



SMART METERS AND RADIO FREQUENCY

Dominion Energy is investing in smart grid modernization efforts to build a stronger, smarter and more efficient electric grid to meet your energy needs.

Smart meters are a fundamental component of the smart grid, and Dominion Energy's smart meters comply with Federal Communications Commission (FCC) health and safety standards.

What is Radio Frequency?

Smart meters send information about electricity usage to Dominion Energy by Radio Frequency (RF) signals. Other widely used wireless products such as cell phones, laptop computers and baby monitors also work using RF communications.

Distance + Power + "Time on" = Radio Frequency Level

Distance

Signal strength and radio frequency decrease as a person moves farther from the device. Meters are typically placed outdoors, with a wall separating the meter from the living space.

Power

A smart meter transmits using one watt, similar to the power of a cordless phone, baby monitor or radio-controlled toy.

"Time on"

Unlike cell phones, laptop computers and baby monitors, which are left on for long periods, smart meters use RF energy to transmit a maximum of 4.5% of the day.*



In the U.S., the Federal Communications Commission (FCC) establishes the requirements for use of RF and acceptable exposure limits for the public. Dominion Energy's smart meters comply with all requirements set by the FCC, as well as international requirements set by global bodies. The smart meter's operating band is 26 MHz wide between 902 and 928 MHz. Because the FCC exposure limit is frequency dependent the limit for this band ranges between 601 and 619 $\mu\text{W}/\text{cm}^2$ (microwatts per square centimeter). The exposure level from a smart meter at one foot is more than 150 times lower than the FCC limit.

* Electric Power Research Institute report titled "Characterization of Radio Frequency Emission from Two Models of Wireless Smart Meters", December 2011

UNDERSTANDING RADIO FREQUENCY

How does the radio frequency of a smart meter compare to other wireless products



DEVICE	*AVERAGE RF LEVEL (mW/cm ²)	AVERAGE TIMES HIGHER
1. Smart Meter	.000095	—
2. Wireless Modem	.000095	1
3. TV Remote	.00031	3.2
4. Baby Monitor	.0011	11
5. Handheld Delivery Terminal	.0022	23
6. Microwave Oven	.0029	30
7. Toy Remote	.0041	43
8. Laptop	.0077	81
9. Cordless Phone	.12	1,300
10. Cell Phone	3.1	32,000

Source: SiteSafe

*Average exposure measured in miliwatts (mW) per square centimeter is the average amount of energy exposure over a period of time from a particular source.



MYTH

FACT

Safety

Smart meters are not safe and don't meet federal standards.

False

Dominion Energy's smart meters comply with Federal Communications Commission (FCC) health and safety standards.

Time

Like a cell phone, a smart meter is "on" all of the time and emitting RF as it searches for a signal.

False

On average, a Dominion Energy smart meter is "on" and transmitting a maximum of 4.5% of the day in short signals.

Health

Smart meters can cause health effects.

False

There is no medical evidence linking health concerns with exposure from a smart meter. The public health and scientific community has found no reason to change exposure limits based on RF health concerns after repeated testing.

Home safety

The RF from a smart meter is more powerful than other devices typically used in the home.

False

In the home, smart meter RF level is over 100,000 times below the FCC limit. Smart meters are typically placed outdoors, with a wall separating the meter from the living space. Signal strength and radio frequency decrease as a person moves farther from the device.