

AMI FACTS

Advanced Meter Infrastructure Facts

March 2015

AMI Advantages

Metering technology has evolved substantially over the years, and the current mechanical meters are beginning to be replaced by more efficient meters throughout the United States.

The City of Bastrop has initiated replacing our water and electric meters through the Advanced Meter Infrastructure Program that will replace approximately 5,700 meters.

The AMI system is the technology of automatically collecting consumption, diagnostic and status data from water and electric metering devices and transferring that data to a central data base for billing, troubleshooting and analyzing.

Advanced meters are a very important step to improving the delivery of water and electricity for consumers. They will give you more insight into your energy and water usage and more decision making over your utility expenditures. Most importantly, advanced meters will help create a more efficient, more reliable, and more sustainable utility world for generations to come.

AMI FEATURES:

- The new meter will record electricity and water use in 15 minute intervals instead of once month like the old meters, providing up to the minute reads and efficiencies in leak reporting and outages. And your meter can be re-read much faster should you have questions.
- Your meter will be read without a meter reader having to come to your home.
- Since in-person meter reading will not be required, the number of vehicles on the road will be reduced, thus reducing pollution, traffic and fuel consumption.
- More reliable service: The advanced meters use two-way, real-time communication to pinpoint and fix problems, often before they happen.

The acceptable FCC Radio Frequency limits are 6.1 W/m² and 10 W/m² depending on frequency for continuous whole body exposure



Cellular Telephone: 7.8 W/m²
at 2" for 1-20 minutes*



Bluetooth USB dongles: 0.042 W/m²
at 4" for < 1 minute*



Baby Monitor: 0.029 W/m²
at 3'3" for 8 hours*



Cordless Phone Base: 0.0052 W/m²
at 3'3" for 1-30 mins*



Microwave Ovens: 0.0043 W/m²
at 3'3" for 1-10 mins*



WiFi Base Station: 0.0021 W/m² at
3'3" for 10-60 mins.*



Smart Meter: 0.0018 W/m²
at 10' for 1-2 seconds*

*As illustrated, power density is measured in Watts per square meter (W/m²). The distances shown are for typical exposures.

What are radio frequency waves?

Radio frequency waves are a form of electromagnetic energy. They move through space at the speed of light and can be man-made or occur naturally. RF (Radio Frequency) waves are used for a variety of purposes, largely they are employed in telecommunications. AMI meters use low-energy radio frequency waves to transmit information across distances.

The Sensus meters that the City of Bastrop is using only transmit outwardly, away from the homes and structures to a centrally located tower. Sensus' metering products and technologies fully comply with the FCC standards and guidelines for environmental exposure to RF.

The meters are all located on outside walls and in the ground in meter boxes. The RF exposure inside a dwelling is typically a factor of 10 less than that immediately if standing in front of the meter.

The data from a large meter deployment using Sensus technology indicates that the typical meter transmits less than one second per day and that 99.999% of the meters transmit for less than one minute per day.

The Texas PUC (Public Utility Commission) conducted research on RF EMF (radio frequency electromagnetic field) exposure by automated meters¹; the report determined that the large body of scientific research available reveals no definite or proven biological effects from exposure to low-level RF signals. Further, Staff found no credible evidence to suggest that advanced meters emit harmful amounts of EMF.

In the PUC's Executive Summary (Health and RF EMF from Advanced Meters)¹ they commented that radiation comes in two forms: ionizing and non-ionizing. The methods of data transmitted by advanced meters most common in Texas (which communicate wirelessly) and other forms of telecommunications (television, radio, cell phones, satellite) utilize non-ionizing EMF radiation in the RF band, commonly known as RF EMF.

In contrast, ionizing radiation carries an inherently greater amount of energy; it may come from the decay of fissionable material like uranium or from EMF at significantly higher frequencies, such as X-rays or cosmic rays.

*Advanced meters **do not** emit or utilize ionizing radiation.*

For more information on advanced meters see our web site or call 512-332-8830.

Resources used to compile this document are:

[Environmental Defense Fund](http://www.edf.org); www.edf.org; EDF Fact Sheet—Advanced Meters

[Texas PUC](http://www.puc.state.tx.us); www.puc.state.tx.us; Customer Facts, Project No. 40190

[Utilities Telecom Council](http://www.utc.org); www.utc.org; No Health Threat from Smart Meters

[Sensus](http://sensus.com); sensus.com; Understanding RF

[SmartGrid Consumer Collaborative](http://SmartGridConsumerCollaborative.org);

¹Public Utility Commission of Texas, Project No. 40190, Project Relating to Advanced Metering Issues; *Report on Health and Radiofrequency Electromagnetic Fields from Advanced Meters*

AMI meters, which operate by transmitting and receiving information wirelessly, are a key element in the effort to update and bring electric and water systems into the 21st century. Nevertheless, some people have expressed concerns about the possibility of negative health effects from the radio frequency (RF) waves that smart meters use to communicate.

Addressing Health Concerns

The World Health Organization (WHO) has concluded that no adverse health effects have been demonstrated to result from exposure to low-level radio frequency energy such as that produced by advanced meters. To further reduce concerns, advanced meters transmit RF energy only for short periods each day. Radio frequency emissions weaken significantly as the distance between you and the device increases. Continuously standing in front of a advanced meter would result in the highest exposure a person could experience, and even then the exposure would be approximately 70 times less than the FCC limits and lower than the level of RF energy emitted by many other devices that are used daily by millions of people. (See example in the chart on the front page.) At most, advanced meters transmit radio frequency energy for less than a minute each day, and that energy is reduced further by the casing of an advanced meter, as well as wall construction in home and building materials separating persons from the RF energy.