GRIDWISE ALLIANCE

Advocating for an Optimized Electric Grid

Things To Know About...
Advanced Metering Infrastructure (AMI)

Electricity is essential to all sectors of our nation's economic life, more so now than ever before. From advanced meters on homes and businesses to more intelligent control of distribution, transmission, and generation, America needs a 21st century electric grid. An advanced grid offers the potential of improved utilization of all generation and storage resources, increased operational efficiency and reliability, and enhanced opportunity for customers to make choices about energy use.

Many electric utility companies have committed to modernizing their electric systems infrastructure. This includes modernizing the meters with Advanced Metering Infrastructure (AMI) projects. AMI includes the combination of measuring energy data, the systems to wirelessly collect and analyze that data, and the ability to communicate two-way signals between a customer and their energy provider.

These are the realities everyone should know about AMI.

What is an Advanced Meter?

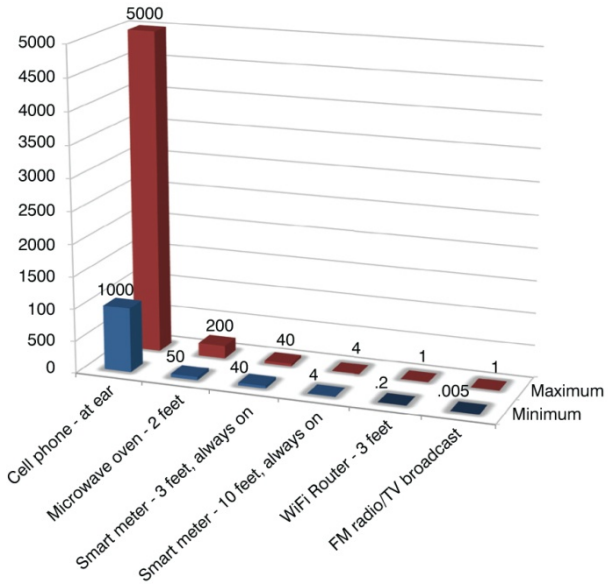
An advanced meter, or smart meter, is simply an upgraded electrical meter that records a home or business' energy consumption at intervals of an hour or less and transmits that data to grid operators via communications lines or fixed wireless networks. The device enables two-way communication between an energy consumer and the electric grid, allowing customers to manage their energy usage in greater detail, and utilities to manage energy operations and distribution more efficiently.

Advanced Meters are Safe

There has been a growing misconception in the public debate over the health effects of advanced meters in regards to their use of wireless radio frequency waves (RF) to transmit energy data. RF waves are a type of electromagnetic energy and are used for a number of different purposes, mostly within telecommunications. Consider the charts below, produced by the California Commission on Science and Technology, and by Elster, which depict the actual levels of RF exposure as compared to other commonly used consumer products.

COMPARISION OF RADIO-FREQUENCY LEVELS FROM VARIOUS SOURCES IN uW/cm²

Source: CCST January 2011 Report: Health Impacts of Radio Frequency From Smart Meters



Advanced meters are typically located on the outside of homes and businesses and transmit data for a very short period of time per day. Looking at the RF emissions of a cell phone held to a person's ear and the amount of time spent using a cell phone each day, advanced meter emissions pale in comparison. Advanced meters communicate intermittently, for mere fractions of a second at a time, equaling, in most cases, less than a minute per day in total transmission time. It is important to understand that when the meter is not transmitting a signal, it is also not producing RF emissions.

In an April 2011 letter from the Federal Communications Commission (FCC) Chief of Engineering and Technology to U.S. Representative Lynn Woolsey (CA), the FCC affirms...

"In the case of Smart Meters, the FCC has no data or reports to suggest that exposure is occurring at levels of RF energy that exceed our RF exposure guidelines."

In the letter, the FCC Chief of Engineering and Technology went on to state,

"RF measurements reported by others indicate that Smart Meters produce exposures of no more than 65% of the FCC limit at the face of the meter when programmed to transmit continuously. The devices normally transmit for less than one second a few times each day and consumers are normally tens of feet or more from the meter face so the actual exposures are typically thousands of times less than this..."

* Based on FCC 47CFR1.1310, which averages exposure over 30 minutes of usage. Comparative data provided by Elster.

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Advanced Meters Can Save Energy and Money

Advanced meters can provide customers more frequent, detailed information regarding their energy usage. There are many programs currently in place, such as the Biggest Energy Saver, which use detailed energy data and encourage the reduction of energy usage during peak times. Other ways advanced meters enable reduced energy usage and cost savings include:

- Customers can see their electric usage history in real time through in-home applications to better manage decisions on when they use energy.
- Remote meter reading enables utilities to read advanced meters from a central location, reducing truck rolls and gasoline use, resulting in cost savings and positively impacting air quality/greenhouse gas reduction.
- Utilities can quickly see when and where power outages are occurring in order to resolve service problems quickly and efficiently.

Advanced Meters Are Beneficial On Many Levels

The benefits of advanced meters extend from customers to utilities. GridWise Alliance member, Electric Power Research Institute (EPRI), classifies the tangible benefits in three categories:

Customer Service Benefits - primarily associated with notification of serious outages, faster service restoration, early detection of meter failures, billing accuracy improvements, flexible billing cycles, participation in peak-rebate programs such as Biggest Energy Saver, enabling customers to participate in third party applications to better manage their energy use, and creating customer energy profiles for Energy Efficiency/Demand Response programs.

System Operation Benefits - primarily associated with reduction in meter reads and associated management and administrative support, increased meter reading accuracy, improved utility asset management, improved energy theft detection, and improved outage management.

Financial Benefits - primarily associated with reduced equipment and equipment maintenance costs, reduced support expenses, faster restoration and shorter outages, and improvements in inventory management.

Advanced Meter Data is Protected

Customer's access to information and the protection of their data is a concern to some. Utilities and their technology company partners take data privacy very seriously.

Advanced Meters Do Collect:

- Information on consumers' overall cumulative energy consumption
- Information on energy delivered to the grid from customers who generate (for example, those with solar roof panels)
- System status signals to indicate if a customer losses power to aid in prompt service restoration

Advanced Meters Do Not Collect:

- Personally identifiable customer information

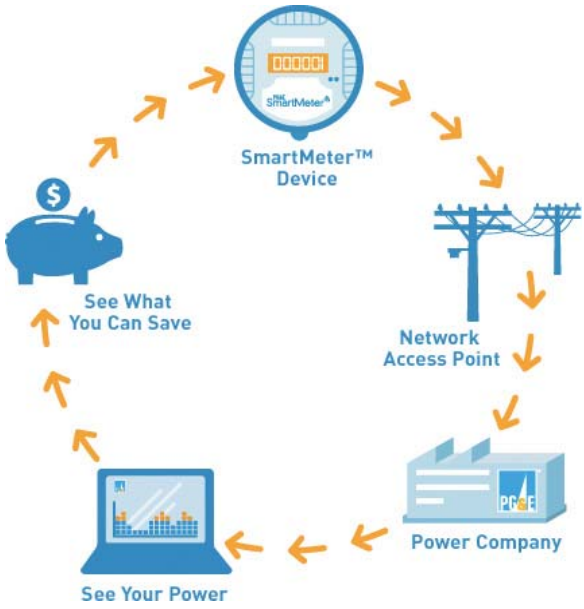

Image Source: Pacific Gas & Electric

Many energy companies have created privacy dashboards and profile viewers that give customers better control over how their information is collected and shared through websites or mobile applications or to help visualize data use. The chart above, demonstrates how AMI follows a continuous flow of information. The electric industry has always, and will continue to view the protection of consumer data with the highest regard.

Conclusion

Advanced meters are mutually beneficial. They allow utilities to automatically perform an otherwise manual process while giving customers more frequent and detailed information on their energy usage patterns, which help customers save energy and money. Advanced meters allow for quicker return to service following interruptions. Contrary to some public opponents' opinions, advanced meters are safe and offer numerous benefits to customers and utilities.

The GridWise Alliance advocates for broad, system-wide adoption of advanced meters and full participation by all customers. The Alliance continues to educate audiences on the benefits and safety of advanced meters and AMI systems.

For more information on advanced meters please refer to www.gridwise.org.