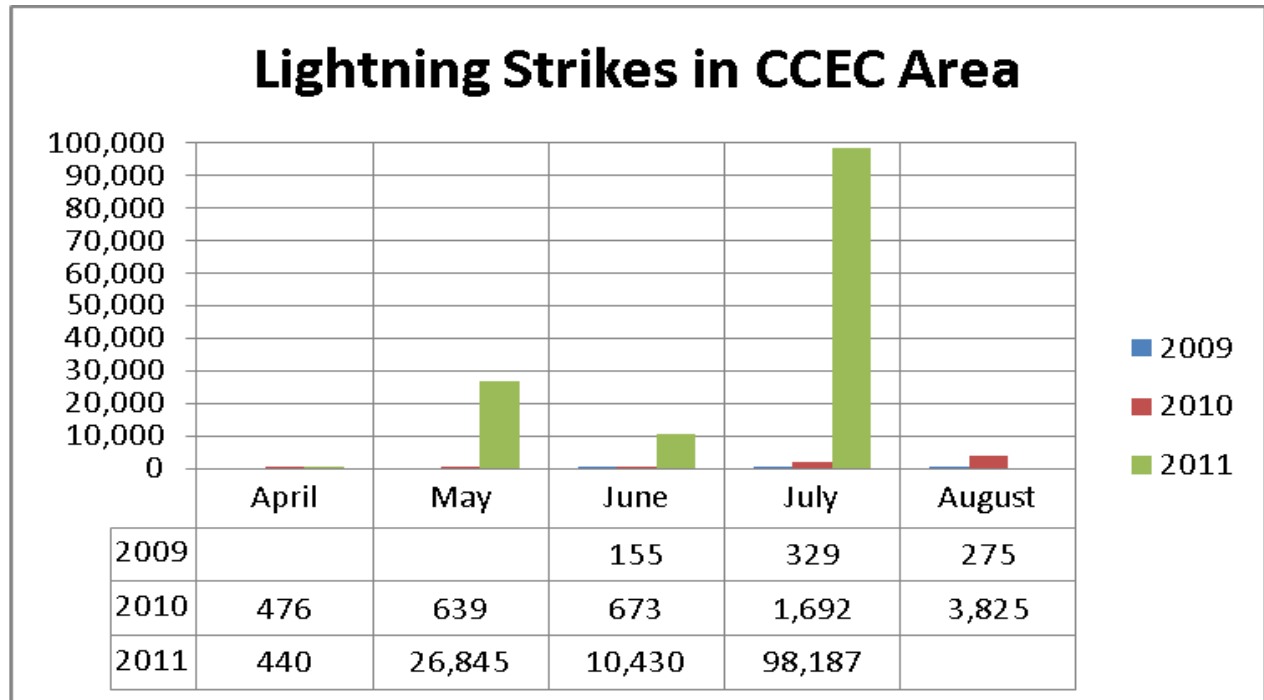


Lightning Intensity, Frequency Impacts Electric Grid

Weather Pattern Changes

Recent summer storms have demonstrated the enormous power that can impact our lives and property in minutes. Strong winds, rainfall, and lightning have all combined to wreak havoc on many people and their property in the region.

Cass County Electric Cooperative Inc. (CCEC) started monitoring lightning strikes in our service area beginning in June 2009 and has noted a tremendous increase in activity this year. The table below shows the number of lightning strikes documented for the past three summers.



Source: Custom Weather

Greg Gust of the National Weather Service (NWS) told CCEC the dramatic increase in lightning activity can be attributed primarily to increases in the frequency of the severe weather, and the size or footprints of the storms. The 2011 storms seem to cover much larger geographic areas, thus allowing for more intense and frequent lightning strikes.

Lightning & Electric Utilities

Lightning strikes can be very damaging to electric utility equipment. The amount of energy passed on in a lightning strike is difficult to determine. Severe lightning storms can often cause a blink in electric service if not an outage. It's difficult to fully realize the large amount of energy in a lightning strike, but the result is often seen in blown up poles, burned wire, and even exploded devices. Underground utility equipment is not immune from lightning damage. In fact, lightning seems to cause more permanent damage to underground cables vs. overhead lines. This often includes the very devices that utilities install to protect their systems from lightning. On Monday night CCEC lost crucial equipment due to a lightning strike.



**A lightning strike amongst two communication towers near Tower City on Sunday night, July 31.
Photo by Jeremy Koeplin.**

Electric utilities use various types of protection devices on their lines to protect against lightning strikes. Commonly called ‘arresters’, these devices do a good job of protecting the utility equipment and most times can even prevent many of the momentary blinks from occurring. However, in the severest of storms or if these devices have already been destroyed in the storm, repeated lightning strikes will result in momentary system blinks.

The transmission grid is a complex and highly interconnected system of power lines. When the grid experiences a problem or failure, sometimes resulting from a lightning strike, the impact can be seen hundreds and even thousands of miles away. For the local transmission system, this means that the weather can be clear in one area, yet the entire system can be blinked due to a lightning strike far away in another part of the system. This was the case on the Monday night, August 1, storm that passed through Cass County, causing the entire transmission system to blink. The momentary blink was experienced well into the Ransom County area.

Sensitive electronics in homes can be subject to damage from repeated blinks in electric service. This can be prevented most easily by unplugging them during a storm. However that’s now always very practical or even possible to do.

Home and business owners are always urged to install their own overvoltage protection to guard against momentary blinks. These items are available, and vary in ability and capacity from simple plug-in power strips with built-in protection, to whole-house systems that require an electrician to install. For the most critical of systems, such as computers, an uninterruptible power supply (UPS) is recommended. All sensitive electronics should be protected with some form of overvoltage protection.

For more information on these devices, check out CCEC’s web site at www.kwh.com.