THE POTENTIAL OF AUTOMATED METERING INFRASTRUCTURE TO THE ELECTRICAL GRID

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WHAT AMI IS

Automated Meter Infrastructure (AMI) is the name for an emerging system in which two-way advanced electric meters can send and receive data to and from the broader electric grid which can be analyzed and used for a variety of purposes.

The ability of AMI to provide near real-time data on an individual's electricity use and two-way communications has the potential to save consumers money, reduce energy consumption, and help utilities to run more reliability and cheaply.

Since 2011, U.S. utilities have spent an estimated $15 billion on AMI investments.

It is expected that by 2021 85 percent of all U.S. electricity accounts served by investor-owned utilities will be read through AMI, which will allow residential consumer's hourly usage data to be available in near real-time.

WHAT AMI CAN DO

The ability to monitor usage data in real time has a number of applications.

Most obviously, AMI can be used to help consumers better understand the key drivers of their electricity costs and choose competitive rate plans which best match their usage patterns, including rate plans that incorporate savings associated with altering their energy consumption.

AMI can allow residential customers to manage real-time energy use with simple notifications regarding pre-established consumption thresholds—similar to how credit card companies provide customer notifications of large or suspicious transactions in real-time—and more advanced, automated, in-home energy management.

Eventually, AMI-enabled meters could be used to support resident-directed automated control of in-home devices to help reduce energy use.

Second, real time usage data makes switching electric providers much easier. With a standard meter, switching can only be done one day a month (when the meter is read). With AMI, the requirement to switch suppliers on a given meter read date each month should no longer apply. In fact, since meter reads occur in near real-time, a new meter read cycle can be initiated each day.

AMI also allows electric providers to generate customer bills based on actual hourly usage and not a standard utility load profile. The cost to serve individual customers can vary significantly, even for customers on the same or similar utility distribution rates. In areas that allow electric competition, large commercial and industrial customers are usually billed based on actual interval usage data, which typically requires actual hourly consumption data when generating offers. Yet residential customers' usage and costs are still based on standardized class average load profiles and not actual customer data. AMI can change this.

AMI systems can enable the aggregation of usage data in real-time and interface with behind-the-meter resources to increase the overall flexibility of the grid. If customers are allowed to give third party access to their AMI data, this could lead to the creation of new competitive retail service offerings which allow for a shifting of loads to reduce overall and peak demands.

AMI SAVES ENERGY - AND MONEY

Current estimates suggest that full utilization of AMI could reduce median energy consumption by 2.6 percent and reduce peak demand by 23 percent.

Shifting electricity consumption away from peak periods, even where it does not reduce overall energy use, is hugely important not only because it reduces costs, but because it is critical to integrate growing levels of renewables cost effectively and reliably.

Because electric near peak is especially expensive to produce, AMI could be expected to save customers approximately $250 million per year, not counting environmental benefits.

HOW TO MAKE AMI WORK

To tap the full potential of AMI, regulators need to make some changes to existing regulations.

Regulators should mandate that utilities provide customers the data access required to facilitate customer savings programs offered by third parties.

Regulatory commissions should require that both new and existing AMI implementations have the capability to provide retail suppliers with revenue-grade customer usage data on at least a daily basis.

Regulators should also implement time-of-use default service rates in states with utility-provided default service to provide correct price signals and opportunities for customer cost savings.

In states that participate in a Regional Transmission Organization (RTO), state regulatory commissions should require that current and future AMI implementation proposals specifically address the needs of the applicable RTO.

In competitive energy markets, many customers receive a single consolidated bill for their energy consumption and distribution services. This lack of a direct billing relationship between the supplier and the customer limits the suppliers' ability to communicate with their customers, convey the value of various service offerings and cultivate a long-term relationship. Regulators should permit dual billing.

CONTACT US

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