

CASE STUDY



MLGW

Memphis Light,  
Gas and Water

# SMART CITIES: WIRELESS CONNECTIVITY ENHANCES AMI/SMART METER PROJECT

**Smart meter technology provides utilities with significant operational and customer service benefits. In 2014, Memphis Light, Gas & Water (MLGW) began deploying an advanced metering infrastructure (AMI) and smart meters to enhance services for its 425,000 customers.**

## MLGW ROLLS OUT SMART METERING

MLGW, a division of the City of Memphis, is the largest three-service municipal utility in the U.S. Since 1939, MLGW has provided electricity, natural gas, and water services for 425,000 residents and businesses in Memphis and adjoining Shelby County, covering a 768 square mile operating area.

To better capture customer billing data and to

streamline operations, MLGW is installing electric, gas and water smart meters at customer premises throughout its territory.

Thousands of smart meters communicate over the 900 MHz ISM band with 420 AMI data collectors that are strategically-located in residential and commercial areas. These collectors poll data from smart meters on a scheduled or an 'on-demand' basis.

MLGW utilizes a Wi-Fi mesh network comprising 2,600 access points (APs) to transport smart meter data from the collectors back to its Operations Center.

Roughly 10% of the APs serve as gateways that backhaul data traffic from the mesh network to the Operations Center, over its own fiber optic network, where available.

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## GATEWAY CONNECTIVITY CHALLENGES

MLGW's fiber network does not extend everywhere in its territory, however. A large number of the gateway APs use leased lines to connect to the Operations Center.

In those instances, MLGW opted for a wireless solution using the Redline RDL-3000 in a point-to-multipoint (PMP) configuration. This way, MLGW replaces expensive leased lines and defers the high cost for new fiber cable installations.

Previous experience with Redline point-to-point systems showed MLGW that the RDL-3000 offers high data throughput capacity, reliability and secure operation.

The compact outdoor Redline radios lend themselves to easy installation and alignment, thus saving labor costs.

In a PMP configuration, Redline subscriber units transport smart meter data over unlicensed 5 GHz wireless links from the gateway APs to one of five Redline Ellipse sectorized-base stations mounted on the same towers used for MLGW's land mobile radio (LMR) system. Frequency assignments prevent

interference between adjacent sectors, enhancing reliability. Each tower connects to the Operations Center over the company's dedicated fiber cable network, saving backhaul costs.

MLGW's current RDL-3000 system has a designed capacity of over 100 Mbps per sector and if needed, can add data capacity very cost-effectively through optional software upgrades.

In the end, MLGW is managing its smart meter rollout and enhancing overall customer service while controlling its upfront and operating costs while having built-in flexibility for growth.

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*"We determined that the RDL-3000 in a point-to-multipoint configuration was the best way for us to aggregate smart meter data from the gateways where we lack fiber, and bring it back to our Operations Center in a fast, reliable and secure manner."*

**~ Sam Kahel**

*MLGW Telecommunications Engr. Dept.*

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## ABOUT REDLINE COMMUNICATIONS

Redline Communications is the creator of powerful wide-area wireless networks for the world's most challenging applications and locations. Used by Oil & Gas companies, militaries, municipalities and telecom service providers, Redline's powerful and versatile networks securely and reliably deliver voice, data, M2M and video communications for mission-critical applications.