

EMPIRE ELECTRIC ASSOCIATION

Echoes of the Empire

NOVEMBER 2023

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BUILDING IN RELIABILITY

BY ANDY CARTER MEMBER ENGAGEMENT MANAGER

Reliable electric service was ranked first in importance to Empire Electric Association members in our last member survey. Maintaining reliable electric service for our membership is part of our mission statement and something we work on every day to ensure that we are prepared to respond to emergencies. While we strive for 100% reliability, the deck is stacked against us. Our grid is in an environment that is unforgiving. From winter blizzards to summer thunderstorms, the weather is constantly testing our system. Even calm, sunny days take their toll as ultraviolet exposure from the sun's rays eventually causes components to fail.

In addition to the weather, we know that animals, birds, and people cause their fair share of problems as well. Something as simple as a flock of starlings taking off from a power line can cause lines to contact one another. This creates a fault condition that protective equipment will respond to by interrupting power to ensure current flow stops and does not cause damage. If the protective device is a recloser, power is

interrupted for a very short time. In the case of the starlings where no permanent fault condition exists, the recloser automatically closes to restore power, and members on that line section will likely have to reset their clocks. If the fault were from a downed line caused by a vehicle accident, the recloser would remain open after trying to restore power and detecting the fault condition was still present. In either example above, if the protective device was a fuse and the fault existed long enough to blow the fuse, EEA would need to send a lineman to investigate the cause of the outage.

The System Average Interruption Duration Index is a commonly used reliability indicator used by electric



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System
Average
Interruption
Duration
Index

=

sum of all
member
interruption
durations

total number
of member
minutes



2022
SAIDI

99.96% = 1 -

232.1 min. avg.
duration x
17,460 members
17,460 members x
525,600 min./year

utilities to track and compare outages. It is calculated by dividing the sum of all member interruption durations in minutes for a year by the total number of member minutes in a year. EEA's outage management system tracks the number of meters impacted by an outage as well as the duration. For example, an outage of 10 meters with a 20-minute duration would be 200 member interruption minutes. This formula normalizes the calculation to make it possible to compare SAIDI results from different sizes of utilities. EEA's SAIDI for 2022 was 232.1 minutes for 17,460 meters, or 99.96%. Our 10-year average is 99.97%.

EEA has been able to keep power delivery very reliable because we focus on maintaining our system and designing it to be flexible should an outage occur. We also have well-trained line crews who are adept at quickly finding the outage cause and safely restoring power.

The time it takes to restore power depends on many variables. Two key factors are which component failed and its location on our grid. EEA purchases power from Tri-State Generation and Transmission Association. Tri-State delivers the power EEA needs to several substations located throughout our service territory. A substation contains transformers that reduce the voltage from transmission to distribution levels. Transmission is typically 115,000 volts in our area, and the EEA grid operates between 44,000 and 7,200 volts. Power flows from the substation out to distribution transformers located at members' meters where voltage is reduced to 120/240, which is common for residences and businesses.

Typically speaking, outages that are farther from the substation or involve a small piece of equipment impact fewer members and are easier to restore; but



EEA linemen Shad Bellmire, Matt Ruggles, and Justin Purkat replace a pole-mounted service as part of the Towaoc alternate feed project.

they can still take a long time because our line crew must drive to the outage area, find the problem, decide how to safely restore power, and then put their plan into action. An issue with a piece of equipment at a substation or the transmission line delivering power to the substation can affect hundreds of members. Depending on the problem, it can also mean a longer outage duration.

One way EEA helps shorten outage durations caused by problems at a substation or the transmission line that feeds it is by designing ways to feed power from another source on our grid until the problem can be corrected. EEA recently finished two grid upgrades near Towaoc, Colorado. These upgrades provide a second alternate source of power as well as higher back-feed capacity for the Nuchu substation that supplies power to Towaoc and the Ute Mountain Ute Tribe reservation.

The Nuchu Substation is at the southern end of our service territory and is fed by a single transmission line. Before the upgrades, EEA had a single alternate source from the next closest substation to power Nuchu in the event

the transmission line failed. The two line section upgrades increased the power-carrying capacity for the alternate feed by 48% and provided a second path to back-feed the substation. The line upgrade also included a consolidation of EEA facilities that eliminated a right of way. This reduces the chance of outages because there are fewer facilities in the area; this upgrade also reduces maintenance costs.

The grid upgrades in Towaoc are just one example of how EEA works to ensure we can complete our mission of providing safe, reliable, and affordable electricity to our members. As the weather permits, we will begin upgrading the area south of Mancos to three-phase power, which will accommodate the growth we see in that area. We are also beginning to replace older copper lines in the Boggy Draw area northeast of Dolores to improve reliability.

Please remember to think about safety when you see our crews working on or near roadways. Slow down and provide ample clearance as you pass. Thank you for helping to keep us safe as we work to keep your power supply reliable.



“Relic Yellow Building” by Errin Walker



Monthly Calendar

November 10 – EEA’s board meeting begins at 8:30 a.m. at its headquarters in Cortez. The agenda is posted 10 days in advance of the meeting at eea.coop. Members may attend in person or remotely. Instructions to attend remotely are included on the agenda.

November 11 – Veterans Day

November 23 – Thanksgiving Day. EEA’s office will be closed November 23 and 24 to celebrate the Thanksgiving holiday.

*We will not forget!
Remembering and
honoring our veterans.*



*Thank you
for your
service
to our
country.*



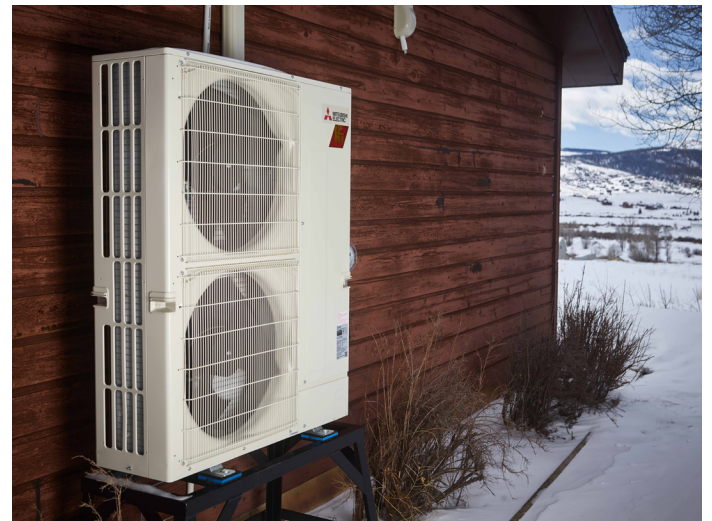
SAVE ON YOUR HEATING BILL

Colder weather is here, and if you haven’t already prepared your heater to keep your home cozy, there is no time like the present. Heaters that use fans typically have some kind of filter unit to clean the air as it is moved over the heating coils or combustion chamber. Keeping the filter clean will improve air flow, keep the air in your home cleaner, use less electricity, and reduce your electric bill.

Forced-air furnaces usually have a single large filter element that can be replaced at intervals specified by the manufacturer. Read the owner’s manual for the filter size or check your current filter to make sure you buy the correct size. It is important to replace the filter with the correct size. It’s also a good idea to buy an extra to keep at your house so the next time you need to change it, you have one handy. Most manufacturers recommend that you change this type of filter once every three months.

If you have a heat pump heater that has separate wall-mounted fan coil units in different areas of your home, each unit has its own air filter. The filter is made to be cleaned and re-used. You can clean it with a vacuum or by using compressed air. If the filter is very dirty, you can hand-wash it with soap and water, let it air dry out of direct sunlight, and then reinstall it. Most manufacturers recommend that you clean fan coil unit filters every two weeks.

If you have an air-source heat pump, you will also want to check the outdoor condenser unit to make sure its coils and protective



screen are clear of debris. Allowing good air circulation is important for air-source heat pumps to work efficiently. Remember to check the outside unit after snowstorms to make sure snow has not drifted around the unit. If you happen to find the coils covered in ice, do not break the ice off. It is normal in below-freezing temperatures for the unit to have ice form on the coils. The unit should run a defrost cycle periodically to remove the ice so that it can keep heating efficiently. If you notice the defrost cycle running frequently or more ice buildup than usual, that could indicate a problem with the unit. In that case, you should call your heat pump service company to come inspect it for problems.



CHANGING SEASONS, CHANGING HABITS

As the seasons change and the weather gets colder, it's time to change your energy-saving habits. If your home has ceiling fans, remember to change their rotation to clockwise so that air flow is directed up. This will help mix warmer air that rises to the ceiling with cooler air below. It will also stop directing air flow down and avoid making you feel colder from the draft.

Another habit to change is to open window coverings on windows that have sun exposure during the day to allow energy from the sun to warm your house. Natural light can also eliminate the need for electric lights. Remember to close the window coverings in the evening to help insulate against heat loss through your windows.

Remembering to change your habits with ceiling fans and window coverings are just a couple ways you can help reduce your winter electric bill.

Preparing for Storm Season?

DON'T FORGET TO READY YOUR CAR

According to the National Safety Council (NSC), every vehicle should have an emergency supply kit onboard. Kits should be checked twice a year and expired items should be replaced regularly. Emergency supply kits should include:



- Snowbrush
- Shovel
- Windshield washer fluid
- Cat litter for traction



- Warm clothing
- Blankets
- Drinking water
- Nonperishable foods



- Properly inflated spare tire
- Wheel wrench & tripod jack
- Jumper cables
- Fire extinguisher



- Reflective triangles
- Reflective vest
- Brightly colored cloth (to tie on side mirror)



- First-aid kit
- Flashlight and batteries
- Compass
- Car charger for cell phone

Safe Electricity.org®

Source: NSC