Perennial NEWS

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INSIDE THIS ISSUE

Energy for Generations
PERENNIAL™
PUBLIC POWER DISTRICT

PerennialNEWS
CONNECTIONS

COVID-19, New Territory

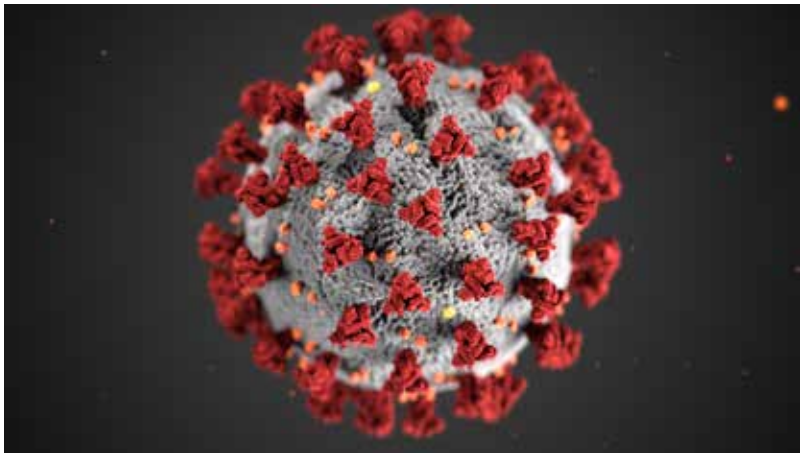
Jamey Pankoke
General Manager

In 39 years in the power business, I thought I had seen our industry encounter every possible challenge there was in electric utility operations. Boy, was I wrong. COVID-19 has required us to operate like never before. A pandemic like this is certainly new territory for all of us.

Fortunately, we had created a pandemic plan years ago in preparation for previous viruses that never made it to our part of the country. So, this gave us a base to work from in dealing with this coronavirus. We pulled the plan off the shelf, updated it, and took proactive measures to protect our employees and customers.

On March 17 our office was closed to the general public, and as of the writing of this article it remains closed, although we know that in the near future we will need to return to normal office operations as much as possible. On that same day, our workforce was split into two teams and began working alternating weekly work schedules to reduce the number of employees that could potentially be exposed to the virus. Other action that we took included wearing personal protection gear, sanitizing our facility and equipment daily, temporarily suspending disconnects, and holding teleconference board meetings. In addition, we enhanced our information technology system to allow employees capable of working from home to work remotely during their off week.

I am proud of our dedicated employees who have had to learn how to fulfill our mission of delivering safe and affordable energy to you during this unprecedented time. They realize how critical our service is to customers who have had stay home to help slow the spread and to protect their families. Not even an Easter weekend storm, that resulted in the District losing over 20 poles, could prevent them from fulfilling the mission during a pandemic.



If there is anything good that comes out of having to alter our operations due to COVID-19, I would say that we now know what works. We know what action to take to be able to continue to serve you in a pandemic, should this or any future virus disrupt our operations. But make no mistake about it. It has all been new territory.

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Fun With Static Electricity

COVID-19 has changed everyone's lives and habits. While your child was probably sent science homework from school, we thought you could use some fun static electricity experiments to do with them this summer.

Roll a Can with Static Electricity

What you will need:

- An empty can
- A balloon
- A piece of cloth

Steps:

1. Rub the surface of the balloon with the cloth for 40 seconds
2. Place the can on a flat and smooth surface
3. Hold the balloon close to the can without touching it and watch as it follows the movement of the balloon

How it works:

Rubbing the balloon with the cloth creates static electricity. The balloon, which has gained electrons, becomes negatively charged. Hence the can, which is positively charged, is attracted to it as opposites attract.

Hair Standing with Static Electricity

What you will need:

- An inflated balloon
- A piece of cloth

Steps:

1. Rub the surface of the balloon with the cloth for 40 seconds
2. Hold the balloon a short distance above your head and watch your hair stick to it

How it works:

The balloon gains electrons from the cloth and becomes negatively-charged, so it attracts your hair, which is positively-charged in comparison.

Separating Salt and Pepper

What you will need:

- A plastic spoon
- Salt
- Pepper
- A piece of cloth

Steps:

1. Mix a teaspoon each of salt and pepper thoroughly
2. Rub the spoon with the cloth for 40 seconds
3. Hold the spoon over the mixture. The pepper will jump up and stick to the spoon (if you hold the spoon over the right spots)

How it works:

Both the salt and pepper granules are positively charged. The spoon, which has gained electrons from the cloth, attracts positive charges in the mixture. But the pepper, which is lighter, will jump up more easily and stick to the spoon.

Water-bending With The Power of Static Electricity

What you will need:

- A balloon
- A piece of cloth
- Running water

Steps:

1. Rub the surface of the balloon with the cloth for 40 seconds
2. Turn the tap on so there is a steady stream of water
3. Put the balloon near the water and watch it 'bend'

How it works:

When the negatively-charged balloon approaches the water, it repels the electrons in the water. This gives the water nearest to the balloon a positive charge. The attraction between this positive charge and the negatively charged balloon asserts a net force on the water. This allows you to bend water.

Looking Back at APRIL'S OUTAGES

High winds and icy conditions made the month of April a major challenge for the infrastructure in the Perennial service area.

Galloping lines caused most of our outages in April. Galloping lines occur when ice builds up on one side of a power line when we are experiencing strong winds. This build-up creates an airfoil, which changes the flow of air around the usually round utility line. This change in airflow can cause the power line to start to bounce or gallop. Once galloping starts, there is not much a power company can do to alleviate the problem until the wind dies down. This is why many power lines have objects like twisted wire, round or angular pieces of metal attached to the line. These are devices placed on the power lines to help reduce the galloping of the lines and prevent potential danger. In addition to the possibility of power outages, there is a danger of the lines or other electrical equipment breaking loose and falling. Of course, there is the danger of ice being dislodged from the lines and falling to ground as well.

On April 2nd an ice storm hit our territory, during this storm, our wholesale provider's transmission lines started galloping and tripped a breaker in the substation near McCool Junction. Additionally, there were galloping lines on Perennial's infrastructure. We had over 2,500 customers without power. Our Operations Department personnel first discovered something was wrong when they received a notification about a breaker opening up. They notified the front office staff that there was an outage, right as customers began to call. The average amount of time customers were without power during this outage was only an hour. In addition to the original outage there were two substations without power causing customers to be without power for an average of one hour and thirty-six minutes.

Additional outage issues continued to plague the District into April 3rd, icing and wind created galloping lines which resulted in 238 customers to be without power for an average of 1 hour and forty-eight minutes.

MAJOR OUTAGE EVENTS

April 2 1 hour, 36 minutes
2,500 customers

April 3 1 hour, 48 minutes
238 customers

April 11 19 hours, 15 minutes
149 customers

April 12 6 hours, 24 minutes
744 customers

April 13 48 minutes
164 customers

April 16 1 hour, 24 minutes
67 customers

Easter weekend brought a new storm and a new set of challenges. On the evening of April 11th, the lines started to gallop due to ice build-up and wind. Due to Mother Nature's unrelenting destructive manner, 149 customers experienced outages for an average of nineteen hours and fifteen minutes. As the storm continued into April 12th, 744 customers found themselves without power for an average of six hours and 24 minutes. With twenty broken poles and lines continuing to gallop, crews were fighting an uphill battle against the elements. Unfortunately, outages continued into April 13th, with 164 customers without power for an average of 48 minutes.

Our last ice storm was April 16th. With this ice storm, we had 67 customers without power for an average of one hour and twenty-four minutes. Like the previous storms, the outage was caused by galloping lines.

For the rest of April, we had sixteen separate incidents where 129 different customers were affected with outages by weather, all averaging around two hours without power. Although we had another event where thirty-two customers found themselves without power for 1 hour and eighteen minutes due to a tree limb falling on the utility line.

Looking ahead, Perennial is ready to respond to summer outages no matter what the cause. We'd like to remind everyone to remember after a storm, limbs & debris may hide an electrical hazard. Treat all downed power lines as if they are energized and report them to Perennial at 402-362-3355 or toll-free at 1-800-289-0288.

Why You Should Consider a Smart Thermostat

Heating and cooling costs account for around half of a customer's energy bill, according to the U.S. Department of Energy. When it comes to reducing energy use and cutting home energy costs, the most impact can be made by programming the thermostat. The right thermostat settings could yield energy savings of 8-15 percent, and new technology is making it easier than ever.

Smart thermostats are Wi-Fi enabled and may be controlled remotely through a tablet, smartphone, or voice control. If you're interested in managing your thermostat with your voice, an app, or in being hands-off and letting it learn your habits, you should consider a smart thermostat. Make sure the chosen product supports your heating, ventilation, and air conditioning (HVAC) system. Then to decide which thermostat fits your lifestyle, factor in smart features, price, and attributes that matter most to you, such as color, size, or style.

Perennial Public Power District also offers an EnergyWise℠ rebate for smart thermostats based on the heat source of your HVAC system.

All Electric System

- $100 Professionally installed
- $75 Self installed

Fossil Fuel

- $50 Professionally installed
- $25 Self installed

Most smart thermostats can be adjusted by using an app that is available on almost any device. Smart thermostats come with geofencing, and depending on the thermostat, it can work with multiple phones, but sometimes they only support one phone.

Sophisticated room sensors also come with a few of the devices. These remote sensors allow the thermostat to take readings from any room throughout your home and adjust the temperature accordingly. This can be an advantage if your thermostat is located near a draft or in direct sunlight. Some of these sensors even go one step further with occupancy sensing, which notices if there is movement in the house, to override geofencing if the primary phones leave the house and someone is still there.

Each thermostat is installed differently and "learns" differently, so be sure to read the user manual before installing. Some will require you to enter a schedule, while others will automatically assume a schedule. The thermostat will learn your preferences from the minor adjustments you make to the temperature during the schedule already running. Most smart thermostats let you track your energy usage and compare your energy usage to similar homes in your area.

Whichever fits your lifestyle and preferences, a smart thermostat is a good investment that can help you save energy and money more conveniently than ever.

A **PROGRAMMABLE THERMOSTAT** CAN **SAVE** UP TO **15%**

Defining Degree Days

Weather can have a significant impact on energy bills, and when the outdoor temperatures become extreme, your heating and cooling equipment works harder to keep your home comfortable.

Did you know the energy experts at Perennial Public Power District use degree days to anticipate heating and cooling needs for you, our customers?

Never heard of a degree day? Don't worry; you're not alone. Let's take a look at what degree days are and why they're important for electric utilities.

Degree days measure how cold or warm a location is by comparing the average of the high and low (mean) of the outdoor temperatures recorded in that location to the standard U.S. temperature, which is 65 F. The assumption is that we don't need heating or cooling to be comfortable when this is the outdoor temperature.

So, the more extreme the outdoor temperatures, the higher the number of degree days. And the higher the number of degree days, the higher the amount of energy used for space heating and cooling. Summer is in full swing, so let's look at cooling degree days.

Cooling degree days are a measurement of how hot the temperature was on a given day or during a period of days. With summer temperatures rising, you'll likely require more cooling for your home or business, which results in more cooling degree days. Variations in electric bills often follow closely with degree days, which is why electric utilities use this data to anticipate future energy demand.

Degree days are tracked for a variety of reasons. Farmers can better plan the planting of crops and timing for pest control, and weather experts can better assess climate patterns.

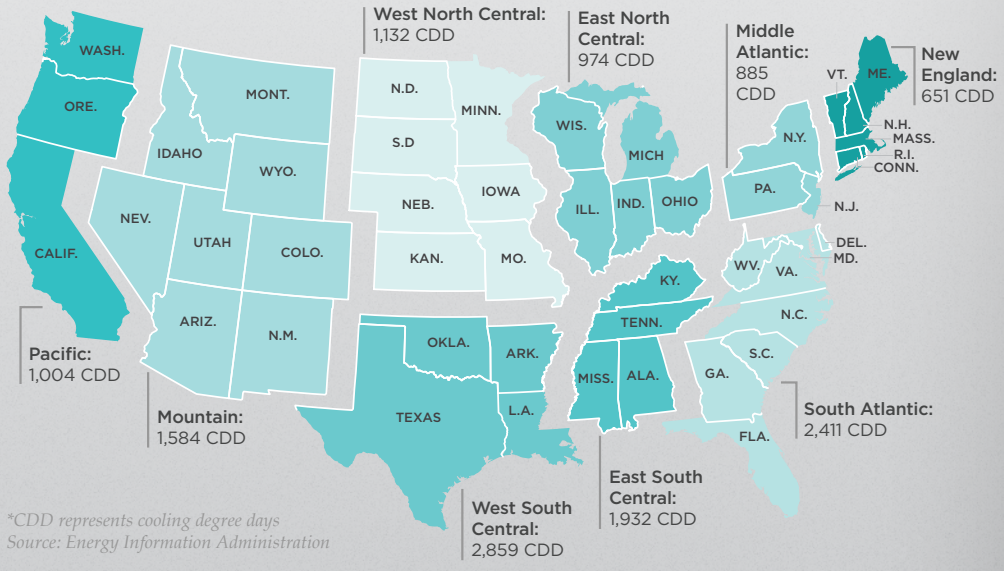
To view degree days for our area, visit www.energystar.gov, and search "degree days calculator."

If charts and data aren't your forte, no problem. Here are a few tips to help you save on energy bills this summer:

- Set your thermostat as high as comfortably possible. The smaller the difference between the indoor and outdoor temperatures, the lower your cooling costs will be. The Department of Energy recommends setting your thermostat to 78˚ F when you're home and a higher setting for when you're away.
- Turn off ceiling fans when you leave a room.
- Close window coverings, like curtains and blinds, during the day, to block sunlight.

U.S. COOLING DEGREE DAYS

Cooling degree days measure how hot the outdoor temperature was on a given day or during a period of days. The map below shows measurements of U.S. cooling degree days in 2018 by census region. Extreme outdoor temperatures bring a higher number of degree days, which results in higher energy use.



*CDD represents cooling degree days
Source: Energy Information Administration

- Use caulk and weather stripping to seal air leaks around doors and windows.
- Have your home's cooling system tuned up by a professional. Perennial offers a $30 EnergyWiseSM incentive for cooling tune-ups, which is now available once every year.

If you have questions about your energy use or to learn more ways to save, give us a call at 402-362-3355 or toll-free at 800-289-0288. We are here to help.

PerennialNEWS

Scholarship Recipient Becomes Summer Intern

Perennial welcomed our utility line scholarship recipient Jaden Gonnerman as a summer intern. Gonnerman is the son of Jason and Debra Gonnerman of McCool Junction. Jaden is attending Northeast Community College, where he is pursuing his career as a utility line technician. When Gonnerman has free time, he likes to spend it hunting on his grandfather's farm near Gresham, working on cars with his father, spending time with friends. As part of his internship, he will work with our line crews to receive hands-on experiences to learn what it is like to work as a utility line technician.

ENERGY SAVING TIP

Fire up the Grill!

When the weather is nice, put your grill to use! During summer months, cooking outdoors is a great way to save energy and eliminate unwanted heat from cooking indoors.