



Matt Wendt, Andrew Wolfgram, and Mitch Kopish of Karcz Utility Services lowering the jack hammer to drive the pole reinforcement/repair into the ground. This pole was an extremely busy three phase pole with a transformer that served the Townline Motel and the Leroy Johnson home as well.

spare breaker and have four breakers in the switchgear for a total of five.

During this maintenance the main station power breaker was determined to have a bushing and spacers that had failed on the automatic rewind system, meaning that in the near future, manual operation would be the only option. This breaker was swapped with the spare and taken to Eaton's Appleton plant for repair. In mid-August, not only will the repaired breaker be brought back, but the main 12,470-volt vacuum breaker in the substation will receive maintenance and service. We will have to go on engines at this time in order to isolate the substation from the system.

All of this is done in order to make sure that things work as they should when we need them to. Even then, sometimes they don't!

As you know, we have contracted with Karcz Utility Services for pole inspections for nearly 20 years. More recently, we have used them for mapping our system. You may have seen them here (in some cases in your back yard) over the years.

Their most recent visit was to provide a pole repair service. Poles have a specific height and class when they are purchased. The class of the pole is essentially the diameter of the pole at the base. Poles, even though they are treated, deteriorate over time because they are wood. Most of the time this deterioration occurs right at the transition from above to below ground; however, there are varying types of deterioration ranging from insect infestation to heart rot.

As part of the inspection process, poles also receive various treatments/fumigations to stop or prevent future deterioration. We have poles that were installed in 1945 that have tested just as well as the day they were installed and we have poles that were installed in 2004 showing serious deterioration. We

SYSTEM MAINTENANCE AND POLE REPAIRS

Maintenance to the system is critical to reliability. Everything on the system has a lifespan. Much of what is installed today will outlive us the same as what was installed in the 1940s has outlived those guys who worked so hard to install it.

In the near future, we will begin a maintenance rotation of our oil circuit reclosers. These are the units that trip (much like a breaker in your home) when there is a fault on the system such as a tree on the lines or a small animal suicide. The difference between a recloser and a circuit breaker is that the recloser operates a number of times and then locks open. It does this in order to potentially clear the fault before it cre-

ates an outage. Like any other mechanical device, these units require maintenance and testing. Without it, they may not function as intended. Your crew will begin swapping out reclosers sometime this fall and the take downs will be sent out to be rebuilt. Once they are returned, we will use them to swap out with additional breakers.

We recently had Eaton here to service the main breakers (like the ones in your home except much larger and servicing 4,160 volts) in the switch gear for our engines. These are the breakers that open and close when we are transferring to or from shore power or when we are starting our engines upon loss of power from the mainland. We maintain one



try to maintain a 10-year rotation of pole testing.

When a pole has deteriorated to the point that it is one class beneath its original rated class, it is considered a “reject pole” and if it has deteriorated to the point that it is two classes beneath its original rated class it is considered a “danger pole.” This might be slightly misleading because being a “danger pole” does not mean it is going to imminently fall over, but it does mean that we need to look at replacing the reject and danger poles at some point in our work plan. We have had poles that tested perfectly fine break when a tree goes across the lines and we have had reject poles hold up just fine during the same situation.

Under normal circumstances, replacing these poles means scheduling an outage and either pulling the pole and using the existing hole to install a new one (hoping it does not fill with water or otherwise collapse in the meantime) and reinstalling hardware and wire on the pole or relocating the pole to minimize outage time during replacement. This is an expensive, labor-intensive operation that also taxes our members’ patience because the lights are out! It is an especially arduous task when you are dealing with poles that have multiple phases and cross arms or transformers on them.

During Karcz’s recent visit, their crew “repaired” 10 poles in roughly 1½ days. The method used involves jack hammering a piece of c-channel steel down to the depth that the pole is buried and strapping the channel to the pole. The c-channel, which is much stronger than the original undeteriorated pole, then becomes the base of the pole. The repair will outlast even the undeteriorated pole that is above ground! This process is done without taking the power down, and in some cases when the digging is easy, the pole is repaired in a half hour.

Each pole is retested at the time of repair and evaluated as to whether the repair is appropriate or if it is necessary to sim-

ply replace the pole. During this visit, we had 11 poles on the schedule and 10 of them were repaired, with only one needing to still be scheduled for a full replacement.

This trip we focused mainly on multi-phase lines and a couple that were on the route for the fiber project. Currently, a typical pole (some are 35 class 6 and some are 40 class 5) is running just under \$300 each to buy. When you add installation labor, miscellaneous hardware, equipment costs, and the outage time required to safely do the replacement, the ap-

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proximately \$600 all in repair cost becomes a bargain. To top it off, if your crew worked exclusively on pole replacements, those 10 repaired poles very likely would have taken at least two to three weeks of work and scheduling of outages to accomplish. You can expect to see additional repair work being done later this fall and we are even

considering reinforcing critical poles that have tested fine with this method.

As noted, conventional pole replacement, while still absolutely necessary in some cases, is labor, equipment and time intensive. One recent pole failure occurred on Lake View Road, a few spans west of Percy Johnson County Park. The replacement of this pole required us to stabilize the reject pole with the digger derrick as we dug a new hole adjacent to it. Once the auger was pulled out of the freshly dug hole, it promptly filled up with water and the sides of the hole collapsed. Once the hole has filled with water, it is very difficult to get additional material out of the hole in order to get the required depth of hole and it becomes a bit of a trick to get the pole into the hole before it collapses again.



Karcz crew securing the reinforcement/repair to the pole using heavy banding straps. Right: A completed reinforcement/repair including channel, banding and cover.

If we are digging in cobblestone, even in a dry hole, what starts as a 19-inch auger hole can end up being a 6-foot wide hole as the sides continually collapse. Sometimes we even find it necessary to dig the hole using an open-ended barrel as a sleeve. Once the new pole is in place, we take an outage (sometimes concurrent with the pole being installed depending on the situation) in order to transfer pins, insulators, conductors, and other attachments to the new pole.



Mike Jorgenson stabilizes the failed pole while Don Johnson transfers a Frontier pole attachment to the new pole. Note that the conductors have already been relocated and this work was done with the power down. The failed pole was installed in the mid 1960s.

ANNUAL MEETING UPDATE

Watch next month's magazine for your 2020 annual report!

Watch these pages in the September Magazine for the Annual Meeting notice and financial items of interest to the members. An additional four pages in the magazine will take the place of the mailing that our members are used to. The meeting will be held one of the first weekends in September. Stay tuned!

FIBER UPDATE

Progress continues while we wait for grant news, materials

By the time you are reading this, we will have submitted our application with the Public Service Commission of the State of Wisconsin (PSCW) for a grant that will cover part of the next stage of the fiber project. We should also have submitted, or be close to submitting, the grant application to the National Telecommunications and Information Agency that, if we are lucky enough to win, would cover the cost of the project in its entirety.

As we have said during previous communications, and during our request for support letters, no grant is a sure thing and you can't spend money that you don't have! Keep your fingers, toes, and any other desired appendages crossed that we are successful. If not, there will be other opportunities that we will pursue.



With this said, we are moving forward as promised. Engineering and material specification for the first phase of the project were completed in mid-July. Pole hardware and other material are on order. NSight has been working on engineering of the run from Gills Rock to Northport.

As we told you in the last update, the fiber we expected to arrive in June was put off until August due to resin shortages. This resin is used for the PVC jacket on the outside of the fiber. In addition, we have now been informed that the headend equipment, without which we will not be able light up the fiber, is now 200 days out. While we are still hopeful that this will improve, it makes it less likely that we will be able to meet our goal of lighting up some members by the end of the year.

We will keep moving forward and accomplish what we can, in spite of material delays.

One thing about this project that is important to note: While we are working with folks who have vast experience in these systems, we here at the local level are still learning as we go. There are plenty of days that we look in the mirror and ask ourselves, why didn't we just concentrate on keeping the lights on?

We also realize—and hope that you members do as well—that no one else is going to step up to the plate to give our community the services we deserve and that all the growing pains and learning we are doing now will be worth it in the end.

HELP YOUR AC GET YOU THROUGH THE "DOG DAYS"

Growing up here, had you asked me, I would never have thought of an air conditioner as a necessity. For many folks they are though, and they can have a dramatic effect on your monthly bill. Since most of us consider the "Dog Days of Summer" to be in August, we thought that this would be an appropriate time to talk about AC efficiency!

No-cost ways to improve your air conditioner's efficiency

- **Clean around the outdoor condenser unit.** It will work most efficiently if it is clear of grass and other debris.
- **Vacuum indoor vents and keep vents unblocked.** You can vacuum dust and any debris away from indoor supply vents to help maintain steady airflow from your system. Also, keep items like blinds, furniture, and toys away from blocking the vents.
- **Increase your thermostat by a few degrees.** Typically, adjusting temperatures 5–8 degrees (down in winter, up in summer) can help save money and energy. With a programmable thermostat, you can automatically adjust the temperature for different times of the day or during times you are going to be away for several hours.
- **Keep lamps and other heat-producing appliances away from your thermostat.** Having heat-producing appliances near your thermostat will tell it that the air in your home needs to be cooled more, causing



A clean outdoor AC unit (left side) will work much more efficiently than a dirty one (right).

the system to run longer and work harder than it may need to.

- **Keep curtains and blinds closed in the heat of the day.** When direct sun hits the windows in your home, keeping your curtains or blinds closed can keep some of the heat from warming the inside of your home.
- **Avoid using your dryer and oven in the hottest hours of the day.** Running your dryer will cause warm air to be drawn into your home, and using your oven will add additional warm air to your home, causing your air conditioner to have to work harder.
- **Insulate any exposed ductwork.** Make sure ductwork that runs through an unconditioned space is properly sealed so it doesn't leak any of your conditioned air. You can fix visual leaks with a specialized duct-sealing tape that is UL 181-rated, but be sure a professional also checks the ductwork during your next scheduled maintenance visit.

You don't always have to spend a lot of money to maintain the investment you've made in your central air conditioning system. Understanding the different parts of your HVAC system and keeping it running efficiently will keep your system in top working condition for when you need it most.—*Source: U.S. Department of Energy*

In addition to these helpful hints, it is important to realize that you should turn off your furnace or electric heat rather than just turn down their thermostats. We have had instances where a member has turned on the air conditioner, only to later have the furnace cycle on and have the two units fight against each other.

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