

Cedar Pole NEWS

Light Weight & Climbable: Two Idaho Utilities Use Cedar Poles

Fall River Electric Cooperative in Ashton, Idaho, abuts Yellowstone National Park on the East and includes five counties in Idaho, two in Montana and one in Wyoming. Their service area extends 60 miles east, 80 miles north, 50 miles west and 50 miles south with approximately 15,000 customers.

Fall River Electric has used Western Red Cedar poles for many years with 99% of their system built on cedar. Climability and light weight are the principal features which Fall River Electric finds important in the use of cedar. Laminated wood poles are sometimes used for corners to minimize guying.

There are about 20,000 cedar poles in their system. Some 120 miles of transmission lines carry either 115kV or 46kV lines. The utility also has 2,000 miles of 12.5kV distribution lines. Fall River's oldest cedar poles still in service were installed in 1940.

To cover their tri-state area, Fall River Electric has a central office with line staff, as well as two remote locations in Driggs, ID and West Yellowstone, MT.

Single family homes account for 53% of Fall River's power consumption. Commercial is 13%, industrial is 28%, and 6% is miscellaneous. Most industrial use is irrigation pump power. Industrial uses

include golf course irrigation, and power for ski areas.

Fall River's peak loads used to occur for irrigation. Today, peak loads come from residential use that has seen a steady 6% yearly growth.

Much of the power used in Fall River's system comes from Bonneville Power Authority with 10% from Fall River's



Using 50 ft. full-length penta treated cedar poles, this Fall River Electric substation between Ashton and Yellowstone Park was built in 1966.

Idaho Utilities Cedar Pole Users



This line, built in 1999 with 75 ft. cedar poles, delivers power to customers near Yellowstone National Park.

Island Park Hydro and Buffalo River Hydro. Power sources are 85% hydro electric generation and 15% nuclear generation.

Fall River Electric is so close to Yellowstone Park and participate in sponsoring an annual dog sled race to Yellowstone Park each year. Participants have a choice of five different races, including 100, 80, 60, 40 and 20 mile races plus a Junior race and a snowshoe race. There was an ample amount of snow for the race this year.

Idaho Falls Power, a municipal utility, serves approximately 22,000 residences and 3,500 commercial firms in its 17 sq. mile service area with 422 miles of transmission and distribution lines.

Continuing growth has necessitated additional lines to serve new developments. The utility, which has consistently used cedar for years, has 386 miles of

distribution lines, 70% of which are overhead supported by about 14,000 cedar poles. Approximately 37 miles of transmission lines also use cedar poles.

New lines continue to be built and extended in various areas of the city, plus a number were re-conducted and upgraded from 4.6kV to 12.5kV in recent years.

Idaho Falls Power consumption is 42% residential, 38% commercial, 14% industrial and 6% other. Annual utility energy use is 716,000 megawatt hours

Most of the power supplied to Idaho Falls comes from Bonneville Power Authority. However, Idaho Falls has several generating stations of their own with another project under study. The Bulb Turbine station generates 143,000 megawatt hours with three low-impact bulb turbines. The single turbine Gem State station generates 122,000 megawatts.

These projects have also provided ideal opportunities for the development of recreational sites. Parks, playgrounds, walking/jogging paths and picnic areas

have been built on the banks of the Snake River adjacent to four hydroelectric plants. The quiet, slow-moving waters above these plants provide perfect waters for boating, fishing, swimming, water skiing, jet skiing and ice finishing in the winter. In addition, areas have been built for riparian habitat and waterfowl nesting, as well as a childrens fishing pond at the Gem State site.

Idaho Falls Power offers several programs to help the community conserve energy. Through their Residential Weatherization program, the utility conducts free energy audits for making homes more energy efficient.

Commercial customers can conserve power and reduce costs by having their lighting, HVAC systems and controls evaluated through the Commercial Energy Efficiency program. Additionally, their Appliance Efficiency Program helps replace inefficient equipment such as heat pumps, water heaters, freezers and refrigerators.

Customers are kept informed on utility
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A 600 foot crossing of the Snake River, this line is scheduled to be rebuilt this year with cedar poles.

The Hardening of Utility Lines -- Implications for Utility Poles Design and Use

A reprint of the first portion of the North American Wood Pole Council Technical Bulletin VII, this publication was prepared by Martin Rollins, PE. For the entire technical bulletin, and more information about wood poles the reader can access www.woodpoles.org.

ABSTRACT

The hurricanes of 2005 caused unprecedented damage to critical infrastructure on the Gulf Coast, including electric utility distribution and transmission systems. Significant damage has also been caused recently by ice storms and extreme wind events in other parts of the country. The Public Service Commissions of several states questioned the performance of the power delivery systems in these storms, and initiated work to investigate the potential need and effectiveness of "hardening" the system to improve performance in future storms. This paper provides a qualitative evaluation of the expected and actual response of the electrical distribution system in these storms. In general, the system performed as expected and potential actions to "harden" the system could be very expensive and the potential benefits are unquantifiable.

INTRODUCTION

The devastation of Hurricane Katrina in 2005 made all prior storms look tame in comparison. Hurricane Katrina caused over 80 billion dollars in damage and easily became the most expensive natural disaster in history. The 2005 hurricane season was possibly the most

active Atlantic hurricane season on record, with a total of 28 storms, 15 hurricanes and 7 major hurricanes. Four of the major storms, Dennis, Katrina, Rita and Wilma, struck the Gulf Coast with total damages exceeding 120 billion dollars and more than 2,200 fatalities.

In December of 2006, the Pacific Northwest experienced an extreme wind event that caused more than 1.5 million customers to lose power. Also in December of 2006, a severe winter storm resulted in heavy icing in portions of the Midwest. More than 500,000 public utility customers lost power in Missouri and Illinois alone.

These extreme weather events have caused the public to question whether more can be done to prevent these outages or reduce time to restore power, and this has resulted in the Public Service Commissions (PSCs) of several states starting formal inquiries into the need to harden the systems.

DISCUSSION

The investigations by the various state PSCs have not focused only on hardening the system as a means to improve extreme weather performance. Vegetation management, line inspection and maintenance, line relocation, and undergrounding are among the other opportunities identified for improved storm performance.

The basis for reaching decisions concerning system improvement must be founded in an accurate forensic analysis of actual failure mechanisms. The various states have found that this information is very difficult to

determine with a reasonable degree of certainty. In some cases, it has been possible to develop qualitative data to confirm or deny some early hypotheses. In the Gulf Coast region, initially the performance of wood poles was questioned. Both the States of Texas and Florida considered eliminating the use of wood transmission poles.

The facts did not support these concerns. In the 2005 hurricanes, transmission and distribution poles of all materials failed. Information provided to the Florida PSC indicated proportionate failures of wood and concrete distribution poles. Forensic studies of wood poles failures found few failures associated with groundline decay. Florida Power and Light (FP&L) reported that only approximately 1% of distribution poles that experienced hurricane force winds in Hurricane Wilma failed, and that most failures were associated with fallen trees or wind-blown debris. FP&L reported installing 930 miles of overhead distribution conductor, 570 miles of overhead services conductor, and making 1.1 million overhead splices, but only replaced 12,632 distribution poles as a result of the 2005 hurricanes. Wood and non-wood transmission lines also suffered damage in Wilma. The result of FP&L's forensic analysis was that the poles in its system performed as expected. (Florida Power and Light Presentation at June 2006 Public Utility Research Center Workshop).

This bulletin will be continued in the next issue of Cedar Pole News.

Idaho Utilities

issues including electric safety and energy efficiency through their website, newsletters, brochures, newspaper, radio and television. Periodically customers are surveyed to find out what can be done better, and what other services they would like to see offered.

Idaho Falls has a long working relationship with Bonneville Power that includes participating the last six years in a wholesale power agreement with BPA known as Slice -- a Slice of the System. Under the Slice agreement, Idaho Falls Power receives a percentage of the generation from the Federal Columbia River Power System. After evaluating the results, Idaho Falls believes this program has been a successful one for the utility.

Additionally, Idaho Falls Power is one of the original founders of Idaho Energy Authority (IDEA). Through IDEA, Idaho Falls Power and 13 other members have contracted for a 30-year network transmission service with the BPA.



This line was built along the Snake River uses 85-ft. H-1 cedar poles to raise the height of the wires so the office building to the west would have an unobstructed view.

Did You Know?

One of the lightest commercial softwoods, Western Red Cedar is an easy pole to transport and handle. It has a low shrinkage factor and is superior to other coniferous woods in its resistance to warping, twisting and checking.

Websites

Do you want to see a back copy of Cedar Pole News, have questions about preservative treatments, get product information, interested in more technical data?

**Then visit our website--
www.wrcpa.org**

Western Red Cedar Pole Association is a member of the North American Wood Pole Council. For information on pole supply, engineering and design information, product disposal, pole life and life cycle economics visit:

www.woodpoles.org

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The Western Red Cedar Pole Association can be reached at 800-410-1917, and at www.wrcpa.org.