

Cedar Pole NEWS

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Electronic Cedar Pole News

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North Dakota Utilities Are Major Cedar Pole Users

Mountrail-Williams Cooperative Exclusive Cedar User

Many cooperatives were formed to electrify rural areas in the U.S. One of these utilities, Mountrail-Williams Electric Cooperative, provides service to customers in western North Dakota.

An exclusive cedar pole user for the last five years, all Mountrail-Williams new poles are full-length penta treated. "We especially like cedar's straightness, ease of handling and climbability," says Bill Adolf, Assistant General Manager.

The coop receives power from the Upper Missouri Generation & Transmission Cooperative, headquartered in Sidney, MT. Power is delivered to customers on cedar lines with voltages ranging from 7.2kV to 69kV. Poles are usually 35 ft. high with 10 ft. crossarms for raptor protection.

Serving a two-county region

(Mountrail and Williams Counties), an area 100 miles wide and 30 miles deep, Mountrail-Williams delivers electricity
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An exclusive cedar pole user for five years, Mountrail-Williams relies on cedar to provide a long service for its customers.



To provide raptor protection, Mountrail Williams has retrofit their system by adding triangular shaped devices on poles where connections occur, and by increasing crossarm length to 10 ft.

Providing power to new housing developments north of Bismarck, Capital Electric has installed numerous 35 ft. cedar distribution poles to keep up with new construction.



Both Mountrail-Williams and Capital Electric Coops Prefer Cedar Poles

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to some 4,500 customers and has 2,900 miles of overhead line.

Many farms and ranches in the area also have oil field pumps, and collectively comprise the main power consumption. A typical rural residence with wheat lands, range land and an oil well consumes about 100kW. All lines are three phase to provide service for oil well pumping and grain drying equipment.

In this part of the country raptors thrive, so Mountrail-Williams has retrofitted their system with raptor protection devices and 10 ft. crossarms.

The coop inspects one-third of its system each year, with a rejection rate of only 3.2%. A consistent maintenance program keeps the rejection rate heading lower every year. Most poles taken out of service are used by ranchers, including elk ranchers, for fence posts.

Capital Electric Cooperative

Since 1948, Capital Electric Cooperative has been serving electricity to its consumer-owners in Burleigh and southern Sheridan Counties, in central North Dakota.

Service is provided to almost 12,000 meters through 2,410 miles of distribution and transmission lines. Capital Electric uses only cedar poles and all new poles are full-length penta

treated. "The utility went to cedar a long time ago and never went back," says Ron Lipp, Engineering and Operations Manager.

Transmission line voltages are 41.6kV and distribution line voltages are 12.5kV. And a new 115 kV line is planned to be up and running soon.

With a strong housing market in the capital city of Bismarck, Capital Electric Coop is busy establishing connections to new homes in the Bismarck area.

To assure that transmission and distribution lines perform properly, inspections are conducted every 12 years, as required by the Rural Utility Service (RUS), throughout the Capital Electric system.

Montana-Dakota Utilities Co.

Montana-Dakota Utilities serve over 116,000 customers, about one-third of North Dakota and one-quarter of Montana, and parts of Wyoming and South Dakota. The utility primarily serves cities and towns as cooperatives cover most of the rural areas.

"Montana-Dakota Utilities has about 140,000 wood poles in their system," says Tom Crary, P.E., Senior Staff Engineer, "and about half are cedar. We especially like cedar for its performance in severe climates, its ease of climbing and long service life."

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Butt-Treated Poles: A Cost-Effective Product With Low Environmental Impact

Historically, butt-treated Western Red Cedar was the backbone of most early electrification in many areas of the United States and Canada. Some of the early lines are still standing and have provided service for 100 years.

Western Red Cedar is the only poles species with natural decay resistance necessary to give long service life without being full-length treated. Cedar is also the only species for which a butt-treatment national standard is published.

Butt-treated cedar is a particularly environmentally friendly product as well as providing a very economical pole. This is possible as only the butt to one foot above the ground is treated which means a butt-treated pole uses only 10% to 20% of the preservative required for full-length treatment for other species.

In addition, when a butt-treated pole is removed from service, the treated portion can be cut-off and used for posts, while the rest of the pole can be milled into lumber or siding. As a result, butt-treated poles have a very low environmental impact during their service life, and upon removal offer easy disposal.

Butt-treatment specifications are published in American Wood Preservers Association (AWPA) Standard C35-97 and in Canadian Standards Association (CSA) 080 Series. Pentachlorophenol, creosote and copper naphthenate oil-borne

preservatives can be used for the butt-treatment process.

Western Red Cedar, Alaska Yellow Cedar and Northern White Cedar are the only species which qualify for this type treatment. By far, the most prevalent species using butt-treatment is Western Red Cedar which is widely used throughout the U.S. and Canada.

Western Red Cedar is a prime species for poles because of its natural durability, large size, straight grain and ease of climbing. Western Red Cedar has a very thin layer of sapwood that is relatively easy to treat.

Unlike other species, cedar's heartwood produces chemical compounds called extractives that naturally resist decay, fungi and insects. Cedar heartwood is naturally durable and does not need or accept treatment.

Cedar is lightweight, easy-to-handle and withstands severe weather conditions. The species straight grain and uniform texture minimizes pole fracture caused by severe weather or mechanical damage.

Butt-treated poles are set vertically in a tank and treated to one foot above groundline, to AWPA or CSA standards. Cedar is the only species where this economical method of treatment is recommended. Penetration and retention requirements in the groundline area are the same for both full-length treatment as well as butt-



Butt-treatment in a tilt-up dip tank.

treatment.

Cedar poles have been butt-treated since before 1900, and incising was introduced in the 1920's.

As only a little more than the length of the buried portion of the pole is treated, the total pole cost is less. Butt-treated poles are a very cost-effective solution in many areas and excellent success has been achieved with these type poles.

American Wood Preservatives Association Standard C35-97 can be ordered at www.awpa.com. Canadian Standard CSA 080 Series can be ordered from www.csa.ca.

Montana-Dakota Utility

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For increased capacity, Montana-Dakota Utilities last year installed new 115kV cedar lines north of Bismarck. The utility's oldest cedar poles date to 1945 in a line from Baker, MT, to Glendive, MT.

Montana-Dakota conducts inspection programs on a 12-year cycle and provides groundline treatment

where required. Pole tops also are sprayed with a copper naphthenate system during maintenance inspections.

Montana-Dakota Utilities began in 1924 as a small electric company along the Montana/North Dakota state line, and is now a division of MDU Resources Group which provides utility and energy services, natural gas and oil production, and other related products.



New 115kV transmission lines with 85 ft. cedar poles were built last year to increase capacity. These lines extend north from a generating station north of Bismarck.

Did You Know?

Western Red Cedar is hygroscopic and will absorb or discharge moisture to achieve equilibrium with the surrounding atmosphere. With a very low shrinkage factor, Western Red Cedar is superior to all other conifers in resistance to warping, twisting and checking.

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