

When the Lights Go Out, They Go Out



CVEA's service territory encompasses an area roughly the size of West Virginia with two distinct climate zones and terrain extremes. CVEA has over 100 miles of 138 kV transmission line and many hundreds of miles of distribution lines that dissect the region bringing power to its nearly 4,000 members.

We live in an area of great distances, extreme weather and rugged terrain. CVEA is dedicated to providing our members with reliable power. The small size of CVEA requires linemen to perform varied tasks on a moment's notice while many of their peers in larger cooperatives can be more specialized. CVEA's linemen are the first line of defense wherever and whenever outages occur. Not only do they build and maintain the system, they work day and night to keep the lights on by responding to outages.

CVEA's linemen face many challenges. The average annual snowfall in Valdez is 339.7 inches, and long periods of -50°F ambient are not uncommon in the Copper River Basin between November and February. Extreme weather, distance, and difficult or hard to access terrain are commonplace within the CVEA service area which greatly complicates our mission to provide reliable power in ways most electric cooperatives across the nation wouldn't understand.

Adapting to extreme cold is tough on our linemen and their equipment. Permafrost continually wreaks havoc on both transmission and distribution structures thereby increasing maintenance requirements. Heavy snow and rime ice buildup on trees

often causes them to fall into our lines. That same heavy snow and ice can build up on our lines and structures causing them to fail as well. Deep snow buries equipment making it difficult to find, let alone access. Strong winds may blow trees into our lines or severely reduce visibility.

With much of the transmission line located in remote, hard to reach areas in Alaska's back country, access to maintain and repair can be very challenging as well. When an outage needs to be assessed and repaired, CVEA linemen use all options available to access electrical facilities to include on foot, on snowshoes, on skis, by using track vehicles, six wheelers and even helicopters. Valdez Lineman Garrette Francis tells the story of a broken insulator high atop Keystone Canyon. He and Copper Basin Lineman Andy Hess had to hike approximately 300 feet straight up the mountain, in snowshoes, carrying a 200 pound insulator and equipment on their shoulders in order to make necessary repairs.

Severe weather conditions frequently cause power outages along CVEA's system. This same severe weather can make it extremely difficult for linemen to respond to assess the situation and restore power. Poor road conditions, high winds, blowing snow, and extended periods of darkness in winter make it difficult to determine the cause of outages.

It is important to remember that in many instances, until our linemen have gained access, determined what the problem is, and relayed that information back to CVEA dispatch, the exact



magnitude of the problem and expected length of time to repair is not known. Please know that our linemen are on the job out in the elements to restore your power as quickly as possible.

Once a fault is located, linemen encounter other obstacles that can hinder getting the lights back on quickly. One lineman recalls having to move 30 feet of snow to get to the area where the equipment was located and then having to dig down 10 feet, through 3 feet of frozen ground, to get to and repair the equipment.

Our system is designed with certain capabilities and redundancies that can allow for restoration of power to most customers by re-routing power around the problem.

After their lights come back on, a lineman's job is usually not over. It can take a tremendous amount of time to get the system fully repaired and back to normal. A actual power outage may only last 15 minutes, but when repairs are necessary, it can take days, weeks, or months for repairs to be made.

In extreme circumstances, like major avalanches in Thompson Pass, it has taken weeks to get replacement transmission towers back up in the air. During 2014, three miles of transmission line will be moved to the west side of the Richardson Highway, finally out of the Thompson Pass avalanche zone.

In September 2013 high water, caused by flooding, changed the path of the Lowe River, and caused the structure to wash away. While the majority of members had power restored in little over an hour, CVEA linemen were out in the driving rain wading in floodwaters to find the location of the outage. In

Opposite Left, crews replacing a transmission tower in Thompson Pass that was taken out by an avalanche in 2009.

Opposite Right, Copper Basin line crew repairing a tower in Thompson Pass during a snowstorm in 2014.

Top Left, Copper Basin Line Crew; Mike Leeper (Line Foreman), Ryan Cook, Labin Scott (Line Superintendent), and Andy Hess. Bottom Left, Valdez Line Crew; Garrette Francis, Todd Stahley (Line Foreman), and Walt Lynch.

Top right, Copper Basin Lineman Ryan Cook repairing a transmission tower high atop Keystone Canyon Falls. Photo by Andy Hess

Above left, a shot of a lineman accessing buried equipment after digging through multiple feet of snow and frozen ground. Photo by Garrette Francis

Above right, a CVEA lineman knocking snow and ice buildup off the substation.

that case, it was appropriate to erect a temporary structure which was remarkably completed in only a week.

Even on a good day, in perfect conditions, the work CVEA linemen do is extremely dangerous. During outages, they work until the job is done, day or night, good weather or bad. They are ready at a moment's notice to drop what they're doing, leave the warmth of their home and the people they love, and head into the unknown to get the power back on.

The work is challenging, but also very rewarding. When asked why they do it, CVEA linemen provide a very simple answer. They do it for you! ■