

# CNMEC

## Newsletter

POWER  
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*The power of human connections*

### The Ins and Outs of Smart Meters

November, 2018

Residential and industrial electric meters allow utilities to accurately bill for the energy consumed. These devices have been used since the electric industry has been in place. Early meters required manual reading, with a utility employee writing down the use data and returning to the office to enter that information into the utility billing system. The use of radio frequencies to interrogate meters began in the early 1980's. These systems used an interrogation signal sent from a utility employee either walking or driving through the area of interest. A radio signal "pings" the meters within range and the devices respond with consumption information, also using radio signals. The electric infrastructure in the US is going through a major transition, replacing equipment that can be 40 to 50 years old. At the same time, variable renewable energy sources like solar and wind must be integrated into this new grid. Remote meter reading, as well as other smart grid applications are all key components of the smart grid and these capabilities rely on smart meters. Smart meter systems vary in implementation depending on the utility's needs. Most utilities are electing to install radio based smart meter systems or over the power line carrier systems such as are used by CNMEC. Radio based systems and power-line carrier systems vary in configuration, but each system is made up of the following components



**Matthew Collins**  
CEO

1. **Meter:** The meter device measures consumption and stores the information for retrieval by the utility.
2. **Meter Transceiver or Communication Module:** The transceiver or communication module receives instructions from the utility network and transmits necessary information to the utility. The transceiver or module is often an integral part of the meter, especially in the case of electric meters. The meter transceiver operates on low power unlicensed channels, or in some cases, using cellular radio channels. The communication module transmits data through the power-lines and is a more efficient avenue of information transmittal.
3. **The meter transceiver transmits information to nearby collection devices, often called data aggregation points (DAPs).** These devices are often mounted on nearby power poles at heights of 20 to 30 feet above ground. The DAPs collect information and transmit that information to the utility. Typically, the DAP will communicate with central receiver stations on radio frequencies in the unlicensed bands or using cellular technology. The over the power-line carrier system used by Central New Mexico Electric transmits the data directly to the utility through the power-line infrastructure and the information is then processed directly to the meter department and subsequently to billing.

A common misconception about smart meters is that they are always "on" or transmitting. This is far from the case. Until recently, utilities usually read meters once or twice a month and the time needed to transmit information is less than 1 second. The power line carrier system used by CNMEC transmits a signal once daily beginning at 12:00 a.m. Again, the time to transmit consumption data is less than 1 second. We know from national studies of radio frequency (RF) exposure, for the RF signal from a smart meter to harm a human the signal would have to be so powerful the transmission would be on the order of TV or radio broadcast stations. This is clearly not the case for smart meters.



### Space Heater Safety Tips

Space heaters are a great way to warm specific rooms in your home without having to crank up the thermostat, but using space heaters doesn't come without risk! Use the tips below to keep your home safe.

### The NEED Project - Science that Sparks!

We want to invite 4th-12th grade educators, who teach or live in our service area, to apply for the National Energy Education Development (NEED) – Science that Sparks teacher training

Our power supplier, Tri-State Generation and Transmission Association, in conjunction with The National Energy Education Development (NEED) Project, offers a conference to provide educators with the most up-to-date information on all aspects of energy so they may implement hands-on lessons in their classrooms.

- June 18-20, 2019 at Tri-State headquarters in Westminster, Colorado
  - Available to 4th -12th grade teachers who are electric co-op members or teach electric co-op members
  - Educators receive:
    - Hands-on Science of Energy kit for the classroom (\$300 value).
    - Professional development credit.
    - STEM curriculum regarding the science of energy, sources of energy, electricity efficiency and more.
- The NEED Project has over 30 years of energy education and curriculum development experience.
- Assistance meeting math and language arts Common Core Standards.
  - Most travel expenses are covered, including lodging, meals and transportation.
- Apply at [www.tristate.coop/NEEDapplication](http://www.tristate.coop/NEEDapplication)

For more information contact Wendi Moss, The NEED Project, at [wmos@need.org](mailto:wmos@need.org) or Michelle Pastor, Tri-State, at [mpastor@tristategt.org](mailto:mpastor@tristategt.org).

**DO:** Plug your space heater directly into the wall outlet.

**DO:** Buy a unit with an automatic shutoff in case the unit tips over, or you forget to shut it off.

**DO:** Keep your space heater in low-moisture rooms.

**DO:** Keep your space heater at a safe distance (at least 3 feet) from kids, pets and flammable items.

**DO:** Always follow the directions and take a broken space heater to a qualified appliance service center.

**DON'T:** Leave your space heater unattended. Always unplug it before you leave the house or go to bed.

**DON'T:** Place your space heater near curtains, clothing, furniture or bedding.

**DON'T:** Use an extension cord to plug in your space heater. It can cause the heater to over-heat, and can be a tripping hazard.

**DON'T:** Try to repair a broken space heater yourself.

**DON'T:** Put your space heater in your bathroom. The moisture can damage the unit, which could cause it to malfunction.

### Energy Efficiency Tip of the Month

Got holiday leftovers? When possible, use the microwave to reheat food. Microwaves use as much as 80 percent less energy than a standard oven.

Source: [energy.gov](http://energy.gov)

