

Electric Cooperatives Continue to Lead Industry AMI Deployment

Key Highlights

- Penetration of AMI among electric cooperatives has increased at an average annual growth rate of 35 percent per year since 2007.
- Most of the growth in co-op AMI is due to switching from AMR meters to AMI meters, and the number of co-op AMI meters is now triple the number of AMR meters.
- Co-ops continue to outpace the rest of the industry in AMI deployment, with 70% of co-op meters now using AMI compared to 54% for the rest of the industry.

As advanced communications have become increasingly important for electric system operations, cooperatives have been transitioning from Automated Meter Reading (AMR) to Advanced Metering Infrastructure (AMI). According to updated analysis by NRECA, electric co-ops continue to lead the industry in AMI deployment.

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.

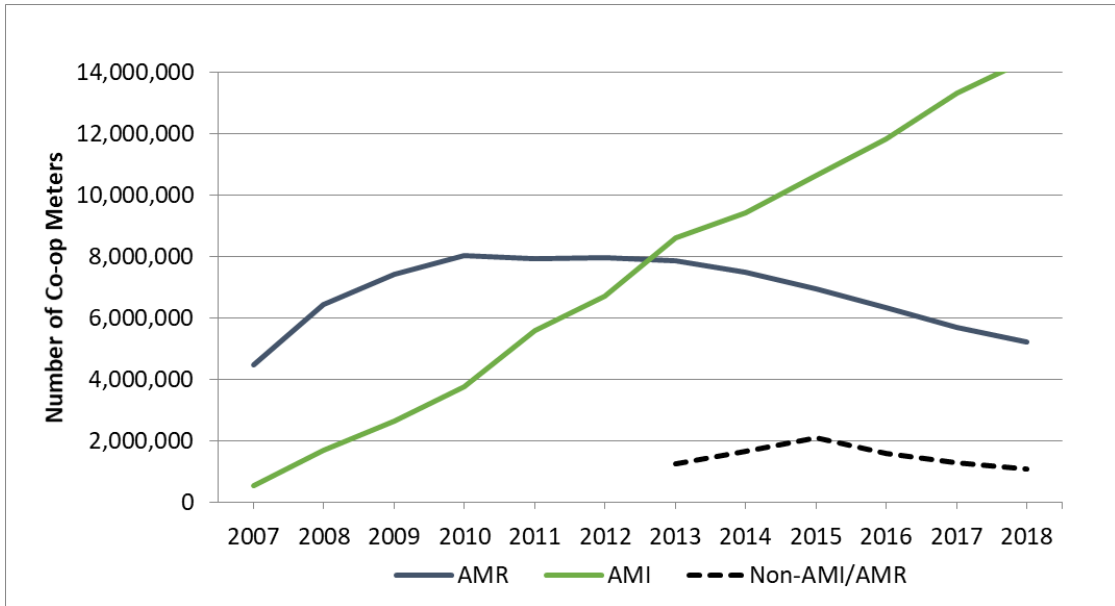
Transition from AMR to AMI

Penetration of AMI among electric cooperatives has been steadily increasing, at an average annual growth rate of 35 percent per year since 2007. Co-op AMI meters are now more prevalent than co-op AMR meters. NRECA's analysis of newly-mined 2018 data¹ shows that the number of co-op AMI meters is now nearly triple the number of AMR meters. Over the last several years, the number of co-op meters without either technology has been relatively constant,² which strongly suggests that most of the growth in AMI since 2013 is due to switching from AMR meters to AMI meters (see Figure 1).

¹ U.S. Energy Information Administration (EIA) Form 861. Year 2018 data is the most recent data available.

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

Figure 1: Electric Cooperative Advanced Meter Adoption

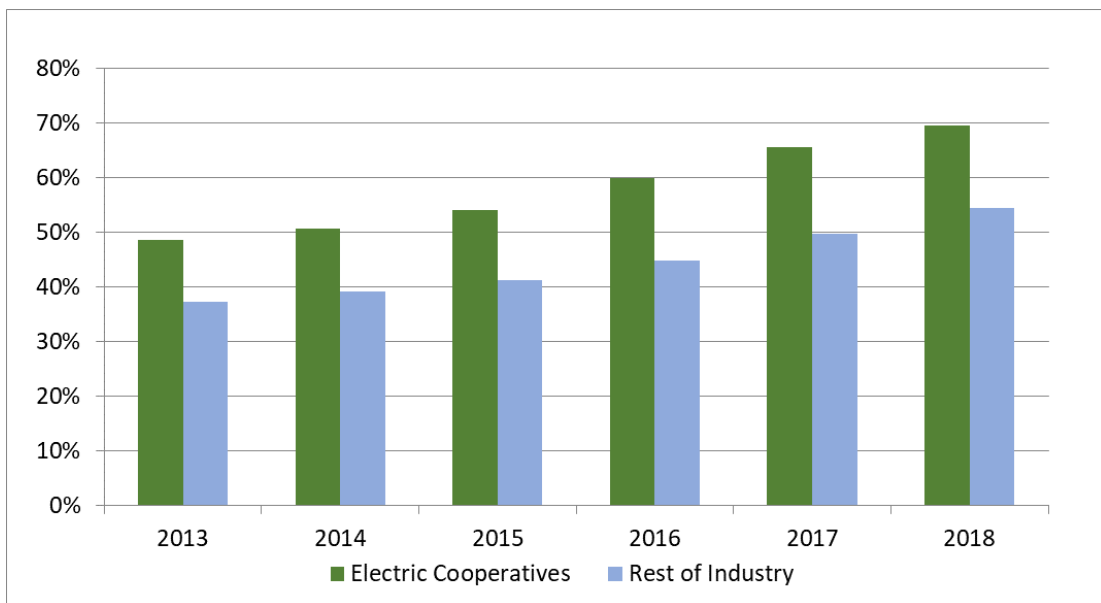


Source: NRECA analysis of EIA-861 data

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 70 percent (see Figure 2).

Figure 2: Percentage of Meters Using AMI



Source: NRECA analysis of EIA-861 data

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 project 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 distributed energy resources (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 consumer-members, who then become an active participant in energy solutions.

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