

Why should I care about automated meter reading?

Fully automated meter reading enables utility companies to communicate remotely with residential utility meters using wireless networks. Traditionally, field technicians accessed utility meters on the customer premises to record usage information manually. With today's smart meters, utility companies can now avoid this costly manual work, and set up two-way data communications between the utility's data center and the meters. More detailed customer information can serve to offer enhanced services such as time-of-use pricing, management of demand, and load profiles.

This Cisco Outdoor Wireless Solution provides a cost-effective technology for automated meter reading. Connecting the utility meters in metropolitan areas with a Cisco® Wireless Mesh eliminates the need for costly leased lines and makes fully automated meter reading practical and cost efficient. In a typical automated meter reading system, meter transmission units (MTUs) transmit the meter data through low-frequency wireless connections to a data collector unit (DCU), which is a network device that receives and processes the meter reading information. DCUs can serve a cluster of neighborhood meters. The DCU then connects to the wireless mesh network, which routes the data to the utility's data centers, where it can be processed.

For rural areas, where the population density might not justify a wireless mesh networks, the meter reading process can be made more efficient and cost effective through "drive-by" solutions.

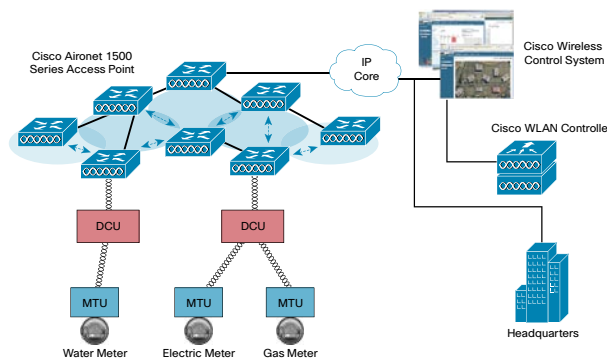
Cisco Outdoor Wireless Network for Automated Meter Reading

The Cisco Wireless Mesh Network provides the wireless infrastructure that supports automated meter reading applications. It is based on the Cisco Aironet® 1500 Series, an outdoor wireless mesh access point, which is mounted on power poles, streetlights, or buildings to cover a wide area.

Cisco Wireless Mesh Networks offer the following benefits:

- **Self-configuring:** The networks support zero-touch configuration deployment; access points discover each other automatically and select the best path for maximizing system capacity and minimizing latency by using intelligent wireless routing.
- **Self-healing:** Access points are resilient and self-healing for interference or outages, and dynamically re-optimize when new sectors are added.
- **End-to-end security:** Access points are specifically designed for secure outdoor Wi-Fi, compliant with Wi-Fi Protected Access 2 (WPA2), and employ hardware-based Advanced Encryption Standard (AES) encryption between wireless nodes.
- **Ease of deployment and centralized management:**
 - Cisco wireless LAN controllers and the Cisco Wireless Control System (WCS) enable centralized network management
 - The solution is based on Lightweight Access Point Protocol (LWAPP)
 - Featuring Cisco's new Adaptive Wireless Path Protocol (AWPP)

Figure 1: Automated Meter Reading with Cisco Outdoor Wireless Products



What are the benefits of automated meter reading?

The costs savings of an automated meter reading system range from the direct savings associated with not having meter readers walking or driving around the neighborhoods, to other less obvious savings such as fewer calls to customer service operators, lower legal and workers' compensation charges, and shorter outage times due to immediate and precise notification. Important savings also arise from reduced opportunities for energy theft and the improved cash flow derived from getting bills out more quickly.

Automated meter reading brings many benefits that justify the expense of upgrading the meters at each customer, and the ongoing cost of operating the wireless network.

Benefits include:

- **Lower cost to read the meters:** The power company can read all the meters in a community every day or more frequently, using the wireless system. It is not necessary to send a service person to visit every customer location once a month.
- **More accurate and complete reads:** The power company will no longer need to estimate usage when meters are not physically accessible to their service people. They can get real-time usage data from any meter in the system instantly. Meters are always accessible.
- **Possibility of two-way communication with each meter:** With intelligent power meters and two-way communications, the power company can manage its peak loads better and can offer incentives for customers to shift their power usage to off-peak times.
- **Theft of service detection and prevention:** Meter tampering is detected instantly through the wireless network, making it much more difficult for someone to steal the service.

For more information on Cisco Outdoor Wireless Solutions, visit: <http://www.cisco.com/go/outdoorwireless>