

## Technology Advisory

### Electric Cooperatives Lead Industry AMI Deployment

As advanced communications have become increasingly important for electric system operations, cooperatives are transitioning from Automated Meter Reading (AMR) to Advanced Metering Infrastructure (AMI), and are leading the industry in AMI deployment, according to a new analysis by NRECA.

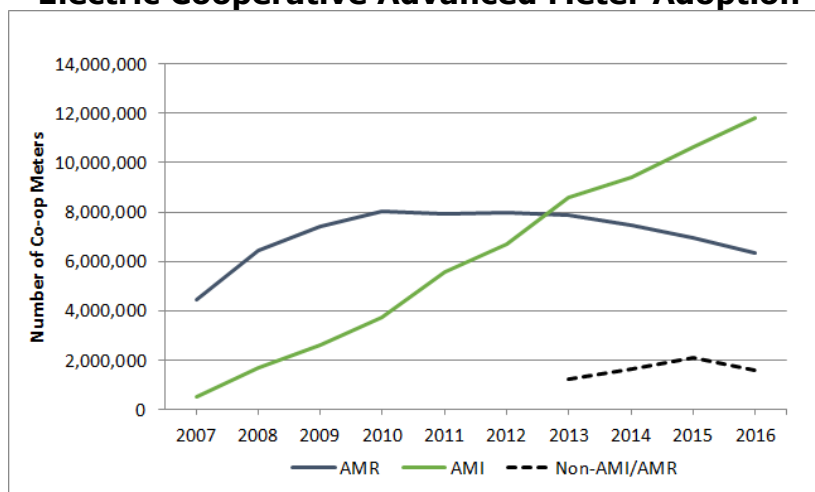
#### AMI vs. AMR

AMR is the technology of automatically collecting basic energy consumption data and transferring it from the electric meter to the utility. AMI is a system of newer digital meters, often referred to as *smart meters*, integrated with communications networks and data management systems, to enable two-way communication. This allows the utility to transmit real-time pricing and other energy information back-and-forth to the meter, providing operational, financial, and customer service benefits. Most electric co-ops communicate with their AMI meters via power line carrier technology, though radio frequency communications are becoming more widely deployed because they offer increased bandwidth, lower latency, and fewer dropped messages.

#### Transition from AMR to AMI

Penetration of AMI among electric cooperatives has been steadily increasing, with an average annual growth rate of 41 percent per year since 2007. Co-op AMI meters are now more prevalent than co-op AMR meters. The number of co-op AMI meters is nearly double the number of AMR meters, according to NRECA's analysis of newly-mined 2016 data.<sup>1</sup> Over the last four years, the number of co-op meters without either technology has been relatively constant.<sup>2</sup> This strongly suggests that most of the growth in AMI since 2013 is due to switching from AMR meters to AMI meters.

#### Electric Cooperative Advanced Meter Adoption



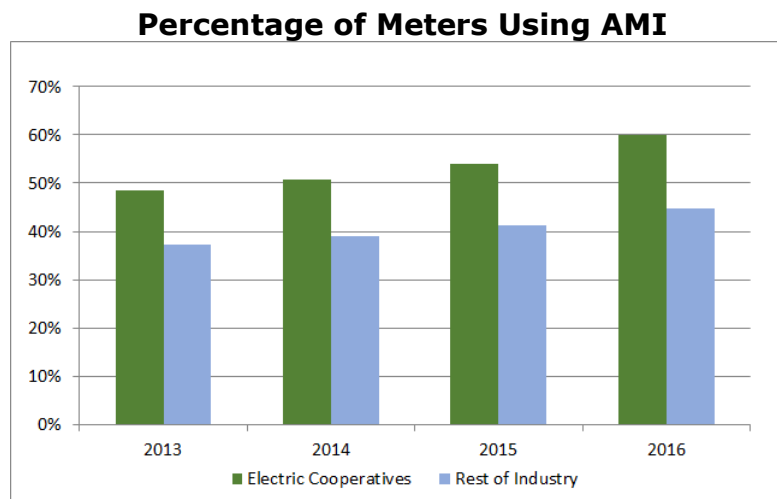
Source: NRECA analysis of EIA-861 data, February 2018

<sup>1</sup> U.S. Energy Information Administration (EIA) Form 861. Year 2016 data is the most recent data available.

<sup>2</sup> EIA data on the number of meters without AMI or AMR technology is only available for 2013 and later.

## Co-ops Lead the Way

Due to low population density in their territories, co-ops were early adopters of advanced metering capability to reduce the need for on-site meter reading. This led co-ops to initially adopt AMR, and we have seen the same trend as newer AMI technologies have become available. Since 2013, co-ops have consistently outpaced the rest of the electric industry in AMI penetration. Over this period, the percentage of co-op meters that have adopted AMI has increased from 48 to 60 percent.



Source: NRECA analysis of EIA-861 data, February 2018

AMI was also an important component of NRECA's Smart Grid Demonstration Project, in partnership with the U.S. Department of Energy. A primary purpose of the project was to examine existing and emerging smart grid technologies for their technical effectiveness, suitability to the co-op business model, and return on investment. The Demonstration deployed AMI at seven different electric cooperatives, and studied demand response through AMI two-way communications at 10 cooperatives.

## The Value of Data

Electric cooperatives are already benefitting from the use of AMI in a variety of ways, including outage management, supply cost mitigation, and improved consumer energy profiles. Additionally, with AMI co-ops now have unprecedented access to data and analytics. This two-way iterative data flow can be used by distribution co-ops to plan for member energy and service pricing. System visualization allows for efficient use of capital expenditures on construction projects. Increased information and communications systems allow for better alignment between retail rate setting and product pricing by G&T suppliers. Wholesale and retail rate signals and pricing for DER products and services can be shared across the energy value chain in an iterative manner. This represents an opportunity for cooperatives to optimize the system and provide dynamic price signals to their member-consumers, where the member-consumer becomes an active participant in energy solutions.

## NRECA Contact for Questions

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