



Regulatory Aspects of Smart Metering: United States Experience



**Joint Licensing/Competition
Committee and Tariff/Pricing
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Presented by:

Diane Ramthun
On behalf of National Association of
Regulatory Utility Commissioners



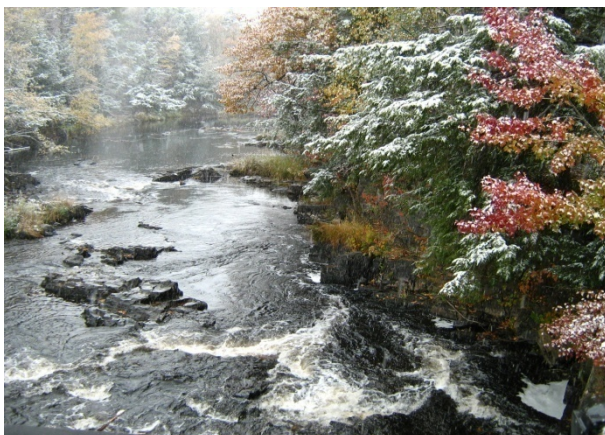
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Wisconsin





Current Status of United States Deployment of Smart Meters



65 million smart meter are projected to be deployed over the next 5-7 years, covering about 50% of U.S. households by 2020.

Most of the deployments are being made by large investor-owned utilities within their own service territories.

Deployment projects vary significantly by size, cost, functionalities of the technology deployed, and method of cost-recovery.

Federal stimulus funds, together with private investment, are paying for much of the smart meter deployment.

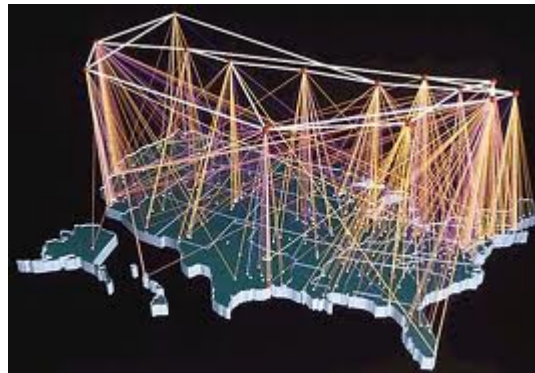




Role of State Regulatory Commissions in Smart Meter Deployments

Smart meters are new to regulatory oversight because they represent a recent and evolving technology associated with modernizing the U.S. electrical transmission and distribution grid.

As a building block to the smart grid, state regulatory commissions want to encourage the deployment of smart meters, while ensuring that projects are in the public interest.





State regulatory commissions have established rules and guidelines to provide clear policies and requirements for utilities.

- The Texas and California commissions have set rules for minimum functionalities and established guidelines for the analysis of cost/benefits for smart meters.





State regulatory commissions decide whether and how utilities' investments in smart meter deployments can be recouped in rates.

- Ratemaking authority allows commissions to closely scrutinize individual smart meter projects and determine if a utility's investment will benefit ratepayers and the state overall.
- The Maryland Public Service Commission, in a 2010 landmark decision, questioned the benefits of a proposed large scale project in light of multiple issues concerning costs, consumer impacts, and technological risks.





Consumer Adoption of Smart Meters Has Varied Greatly from State to State



- California has experienced strong consumer opposition to various aspects of smart meter deployments ranging from costs and accuracy of meters to health concerns.
- Wisconsin utilities are currently rolling out smart meter projects throughout the state with consumer acceptance of the meters.
- Varying state experiences may reflect differences in how deployments are conducted with respect to use of pilot projects, pre-deployment educational programs for consumers, and socio-economic conditions in respective states.





Current Regulatory Issues in the US



I. Cost/Benefit: Do the high costs of smart meter deployments outweigh the benefits to consumers, particularly during the current recession?

- In 2010, Public Service Commissions in Michigan, Hawaii, and Indiana required large smart meter projects to be scaled down in their respective states.
- The Maryland Public Service Commission in 2010 initially rejected a large project because of the high costs it imposed on ratepayers during the current recession.





II. Consumer Protection Issues: While smart meters can provide a variety of cost-saving, operational and technological benefits for utilities, consumers may not experience the same level of benefits.

- Consumers may be reluctant to adopt the new, smart meter-related technologies such as the home area networks (HAN), necessary in order for consumers to take advantage of the functionalities of smart grid, but they are expensive and require an education to use.
- Low income, elderly and disabled consumers may not have the means or ability to purchase the related home area network technology to enable them access to their usage data, and to use time of day rates.





II. Consumer Protection Issues, continued:

- Mandatory dynamic rate designs may be disadvantageous to those consumers who cannot shift usage to off-peak times, particularly the elderly and disabled, because they may experience higher energy bills.
- Remote disconnection functionalities of smart meters may allow utilities to more quickly shut off power to consumers with small unpaid bills than would otherwise occur with traditional meters.





III. Cost recovery Issues: No one method of cost recovery has been adopted by state regulatory commissions.

- In 2010, the Maryland Public Service Commission found that a proposed surcharge would unfairly impose the entire risk of the project on ratepayers, and rejected it in favor of recovery through traditional rate-making, which would require investors to share in the risk.
- In 2009, the Illinois Commerce Commission approved a smart grid rider intended to cover a utility's costs in a smart meter pilot project. In 2010, an Illinois court, however, overturned this decision to reject the rider as amounting to improper, single issue ratemaking.
- Texas, by rule, allows for cost recovery by surcharge if a smart meter project meets certain minimum functions.





IV. Early Obsolescence of Recently-Installed Smart Meters: Rapidly evolving smart meter technology, particularly the communications function, can render expensive smart meters obsolete within a few years, unlike traditional meters which are very long lasting. Who pays for this early obsolescence-utilities or ratepayers?

- In California, thousands of smart meters became obsolete as technology changed before the meters were fully depreciated. The California Public Service Commission granted the utility funding to upgrade the obsolete smart meters.





Current Regulatory Issues in the US



V. Accuracy and Reliability of Smart Meters: Consumers have complained that their energy bills increased as a result of inaccurate smart meters.

- In 2010, the Public Utility Commission of Texas ordered an independent study of the accuracy of recently-installed smart meters in response to consumer complaints. The study found that the smart meters gave more accurate readings than the traditional meters they replaced (99.96% of the meters were accurate compared to 96% of traditional meters).
- In 2010, an independent study required by the California Public Service Commission similarly found that smart meters were generally accurate and that higher energy bills were due to other factors.





VI. Consumer Privacy, Safety and Security: Certain risks exist for consumers who have smart meters and home area networks at their homes.

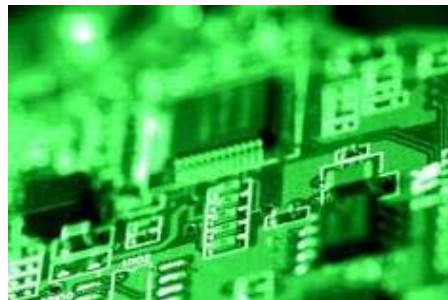
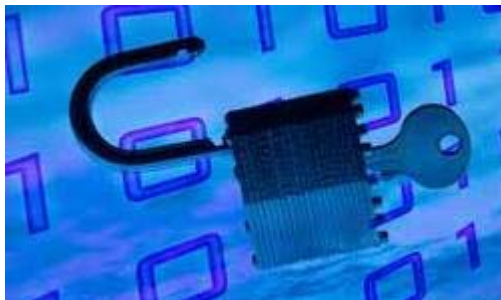
- Smart meters can allow persons outside a home to determine if it is occupied, creating security risks.
- Smart meters and HAN can allow persons outside a home to acquire personal information, such as what appliances and medications are inside the home.
- Data about personal energy usage can be sold to third parties to create detailed portraits of the habits, lifestyle, and purchases of the consumer.





VII. Inter-operability and cyber security risks: Large-scale deployments of smart meters are occurring before inter-operability and cyber-security risks have been addressed by government and the industry. These risks have the potential to become major problems affecting all aspects of the smart grid.

- Standards addressing these issues are under development by the National Institute of Standards and Technology (NIST) and will ultimately be reviewed and implemented by federal agencies, such as the Federal Energy Regulatory Commission (FERC), as well as state regulatory commissions.





Questions?

Diane Ramthun

Office of General Counsel

Public Service Commission of Wisconsin

610 North Whitney Way

Madison, WI 53707

<http://psc.wi.gov>

Diane.Ramthun@wisconsin.gov