

Electric Cooperatives Continue to Lead Industry AMI Deployment

Key Highlights

- Adoption of AMI among electric cooperatives has been steadily increasing, with an average of around 1.1 million added annually since 2013.
- Co-ops have deployed AMI meters to replace AMR and standard meters, as well as new meters to serve new consumer-members.
- Co-ops continue to lead the industry in AMI deployment, with 87% of co-op meters now using AMI, compared to 83% 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

Deployment of AMI meters by electric cooperatives has been steadily increasing, with an average of about 1.1 million added annually from 2008 through 2024. Co-op AMI meters overtook AMR meters as the most common type in 2013 and have continued to grow rapidly since then. NRECA's analysis of newly mined 2024 data¹ shows that the number of co-op AMI meters is now more than five times higher than the number of AMR meters. The number of co-op AMR meters has been in decline since 2012, and the number of standard meters (non-AMI/AMR) has also been in decline since 2015,² with AMI meters

¹ U.S. Energy Information Administration (EIA) Form 861. Year 2024 data is the most recent data available. Calculations for "Electric Cooperatives" include NRECA's rural public power and other non-co-op rural distribution utility members.

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

displacing both other types (see Figure 1). Once adopted, AMI meters are also used to serve new consumer-members, so the number of AMI meters added exceeds the declines in the other two types.

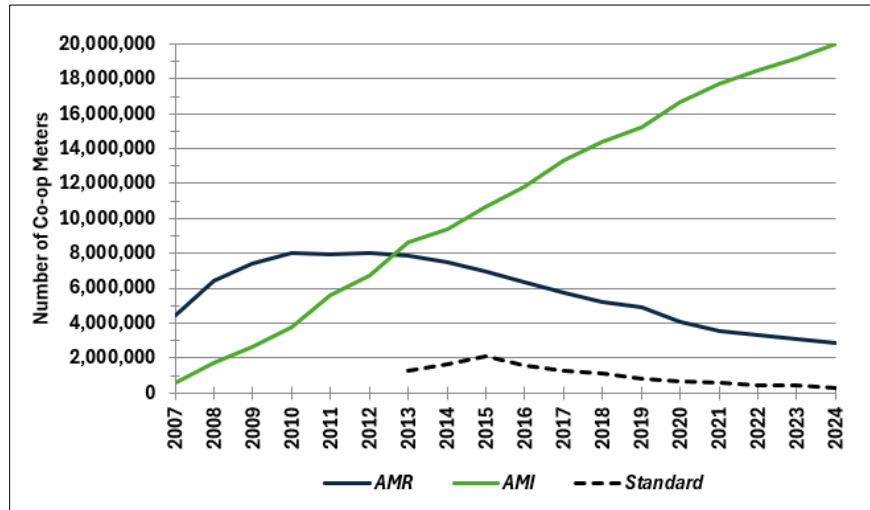


Figure 1: Electric Cooperative Advanced Meter Adoption
Source: EIA Form 861

Co-ops Lead the Way

Due to lower 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 then newer AMI technologies as they became available. Co-ops have consistently led the rest of the electric industry in AMI adoption. From 2013 to 2024, the percentage of co-op meters that have adopted AMI has increased from 48% to 87% (see Figure 2).

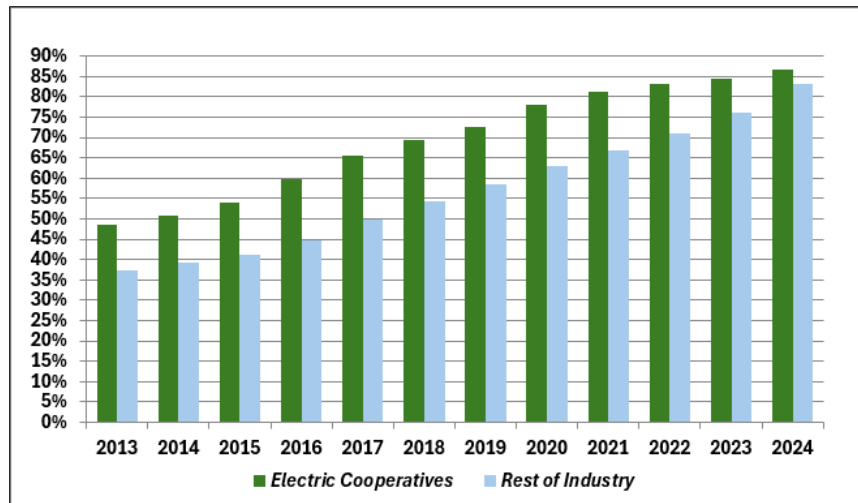


Figure 2: Percentage of Meters Using AMI
Source: EIA Form 861

The Value of Data

Electric cooperatives are 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 active participants in energy solutions.

Though it is not reflected in the numbers above, many co-ops have replaced or are planning to replace first-generation AMI meters with more advanced models with shorter data collection time intervals and more advanced features. These newer meters can facilitate greater visibility of their systems. They also present the possibility of accommodating additional advanced communications and control technologies, including distributed energy resource management systems ([DERMS](#)), that facilitate control and aggregation of distributed energy resources deployed on their grids. These advanced features can increase the value of these resources for reliability and resilience.

Contact for Questions

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