External FAQs

• What is advanced metering infrastructure (AMI) and an automated meter reading (AMR)? What is the difference between them?

AMI, also known as smart meters, is a digital electric meter equipped with two-way communications technology that provides near real-time meter readings and the secure transfer of customers’ usage information to AEP Ohio for billing and operational purposes. The technology improves billing accuracy and eliminates the need for a meter reader to enter onto a customer’s property.

AMR uses one-way communication technology instead of the two-way communications used by smart meters to receive and transmit information between the meter and the utility on a continuous basis. AMR also eliminates the need for meter readers to enter onto a customer’s property.

• How many AEP Ohio customers are receiving AMI? And how many are receiving AMR?

AEP Ohio has already installed about 110,000 AMI meters in select areas of central Ohio as a part of the gridSMART® Demonstration Project. The company has filed a plan with the Public Utility Commission of Ohio (PUCO) to install about 900,000 additional AMI meters throughout its service territory.

Separate from the gridSMART initiative, an additional 204,000 customers throughout the AEP Ohio service territory have received updated electric meters that use AMR technology and 22,000 have received AMI meters outside of the demonstration project area.

• What are the customer benefits of AMI?

AMI offers AEP customers:

  o Improved reliability – AEP Ohio will have the ability to quickly determine if service is available to a customer and to verify that service has been restored following an interruption. AEP Ohio is integrating AMI with service restoration systems to be better equipped to detect power outage locations so repairs can begin quickly.

  o Remote meter reading – AEP Ohio will no longer need to send meter readers to enter a customer’s property. However, AEP Ohio will still need occasional access for testing and maintenance.

  o Improved customer choice – Customers will have better access to information about their electric usage and have the capability to enroll in time-differentiated rate programs that Competitive Retail Energy Service (CRES) providers or AEP Ohio may offer in the future.
• **What is distribution automation circuit reconfiguration (DACR)?**
  DACR is an electrical process that automatically detects faulted line sections and re-configures the circuits to quickly restore electricity to customers in the other sections of the affected circuit. AEP Ohio can monitor for potential electrical faults and isolate portions of its network when a fault occurs, strategically re-routing electric loads to available circuits to maintain energy delivery to the majority of customers. This is known as a "self-healing" system and allows AEP Ohio to reduce the number of homes impacted by a power outage.

• **How many customers will benefit from DACR?**
  DACR will be installed on 250 distribution circuits serving more than 330,000 customers. Results from the AEP Ohio gridSMART Demonstration Project indicate the Phase 2 implementation will provide up to a 30 percent reduction in customer minutes of service interruption.

• **How does DACR work?**
  Simply, AEP Ohio DACR control systems receive near real-time information about the status of switches on the circuits and automatically operate the switches to safely isolate the problem area and minimize the number of customers impacted by the power outage.

• **What are the customer benefits of DACR?**
  Customers experience improved reliability and quicker outage identification and restoration times. DACR also allows AEP Ohio to rapidly find where the power has been disrupted. In some cases, it can also prevent outages completely.

• **How does DACR affect an AEP Ohio customer?**
  DACR allows AEP Ohio to quickly pinpoint the location of a power disruption, which enables the company to restore power more rapidly. This means:

  o The system automatically detects faulted sections without customers having to notify AEP Ohio.
  o Power is re-routed to minimize or avoid a customer’s outage.

• **What is volt var optimization (VVO)?**
  VVO is an electrical process that automatically controls voltage levels on distribution circuits to more closely match the specified voltages of customer’s equipment. Operating this equipment with voltages closer to the specified voltage achieves energy efficiency while maintaining the same level of comfort and service.

• **How does VVO work?**
  VVO control systems receive near real-time information about voltage levels on the circuits and automatically operate voltage regulating devices to more tightly control voltage levels in the lower portion of the acceptable range, which ultimately reduces the customer’s energy consumption.
• **How will customers benefit from VVO? Will customers see a decrease to their bills with VVO?**
  Customers will experience lower energy consumption while maintaining the same level of comfort and service. Rates can fluctuate from month to month. As a result, customers may or may not see a reduced cost even though they have reduced their consumption.

• **How many customers will benefit from VVO?**
  AEP Ohio’s plan submitted to the PUCO includes the installation of VVO on 80 distribution circuits serving nearly 119,000 customers.

• **How does AEP Ohio benefit from AMI, DACR and VVO?**
  AMI is expected to reduce meter-reader safety incidents by 72 percent and it is estimated that AEP Ohio will be able to eliminate 187,000 metric tons of carbon dioxide through the elimination of 440,000 miles driven annually.

  By implementing DACR, AEP Ohio can provide more reliable electric service to its customers and remotely de-energize power lines for service restoration work to prevent accidents.

  Optimizing the voltage supplied through VVO will reduce the amount of capacity and energy required on the AEP Ohio system.

• **Which communities will receive AMI?**
  About 900,000 AMI meters will be installed in more than 31 communities throughout AEP Ohio’s service territory, including:

  - Athens
  - Bucyrus
  - Cambridge
  - Canton
  - Chillicothe
  - Circleville
  - Columbus and its suburbs
  - Coshocton
  - East Liverpool
  - Findlay
  - Fostoria
  - Fremont
  - Gallipolis
  - Hillsboro
  - Ironton
  - Kenton
  - Lancaster
  - Lima
  - Marietta
  - Nelsonville
  - Newark
  - New Philadelphia
  - Portsmouth
  - Southpoint/Chesapeake
  - Steubenville
  - Tiffin
  - Upper Sandusky
  - Van Wert
  - Waverly
  - Wooster
  - Zanesville

• **How were the communities receiving AMI selected?**
  Because the meters communicate through a wireless communication system from meter to meter, deployments are most economical where meters are more densely grouped.
As the AMI technology continues to mature, we envision that economical deployments will be feasible in more sparsely populated areas.

- **I’m concerned about my privacy. How safe is my information?** The electric utility industry in Ohio has traditionally collected, used, and protected significant amounts of sensitive customer information. The collection, use, and protection of proprietary and confidential data have occurred in some form almost since AEP’s inception. We have always fulfilled our obligation to maintain the confidentiality of this information, as well as the trust of our customers, without notable exception. Current legislative and regulatory rules provides for protection of customer data privacy, regardless of how that information is gathered by the utility. AEP Ohio treats customer consumption data collected through the smart grid with the same high level of protection required by these legislative and regulatory expectations.

- **Will local law enforcement and/or government agencies have access to specific customer interval data usage information?** AEP Ohio will not release AMI interval data to law enforcement and/or other government agencies unless we are presented a legal subpoena to do so.

- **How does AMI communicate with AEP Ohio?** The digital meter has a radio transmitter that sends a signal to receivers located on utility poles. The network of receivers sends information to AEP Ohio through a secure Internet protocol network.

- **Why is AEP Ohio proposing this work?** Phase 2 of the gridSMART plan is built upon proven technologies and solutions that were implemented during the company’s gridSMART Demonstration Project, which was launched in 2009 in northeast central Ohio. The four-year pioneer campaign allowed AEP Ohio to test a host of smart grid devices, programs and services to determine what smart grid services worked best for customers and AEP Ohio.

- **Are all AEP Ohio meters being replaced?** No.

- **Are there any AMI meters already installed in Ohio? If so, what has been learned from that experience?** To date, AEP Ohio has installed about 110,000 AMI meters in a select area of central Ohio as part of the gridSMART Demonstration Project. Another 22,000 smart meters have been installed in central Ohio that are not part of the project. AEP Ohio has learned from recent significant weather events such as the 2012 Derecho and Super Storm Sandy that modernization of the distribution grid can help pinpoint damage more accurately and ultimately support faster restoration times during future weather events.

- **Why do I need an AMI meter?** AEP Ohio is working hard to bring the best technology to its customers. As the world becomes more reliant on smart technologies, using these technologies is a natural progression for AEP Ohio.
• **Can I opt out and keep my old meter?** AEP Ohio is in discussions with the PUCO to allow an option for the customer to elect to keep their old meter.

• **When will all the new meters be installed?**
  The PUCO is currently reviewing AEP Ohio’s plan. Once approved, AEP Ohio will begin to install the meters. Complete implementation of the meters will take four years.

• **What will this cost me?**
  AEP Ohio is proposing to recover the cost of this project through a rider to customers’ bills. The company anticipates the costs for the average residential customer using 1,000 kWh per month to be approximately $2 per month for the first five years.

• **Will these new technologies improve my outage restoration time?**
  AMI meters and DACR will help to improve customers’ restoration time.

• **Will the AMI communications system interfere with equipment in my home or business?**
  All communications equipment meets Federal Communications Commission (FCC) criteria and should not interfere with any equipment inside your home or business.

• **Are there any health risks associated with AMI? I’ve heard that it uses radio frequency. Is this safe for my family?**
  AEP Ohio currently uses General Electric (GE) AMI meters and Silver Spring Networks’ secure radio communications network. There is no scientific or medical evidence to suggest that a person will experience adverse health effects from exposure to radio frequency fields, provided that exposure is within the safety guidelines. All communications equipment used complies with federal licensing requirements.

  The ancillary equipment associated with the Smart Meter system produces Radio Frequency (RF) emission levels that are lower than the FCC guidelines, even at close range. The meters produce RF emissions only when transmitting data, which is less than one percent of the time. AEP Ohio requires all vendors to meet or exceed all FCC guidelines. AEP Ohio also ensures that the equipment is properly installed and operating according to specifications.

  AEP Ohio uses 900 megahertz and 2.4 gigahertz radios in its smart grid devices – the same FCC approved frequencies that have been used for many years in devices such as baby monitors, portable phones, remote controlled toys and medical monitors. Smart meters generally produce far weaker RF emissions than these common household devices and are in compliance with strict federal regulations.

• **How is AEP Ohio making sure my data is secure?**
  Working directly with the U.S. Department of Energy and Lockheed Martin, AEP Ohio created a unique Cyber Security Operations Center in Columbus, Ohio. This high-level hub was developed for advanced security checks and balances.
• **Will I be able to read my new meter?**
  Yes. AMI has an easy-to-read digital display instead of a series of dials.