Smart Meter

RADIO FREQUENCY FACT SHEET

FirstEnergy's Pennsylvania utilities – Met-Ed, Penelec, Penn Power and West Penn Power – are starting to roll out new smart meter technology to homes and businesses throughout our service areas. This effort is in response to Pennsylvania Act 129, which requires all large electric utilities in Pennsylvania to install smart meters.

This step toward a more modernized electric system will enable automated meter readings and may enhance our ability to respond to outages faster and more efficiently.

Plus, in the future, you will have access to more detailed energy information through our online Home Energy Analyzer tool that will help you better understand your electricity use – which means you can then make informed decisions on how to manage and control your electricity consumption.

As with any new technology, you may have questions about how a smart meter works. The following FAQs discuss how smart meters use radio frequencies (RF) to provide communication between your meter and our billing system. While there have been some concerns about the potential impact of the RF generated by smart meters, numerous studies have proven that smart meters using RF technologies pose no health risk. For additional information, please visit firstenergycorp.com/PAsmartmeter.

Be assured that the smart meter technology being implemented has been rigorously tested and proven by manufacturers to be accurate, safe and secure in systems throughout the country.

Q. What is radio frequency (RF)?

A. According to the Federal Communications Commission (FCC), "Radio waves and microwaves... are one form of electromagnetic energy. They are collectively referred to as 'radiofrequency' or 'RF' energy."[1] Radio waves are used for telecommunications services. However, most homes already have electric devices that use RF signals, such as cell phones, garage door openers, televisions, microwaves and wireless internet. Radio waves have been used for communications in highly populated regions for over 100 years. The FCC has established safe limits for exposure. The RFs from smart meters are well below those limits.

[1] Federal Communications Commission Web site, Office of Engineering and Technology, "Radio Frequency Safety," http://transition.fcc.gov/oet/rfsafety/rf-faqs.html.

Q. How does a smart meter work?

A. Our smart meters send readings electronically to a network of receivers that are installed on poles. Energy consumption data for utility billing purposes is collected and transmitted a few times a day using short, extremely low-power radio transmissions through a wireless network system. These electronic transmissions nearly eliminate the need for meter readers to record your meter's usage because the readings are automated.

Q. Is the RF generated by smart meters hazardous to your health?

A. No.

As with any electric device that utilizes RF, smart meters have been monitored, tested and certified to ensure they meet certain safety standards. The RF exposure levels from smart meters are far below the levels permitted by the FCC, which sets health standards for RF exposure, based on extensive reviews of the biological and health literature.

According to the Electric Power Research Institute, the "relatively weak" strength of the RF signals generated by smart meters means that any impact of RF exposure would be minimal – similar to the levels of the exposure from televisions and radios.[2]

In fact, smart meters produce significantly less RF exposure than other common electric devices, such as cell phones, baby monitors, wireless routers, laptop computers and microwave ovens.

What's more, RF exposure depends partly on the proximity of the RF source to a person. Smart meters are usually located on the outside of your house in a metal box, away from your daily routine activity. Due to the extremely brief exposure to the radio waves that smart meters produce, there have been no long-term health effects identified as a result of the installation of smart meters, according to a study conducted by the California Council on Science and Technology.[3]

Q. How does RF exposure from a smart meter compare to other electric devices?

A. RF exposure from a smart meter is far below – and more infrequent – than other common electric devices. In fact, smart meters typically broadcast their signal for less than a minute at a time and usually less than a total of 15 minutes each day. The communication is usually from outside the home, so exposure to radio waves is minimal.

[2] "An Investigation of Radiofrequency Fields Associated with the Itron Smart Meter," Electric Power Research Institute, December 2010.

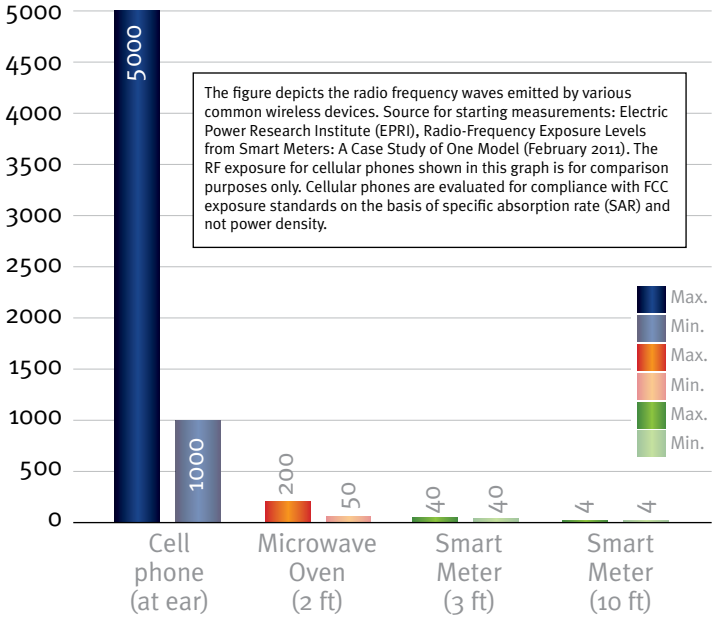
[3] "Health Impacts of Radio Frequency Exposure from Smart Meters," California Council on Science and Technology, March 31, 2011.

RF is measured in units of microwatts per square centimeter. A microwatt is very small – one-millionth of a watt.

- Held at your ear, a cell phone's RF signal would be 1,000 to 5,000 microwatts per square centimeter.
- Standing two feet from a microwave oven, the RF signal would be 50 to 200 microwatts per square centimeter.
- Standing 10 feet from a smart meter, the RF signal would be 4 microwatts per square centimeter.

Experts calculate that it would take 30 years of living with a smart meter to receive the same RF exposure that a typical cell phone user receives in just one day.

Radio Frequency Power Density Levels of Common Devices (in microWatts/cm²)



For additional information about our smart meter technology, please visit our website at firstenergycorp.com/PAsmartmeter.

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