

Lexington Institute

# ENERGY REGULATION

*Trendwatch*

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### **STATE UTILITY COMMISSIONS PLAY GROWING ROLE IN SMART GRID**

Recent developments surrounding Boulder's SmartGridCity highlight some of the challenges inherent to addressing national energy priorities within state-level regulatory constituencies.

In approving a rate increase request by multi-state energy provider Xcel Energy in December, Colorado's Public Utilities Commission (CPUC) also moved to increase its regulatory scope by requiring the utility to file a Certificate of Public Convenience and Necessity for Smart Grid. Such a document is required before a utility undertakes the building of new infrastructure, and must make the case that the suggested investment is "necessary and prudent."

The utility was given nearly two months to submit the filing, which the Commission indicated it could take up to six months to review.

The largest share of the 6.5 percent price increase for customers was for recovering the costs of a new coal-fueled power plant. But the company also pointed to unanticipated construction costs confronted in installing its fiber network, much of which needed to be buried underground....*continued on page 4*

### **INITIAL SMART GRID CYBERSECURITY STANDARDS ISSUED**

The Commerce Department's National Institute of Standards and Technology (NIST) issued its initial list of standards, a preliminary cybersecurity strategy and initial framework components to support the Smart Grid in January 2010. The Smart Grid is an automated, widely distributed energy delivery network designed to ensure a balance of supply and demand on the nation's electric grid.

NIST Director Patrick Gallagher announced the Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0, which presents the first release of a Smart Grid interoperability framework that outlines plans for the grid's future development. The report includes: a foundation for the grid and its networked domains; 75 initial standards applicable to the Smart Grid; a roadmap for designated standards-setting organizations; and the initial cybersecurity strategy.

After a draft of the report was released in September 2009, more than 80 individuals and organizations submitted public comments on that version. Another draft report, Smart Grid Cyber Security Strategy and Requirements, has also been through public comment period....*continued on page 3*

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### **FERC CATEGORIZES BATTERY AS TRANSMISSION DEVICE**

The Federal Energy Regulatory Commission (FERC) approved rate incentives for battery storage devices proposed to improve the operation and reliability of the California Independent System Operator (ISO) grid. Western Grid Development LLC has proposed to build and operate three sodium sulfur batteries, ranging from 10 to 50 MW in size, along the California ISO grid using Smart Grid technologies. The California ISO must approve the projects as a part of the organized market's transmission planning process for the company to realize the FERC rate incentives.

Western Grid equates the batteries to substation equipment, such as large electricity capacitors, used in many wholesale transmission system facilities, adding that the batteries will provide transmission services to solve reliability problems using an advanced transmission technology. Company officials claim the technology is cheaper and less harmful to the environment than traditional transmission solutions and that the batteries can be incorporated into the grid using Smart Grid technologies.

The determination that sodium sulfur batteries will be considered as wholesale transmission facilities marks a significant new precedent for energy storage devices by FERC. As a result, the energy transmission distinction now gives state regulators the flexibility to pass infrastructure and capital costs incurred by the company on to its consumers.

Another effect from this decision is the emerging role of state public utilities commissions and/or independent system operators as it relates to the future of energy storage. The FERC rate incentive specifically states that the California ISO must approve the Western Grid projects.

Energy storage is a main pillar in the federal Energy Department's long-term Smart Grid plans. ARRA funded \$185 million allocated to Energy Storage Demonstration Projects. A 2010 Sandia National Laboratories/Lockheed Martin report by Jim Eyer and Garth Corey identifies \$220 billion total in potential benefits to the United States economy of 19 different electric energy storage technologies between 2010 and 2020. More than a third of these potential benefits, \$79 billion over ten years, comes from time-of-use energy cost management.

*"Our challenge as regulators is to remove barriers that impede the vast potential of energy storage to support our national energy goals. FERC can strive to ensure that regulatory barriers are removed and compensation and tariff treatment are appropriately gauged to match the value of the services that storage provides."*

FERC Chairman Jon Wellinghoff, December 10, 2009 Senate Testimony

### **U.S Department of Energy Recovery Act Spending**

Office	ARRA Funding	Percent Awarded to Date
Office of Environmental Management (EM)	\$6 billion	96%
Office of Electricity Delivery & Energy Reliability (OE)	\$4.5 billion	3%
Office of Fossil Energy (FE)	\$3.4 billion	3.2%
Office of Science (SC)	\$1.6 billion	86%
Advanced Research Projects Agency (ARPA-E)	\$389 million	39%
Western Area Power Administration (WAPA)	\$10 million	22%

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### **WHITE HOUSE BUDGET BOOSTS NUCLEAR LOAN GUARANTEES**

The White House FY 2011 budget included a substantial departure from past policy directions, with \$36 billion in loan guarantees for nuclear power plants, a 200 percent funding increase. Industry officials insist the program must be managed more efficiently than its 2005 predecessor to succeed in lowering barriers like the high cost and difficult terms of financing new power plants. In announcing \$8 billion in loan guarantees in February for a nuclear reactor project in Georgia, President Obama continued to emphasize job creation in energy industries.

While federal loan guarantees to electric utilities are directed toward building new reactors, observers have noted that those construction projects rely heavily on critical components purchased from overseas producers – funding manufacturing jobs in China and South Korea while the program ignores domestic U.S. manufacturers who could be developing those capacities in the United States.

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### **INITIAL SMART GRID CYBERSECURITY STANDARDS ISSUED**

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The Framework and Roadmap report notes an urgent need to establish these protocols, as various elements of the Smart Grid are already underway, including smart sensors on distribution lines, smart meters in homes, and widely dispersed sources of renewable energy. These developments promise to accelerate as a result of Department of Energy Smart Grid Investment Grants and other incentives, such as loan guarantees for renewable energy generation projects.

The report asserts: “Without standards, there is the potential for technologies developed or implemented with sizable public and private investments to become obsolete prematurely or to be implemented without measures necessary to ensure security.”

The Energy Independence and Security Act (EISA) of 2007 gives the NIST the “primary responsibility to coordinate development of a framework that includes protocols and model standards for information management to achieve interoperability of smart grid devices and system.”

EISA specifies that the interoperability framework should be flexible, uniform and technology-neutral and instructs that the framework should accommodate “traditional, centralized generation and distribution resources.” The law offers flexibility for incorporation of new, innovative Smart Grid technologies, such as distribution of renewable energy resources and energy storage.

The NIST also launched the Smart Grid Interoperability Panel in November 2009, which is a public-private stakeholder forum designed to provide technical guidance to NIST as it develops these standards. The panel includes approximately 500 organizations and 1,350 individuals.

The Federal Energy Regulatory Commission (FERC) will initiate rulemakings for adoption of Smart Grid standards when the NIST framework has sufficient consensus, though not all NIST standards will ultimately warrant adoption. Ultimately, the FERC will be responsible for establishing standards ensuring Smart Grid functionality in interstate transmission of electric power and in regional and wholesale electricity markets.

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### STATE UTILITY COMMISSIONS PLAY GROWING ROLE IN SMART GRID

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In 2009, the Department of Energy's (DOE) National Energy Technology Laboratory awarded most of the grants for its State Electricity Regulators Assistance grant program, a \$46 million program aimed to support state public utility commissions (PUCs) as they learn their regulatory and oversight role in new federal electricity projects.

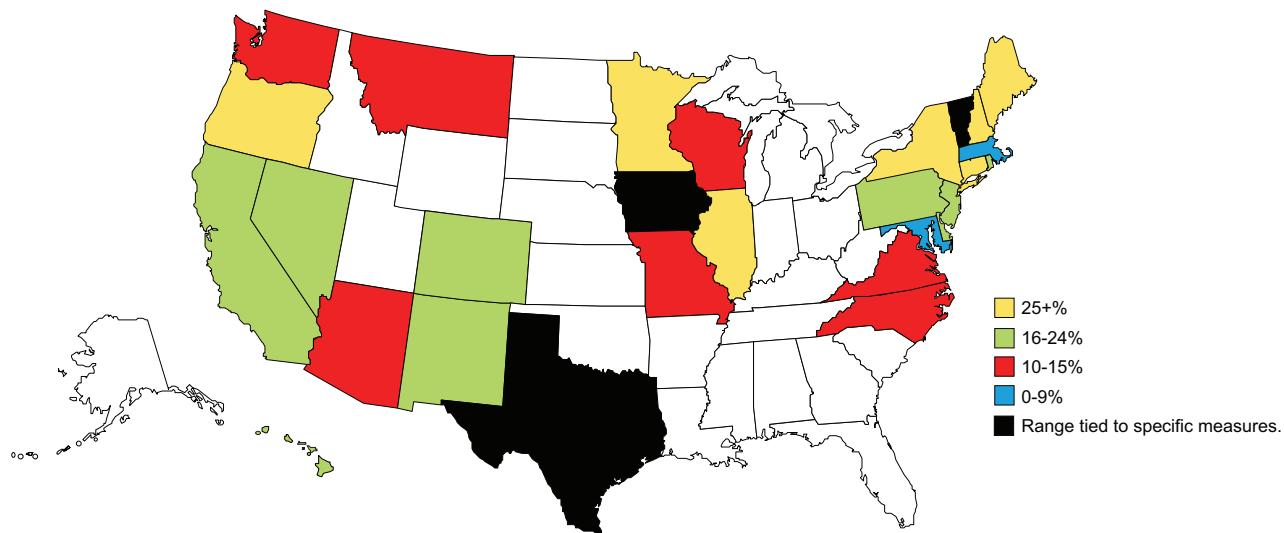
The grant, funded by the American Recovery and Reinvestment Act (ARRA), will provide funds to states to hire or train staff for federal electricity priorities, including Smart Grid developments, renewable energy and energy efficiency programs, and carbon capture and storage projects, to name a few. The DOE aims to help PUCs manage the workload, which is expected to increase as a result of ARRA electricity-related activities, and facilitate PUC consideration of these initiatives.

DOE awarded \$44.3 million in 2009 to all 50 states and the District of Columbia. Grants ranged from \$765,000, awarded to the District of Columbia, to \$1.37 million, awarded to the Public Utility Commission of Texas. Eight large states were granted more than \$1 million each.

*"What must be agreed on and implemented is a process by which Smart Grid regulations are periodically reviewed for their utility and effectiveness, and where inefficiencies are observed, such regulations are revised, removed or replaced."*

William Kovacs, U.S. Chamber of Commerce

**State Renewables Portfolio Standards Targets**



Source: Sandia National Laboratories and Pew Center Website about Climate Change.

States	Renewable Portfolio Standard (RPS)
CT, IL, ME, MN, NH, NY, OR	25% +
CA, CO, DE, HI, NJ, NM, NV, PA, RI	16-24%
AZ, DC, *MO, MT, NC, *VA, WA, WI	10-15%
MA, MD	0-9%

\*RPS implemented through voluntary utility commitments.