

Advanced Metering Infrastructure Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 120 pages | Mordor Intelligence

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Report description:

The Advanced Metering Infrastructure (AMI) Market is expected to register a CAGR of 13.9% during the forecast period. Smart meters represent a transformative technology for the utility industry. These technologically advanced meters provide greater insight into the usage of energy. Smart meters have been employed as a part of advanced metering infrastructure development initiatives around the world.

Key Highlights

Developing an integrated and IT-enabled power grid and other support software to analyze the patterns provides significant benefits to the user. Such a grid, known as a "smart grid," supports the expansion of distributed production, lowers costs, promotes energy efficiency, and improves the reliability and security of the entire production, transmission, and distribution system. AMI is a vital part of any smart grid initiative. Government agencies and utilities are turning toward AMI systems as part of larger "smart grid" initiatives.

Smart meter pilot projects are also being launched in European nations like France and the U.K. In the EU, approximately 225 million smart meters for electricity and 51 million for gas will be installed by 2024, according to a study by the European Commission. By 2024, it is anticipated that 44% of European consumers will have smart gas meters, and 77% of them will have smart electric meters.

The COVID-19 outbreak, on the other hand, had a positive impact on market growth because the energy and utility sectors provide essential services that have forced the sector to rethink how their operations are carried out and how they engage with both their employees and their customers. While the COVID-19 pandemic affected nearly every other aspect, the need to maintain a secure grid remains at the forefront of priorities for utilities. AMI has helped utilities maintain their revenue flow and manage various remote operations during the pandemic.

Expanding, modernizing, and decentralizing the electricity infrastructure to make it more reliable, as well as planned investments

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from groups like the World Economic Forum, which has set aside USD 7.6 trillion for smart grids over the next 25 years, are expected to change the way many markets work around the world.

For the global energy sector to achieve net-zero carbon emissions by 2050, it is estimated that investment in electricity grids must average about USD 600 billion annually through 2030. Therefore, innovation will involve a variety of public and private organizations working together to advance common energy goals. This vision is currently being implemented in Europe. Eight major electric utility providers have formed the Edge for Smart Secondary Substation Alliance (E4S), a partnership with which Intel and other businesses are collaborating to create a smart grid.

Moreover, Advanced Metering Infrastructure (AMI) communications networks are driven by the need for low-bandwidth, low-cost, delay-insensitive metering. Both the network and the communications module in each meter must be as low-cost as possible. In the early days of AMI, narrow-band power-line communication (PLC) and RF-mesh were the main communication technologies that pushed the use of AMI. As communication technology has developed, newer technologies, like broadband PLC and low-power wide-area networks (LPWAN), have become bigger trends.

Although AMI has many advantages, implementing it is difficult due to standardization, high upfront costs, and integration with other grid systems. This raises the price of smart metering hardware. Additionally, based on operational needs and consumer demands, various smart meters are designed with additional parameters, which raises their cost. While investing in new technology, managing budgets or securing additional funding is difficult, and the ROI must be precise.

Advanced Metering Infrastructure Market Trends

Smart Metering Devices Will have the Significant Market Share

Smart metering solutions include meters or modules with communication capabilities (either unidirectional or bidirectional) embedded within the meter or attached to the meter. Smart meters are becoming more popular because they allow two-way communication between the meter and the central system used by utilities. This is because the main concern is that people are using more energy.

Smart meters are increasingly being adopted for multiple deployments, such as gas, electricity, and water, due to their two-way communication feature, which enables real-time monitoring of utility usage by both the utility supplier and consumer and also encourages the start, reading, and cutting off of supply remotely by the supplier. Smart meter deployment also enables the implementation of a home energy management system (HEMS) or building energy management system (BEMS) that allows visualization of the electric power usage in individual homes or entire buildings.

To increase the effectiveness of power networks, governments worldwide are investing billions of dollars in installing smart grids and smart meters. Additionally, numerous fresh smart city initiatives are continuously being introduced globally. Such factors will raise the demand for smart meters globally.

In order to create a cleaner and more effective energy system, nations like China and India are constantly installing smart meters in residential and commercial structures. Governments are starting a number of new initiatives to promote the use of smart meters. For instance, the Revamped Distribution Sector Scheme (RDSS), which was introduced by the Indian government in 2021, calls for the deployment of 25 crore smart prepaid meters by the end of March 2025. Asian countries are positioning themselves to move forward with the adoption of smart meters.

Additionally, according to Mercom Capital, the state of Uttar Pradesh in India had the most smart meters installed nationwide in January 2022, with over 1.15 million of them. Bihar and Rajasthan came after this. Energy Efficiency Services Limited, a joint venture company established by various public power distribution companies in the nation, took on the installation of smart meters. Such a rapid pace for the installation of smart meters across the Asian region will boost market growth.

In the future, developments in software and cloud computing, rising investments in digitalizing grid systems, a growing need to

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deal with energy waste, and more people using the internet of things are all expected to help the market grow.

North America Region is Expected to Grow at Significant Pace

North America is expected to hold a prominent share in the Advanced Metering Infrastructure (AMI) market due to the rapid adoption of smart metering in the region. Favorable government initiatives and increasing government investments in smart meter deployment across regions drive market growth. The United States is the key country in the region, driving the smart meter market through the American Recovery and Reinvestment Act (ARRA) and the Smart Grid Investment Grant (SGIG) program. In the United States, the number of houses represents the market potential for gas-enabled utilities. As more new houses are built, a growing proportion of homes will have smart meters installed as part of the AMI program, which continues its widespread adoption. According to the US Energy Information Administration (EIA), over 111 million advanced meters were installed in the US as of 2021. The nation has been steadily increasing the scope of its advanced metering infrastructure. It is also expected to increase in the near future.

Further, Canada has also witnessed the large-scale incorporation of smart electricity meters after the governmental mandate was introduced more than five years ago with the prime motive of reducing peak-time loads. Thus, increasing demand and stringent regulations are stimulating the adoption of smart meters among end users.

Along with leveraging smart electric meters for energy efficiency, targeted programs for end users are likely to benefit. As per the American Council for an Energy-Efficient Economy (ACEEE), Pacific Gas & Electric in the United States reported that AMI targeting for a home retrofit program delivered 3.5 times more energy savings in the targeted homes. Additionally, the integration of smart electric meters with technologies such as data analytics is expected to further foster the growth of the market in the region.

Moreover, in April 2021, Aclara Technologies LLC, US, announced that Austin Utilities would implement an end-to-end advanced metering infrastructure solution based on the Aclara RF network to serve its electric, gas, and water customers. The point-to-multipoint AMI network replaces a manual meter-reading system and supports 12,000 electric, 9,500 water, and 11,000 gas meters for the combination utility.

Also in 2021, Calaveras County Water District partnered with Mueller Systems for the deployment of an advanced metering infrastructure (AMI) network. It will cover 1,000 square miles with 13,000 AMI endpoints. The project replaces most of the district's meters and adds communication capabilities to all meters. Calaveras County Water District provides water service to over 13,000 municipal, residential, and commercial customers in six service areas throughout the county.

Advanced Metering Infrastructure Market Competitor Analysis

The advanced metering infrastructure market is highly fragmented. The development of integrated and IT-enabled power grids and other support software to analyze the patterns, the increase in the use of smart meters and water metering solutions, and digitization initiatives across regions provide lucrative opportunities in the advanced metering infrastructure market. Overall, the competitive rivalry among existing competitors is high.

In December 2022, Siemens will be awarded a new contract to establish a distribution management system and advanced metering infrastructure for North Delta Electricity Distribution Company. Additionally, the control centers aim to enhance the efficiency, quality, and stability of the power supply by implementing the most advanced IT applications and intelligent systems to ensure smart grid management.

In December 2022, ESB Networks will choose Trilliant Networks Operations (UK) Ltd., a division of the leading global provider of solutions for advanced metering infrastructure (AMI), the smart grid, smart cities, and the Internet of Things (IIoT), as one of the suppliers to provide smart meters in support of the implementation of Ireland's National Smart Metering Programme. Customers will find it simpler to manage their energy use, save money, and reduce their carbon footprint thanks to the program.

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