

Polk County Rural Public Power District

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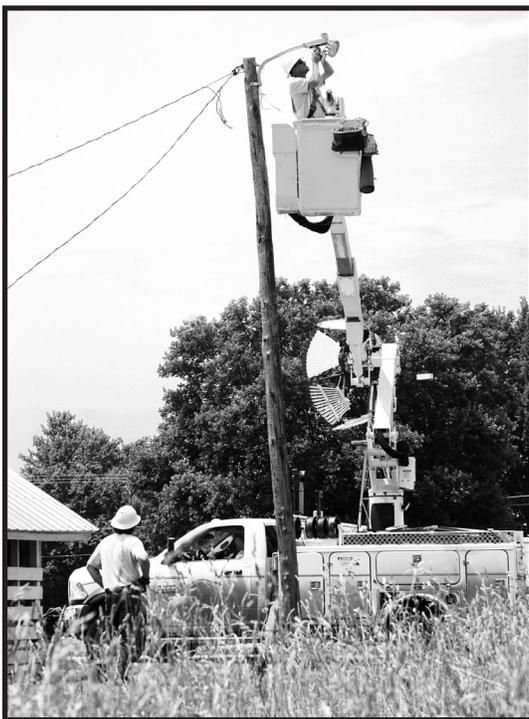
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PO Box 465

115 W 3rd St., Stromsburg NE 68666

(402) 764-4381

Polk County RPPD Donates and Installs New LED Lighting for Fairgrounds *by Erin Dickey*



The heat of July, mixed with the smells of award winning livestock, BBQ, dust from the Pinnacle Bank Arena and the sounds of the demolition derby in the background come together to signify the Polk County Fair. Memories of the Polk County Fair hold a special place in the hearts of those who live in the 400+ square miles of some of the richest soil and deep, small-town heritage in all of Nebraska.

The Polk County Fair has been around since 1875 and has been creating lasting memories for all who attend. The 2015 Polk County Fair was held Wednesday, July 22nd through Sunday, July 26th. Various additions to the 2015 fair lays evidence to the growing tradition of attending and supporting one of the most anticipated events of Polk County.

Polk County Rural Public Power District understands the importance of the Polk County Fair and 4-H program and has donated all new energy efficient LED aerial lights to the fairgrounds. The donation of two men, trucks, setting two new poles and installing 18 LED lights came easy for Polk County RPPD. "As you might guess we are pretty careful about how we spend our customer's money, but donating the lights just made sense to us. We understand that budgets are getting tighter and that the area lighting in the fairgrounds needed improvement," stated Phil Burke, CEO and General Manager of Polk County Rural Public Power District. "To us, it seemed like a good opportunity to support a great event that involves many of our customers and at the same time promote an energy efficient product like LED lighting. The fair board

was very easy to work with and we are very happy with the way it worked out."

According to the U.S. Department of Energy at energy.gov, the light-emitting diode (LED) is one of today's most energy-efficient and rapidly developing lighting technologies. Quality LED light bulbs last longer, are more durable, and offer comparable or better light quality than any other types of lighting.

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Which Light is the Right? *by Judy Rieken*

When I find myself in the lighting aisle of a local hardware store, I ponder. Has this ever happened to you? Specifically with the innovation of LED lighting? LED is the abbreviation for light emitting diodes. LED light bulbs with high power LEDs provide long life and offer a clean, pure white light. They are available in great colors and are dimmable. These energy efficient bulbs are shock and vibration resistant, and are a direct screw-in replacement for incandescent bulbs.

LED light bulbs will eventually be what we use to replace incandescent bulbs, while CFLs are a temporary solution to energy-efficient lighting. The reason LEDs have not yet displaced CFLs from the market are twofold: the first generation LED bulbs had a narrow and focused light beam, and the cost of these bulbs was too high.

Recent developments in technology have addressed these issues. LEDs have been 'clustered' to provide more light, and mounted within diffuser lenses which spread the light across a wider area. Advancements in manufacturing technology have driven the prices down to a level where LED bulbs are more cost-effective than CFLs or incandescent bulbs. This trend is continuing, with LED bulbs being designed for more applications

while prices continue to go down over time.

LED Light Bulbs and Heat

These high power bulbs utilize the latest technology. Tiny little bulbs generate high heat which must be dissipated or moved away from the diodes in order for the LED to live the expected life time of 40,000 hours or more. To do that, most manufacturers have incorporated an aluminum or ceramic body with fins to increase the total area that the heat can escape to and be dissipated. The higher the operating current, the higher the heat load to be dissipated. That means more fins, or more thin and longer fins are required. In the case of one newly developed design, the LED bulb incorporates liquid to assist with the dispensation of heat.

Color Temperature

Color temperature is measured in degrees Kelvin (K). The color temperature of a lamp or bulb describes how the light appears when the human eye looks directly at the illuminated bulb. A light bulb that produces light perceived as yellowish white will have a color temperature around 2700K. As the color temperature increase to 3000K - 3500K, the color of the light appears less yellow and



Incandescent, CFL or LED?



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Fairground LEDs

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Energy savings statistics for quality LED products is staggering using nearly 75% less energy and are noted to last up to 25 times longer than an incandescent bulb. Widespread use of LED lighting has the greatest potential impact on energy savings in the United States. By 2027, widespread use of LEDs could save about 348 TWh (compared to no LED use) of electricity. This is the equivalent annual electrical output of 44 large electric power plants (1,000 megawatts each), and a total savings of more than \$30 billion at today's electricity prices.

In total, 18 175 Watt mercury vapor lights were replaced with energy efficient LED aerial lights. The energy savings and the low maintenance of the new lights alone will greatly benefit the fairgrounds and all those who come to enjoy the activities held there.



Leadership Camp Sheds 'New Light' on Young Adults - *by Judy Rieken*



2015 Campers Kylie Merry, Megan Johnson, Trevor Cutsor and A J Jones

Polk County RPPD sponsored four young adults to the Nebraska Rural Electric Youth Leadership Camp this past summer for a week long experience of learning, combined with a whole lot of fun.

Each summer approximately 70 high schoolers from Nebraska's rural electric systems join together at the Halsey State 4-H Camp to learn about electricity. Through interesting workshops, fascinating demonstrations and presentations some of the state's

brightest youth learn how the rural electric program works.

Trevor Cutsor commented, "I had a great time learning about our public power system and infrastructure here in Nebraska." Trevor competed for the Ambassador program while at camp and finished in the top ten after giving his final speech the evening of the banquet.

The camp offers educational and recreational experiences, leadership training, environmental awareness, character building and social interaction. "If it weren't for this great experience we wouldn't have met so many nice people. Many friendships were formed and we will stay in con-

tact with them," adds Kylie Merry and Megan Johnson. A.J. Jones, was awarded a WIRE (Women In Rural Electrics) scholarship and came all the way from Virginia Beach, VA to attend the Nebraska camp. A.J. expressed his gratitude by also thanking the district for sending him to this camp. "I know have a better understanding of how our power is generated and the work it takes to get it to our homes and schools."

PCRPPD's Accounting Assistant, Cindi Perdue attended camp for the first time serving as an adult counselor. Cindi was impressed with the two power plants the group toured and said, "This is something every employee should attend and participate in. I learned so much!"

Everyone agrees that the camp highlight includes the tour of the Gerald Gentleman Power Station near North Platte and the Kingsly Hydro-Electric Power Plant near Ogallala.

These four youth will have an opportunity to demonstrate additional leadership skills while representing Nebraska on the annual Youth Tour to Washington D.C. next summer. To be chosen they will be asked to write essays on given topics and judged by an outside source.



Lighting

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more white. Daylight White LED light bulbs are generally between 5000K and 5500K. Cool White LED light bulbs are generally between 4200K and 4500K color temperature. Warm White LED light bulbs are generally between 2800 and 3300K color temperature.

Color Rendering Index or CRI

The Color Rendering Index is a scale from 0 to 100 percent indicating how accurate a 'given' light source is at rendering color when compared to a 'reference' light source. The higher the CRI, the better the color rendering ability. Light sources with a CRI of 85 to 90 are considered good at color rendering. Light sources with a CRI of 90 or higher are excellent at color rendering and should be used for tasks requiring the most accurate color distinction.

Lumens to Watts Conversion Chart

Lumens are the new unit of mea-

surement for light bulbs. In the past, the strength of light bulbs was measured in watts, which is actually a measure of power. This isn't a useful unit of measurement for new energy-saving light bulbs, which consume much less power than old-style incandescent light bulbs. So because comparisons based on wattage are not longer meaningful, the strength of new energy-saving light bulbs is expressed in lumens, which measures instead the amount of light they produce. The higher the number of lumens, the brighter the light. If you want something dimmer, go for less lumens. Replace a 75W bulb with an energy-saving bulb that gives you about 1100 lumens. Replace a 60W bulb with an energy-saving bulb that gives you about 800 lumens.

The chart below will give you an idea of how older, less efficient bulbs convert watts to lumens.

How many lumens do you need? (240V)

Brightness	220+	400+	700+	900+	1300+
 Standard	25 W	40 W	60 W	75 W	100 W
 Halogen	18 W	28 W	42 W	53 W	70 W
 CFL	6 W	9 W	12 W	15 W	20 W
 LED	4 W	6 W	10 W	13 W	18 W

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You may purchase up to 15 LED bulbs by December 31st and receive a \$5.00 direct incentive per bulb. This offer is valid when you purchase LEDs 9 watts or greater (equivalent to about 700+ lumens). Thus far in 2015 customers have received incentives for 394 bulbs, saving nearly 20,000 kilowatt-hours annually and nearly 458,000 kilowatt-hours over the lifetime of the bulbs. Many merchants run periodic sales on these bulbs for around \$4.00, that's right you make a buck!

ATTENTION FARMERS: The next time your mercury vapor yard-light is in need of repairs, don't forget to ask about our Caretaker™ 12 LED aerial light. You will be eligible for a \$50.00 direct incentive. Call for details today.