

- Leverage more than $4.7 billion in private investment to match the federal investment.

- Make the grid more reliable, reducing power outages that cost American consumers $150 billion a year -- about $500 for every man, woman and child in the United States.

- 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're not.

- Install more than 200,000 smart transformers that 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 nation'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.

- Power companies today typically do not know there has been a power outage until a customer calls to report it. With these smart grid devices, power companies will have the tools they need for better outage prevention and faster response to make repairs when outages do occur.

- Empower consumers to cut their electricity bills. The Recovery Act combined with private investment will put us on pace to deploy more than 40 million smart meters in American homes and businesses over the next few years that will help consumers cut their utility bills.

- Install more than 1 million in-home displays, 170,000 smart thermostats, and 175,000 other load control devices to enable consumers to reduce their energy use. Funding will also help expand the market for smart washers, dryers, and dishwashers, so that American consumers can further control their energy use and lower their electricity bills.

- Put us on a path to get 20 percent or more of our energy from renewable sources by 2020.

- Reduce peak electricity demand by more than 1400 MW, which is the equivalent of several larger power plants and can save ratepayers more than $1.5 billion in capital costs and help lower utility bills. Since peak electricity is the most expensive energy – and requires the use of standby power generation plants – the economic and environmental savings for even a small reduction are significant. In fact, some of the power plants for meeting peak demand operate for only a few hundred hours a year, which means the power they generate can be 5-10 times more expensive than the average price per kilowatt hour paid by most consumers.

# *ROADMAP TO THE SMART GRID*

## *The Obama Administration's Plan for a Smarter, Stronger, More Efficient and Reliable Electric Grid*

America cannot build a 21st Century energy economy with a mid-20th Century electricity system. The Obama Administration is making strategic investments and policy choices to drive the evolution to a stronger, smarter, more efficient electricity infrastructure. The "Smart Grid" we are developing will:

- Accommodate and encourage rapid growth in variable renewable energy resources such as wind and solar
- Empower consumers to save money by giving them better information as well as the tools and incentives to manage their energy use.
- Enhance the reliability and security of our electric system.

To achieve these goals, the Obama Administration has mounted an historic effort to deploy and integrate smart grid technologies across the United States, including President Obama's announcement of the largest smart grid investment ever – an overall public and private commitment of more than $8 billion.

**What is a Smart Grid?**

The construction of the federal highway system is often invoked when discussing the smart grid, because it laid the foundation for American growth for decades. The Smart Grid is a collection of enabling technologies installed on the electric system, but it isn't something you can take a picture of. Deploying a given number of smart meters or building a given amount of power lines doesn't make a Smart Grid. Rather, a Smart Grid is measured in the overall capabilities of the system.

Once realized, the smart grid will have a transformational impact on how electricity is generated, delivered and consumer. Here are some examples of how we will measure progress towards a smarter grid:

***Compatible Smart Grid Technologies Will Work Together in a Network:***
You can buy any brand of AAA batteries and know they will operate your TV remote control. That's because the industry has agreed to a set of standards and specification. The same thing is needed in smart grid technology.

To work together in an integrated smart grid system so that consumers can save money, smart devices like smart meters, thermostats, appliances, syncrophasors and other technologies need to conform to certain specifications. Just like you can't put a three pronged plug into a two pronged socket, we need to make sure these devices are compatible with one another. It will take years for the country's entire electricity infrastructure to achieve this goal but an essential first step is to set standards for the industry. The Departments of Commerce and Energy are

working with industry to establish comprehensive standards for smart grid technology by 2011.

***Consumers Have Choice and Control***

Much as on-line banking and automatic tellers have revolutionized consumer relationships with their banks, smart grid technologies will enable homeowners and businesses to have real-time information on their energy usage, the costs of the energy they are using, and the convenience of two-way communications to manage their energy consumption. By pre-programming smart thermostats and appliances to reduced consumption when prices are high and delay energy usage until lower price time periods, consumers will be able to manage what they pay for energy.

***The Grid Will be More Reliable***

On a smart system, when a tree falls on an electric line or a power plant automatically shuts down because of a natural disaster, system operators will know about the problem in real-time, be able to isolate it, and thereby dramatically reduce the impact by re-directing electricity. Today, nearly all the bulk power system has this capability, but little is communicated or actively controlled in the distribution system that delivers power to most customers. Power outages cost American consumers $150 billion per year. Even slight disruptions of a fraction of a second can cause computers and other automated devices to crash.

**A Better Analogy: The Rise of Electronic Banking**

The system we enjoy today exists because of the interoperability and interaction between:

- Broadly available ATMs
- Widespread access to home computers and broadband
- Technology that allows for secure, electronic transfers and transactions with and between financial institutions
- Widespread adoption of online payments/billing by retail outlets, credit card companies and other private entities.

***Clean Energy Sources Will Be Fully Integrated***

To increase energy available from wind, sun, geothermal, and other clean sources, Smart Grid technologies will integrate these resources into the electric system while maintaining the reliability we expect. As a first step, the Obama Administration is committed to doubling renewable energy capacity by 2012.

**How Was This Approach Developed?**

The Administration's approach to building the smart grid is based on extensive input from experts and stakeholders who offered invaluable insights about what the key ingredients to success would be. Contributors to the dialogue included utilities, reliability coordinators, electricity market operators, consumers, suppliers, trade organizations, state and federal regulators, the Department of Homeland Security, the Environmental Protection Agency, the National Institute of Standards and Technology, members of Congress, the National Laboratories, academics and others.

This input – compiled and published in a Congressionally mandated July 2009 report – amounts to a consensus view of the scope of a smart grid and includes twenty metrics that define a smart grid. Those metrics were used to evaluate the state of smart grid deployment and can be used in the future to measure progress.

The Recovery Act program is financing the building blocks of this smart grid vision. The metrics and characteristics are the basis for the solicitation design and evaluation criteria.

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