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Butler REC NEWS

Annual Meeting Highlights

Sometime, close to the first of each month, you open your mailbox and there lies the new issue of the *Kansas Country Living* magazine. It is filled with interesting articles and, there in the center, is the anticipated article written by Dale Short, the CEO of Butler REC. This year, Dale had the opportunity to spend Spring Break with his grandkids, so I'll see if I can fill in.

I hope you were able to attend our annual meeting on March 15, but if not, I would like to highlight a little about this year's meeting.

First of all, I would like to thank **RICHARD PEARSON** for his many years of service as a member of our Board of Trustees. Pearson has been an excellent board member and is a good friend to all who know him.

Over the years, he also served as a board member and alternate board member for Kansas Electric Power Cooperative (KEPCo), our power supplier. He is leaving Butler REC's board due to term limits.

I would like to welcome **KENT WEBBER** as the newest member of Butler REC's Board of Trustees. While he has big shoes to fill, he brings a lot of experience and knowledge to the table and we look forward to working with him. I would like to also congratulate **SHAWN WIEBE** and **JOHN WORRELL** for their re-elections for another term on our Board of Trustees.

Our keynote speaker was Steve Parr, the CEO of KEPCo. He highlighted the events of 2011, ranging from the droughts that limited generation at the hydro plants to the flooding that limited the supply of coal to the Iatan 2 plant. Parr also talked about the Wolf Creek Nuclear plant and some of the struggles it has faced, as well as the efficiency and potential that nuclear energy provides. He also addressed some of the environmental issues that our nation and our state are facing and the significant impact these issues are having on our power costs.

DALE SHORT, our CEO, provided some explanation of the power cost adjustment (PCA) line item on your electric bill. The PCA reflects the increase in power costs that have occurred since our new rates went into effect in 2009. The PCA does not include any of Butler REC's operating costs. It is a direct pass through of increases to power costs.

He also highlighted some of the reliability challenges that Butler REC faced in 2011 and the corrective actions that have been implemented to reduce blinks and outages. We believe that significant progress has been made and is continuing to be made to improve our distribution system.

I had the opportunity to provide a preview of a new online information and communication tool that we hope to have available by this summer. It is called the Smart Hub. The Smart Hub is an upgrade to the online bill payment system we currently have, but it does much more.

Ben Whiteside

It provides a safe and easy way to pay your bills online, but it also allows you to view and analyze your monthly, daily and hourly usage in an easy to read graphical form. It also brings in high, low and average temperature data. It will even allow you to set up custom notifications based on high and low usage thresholds. These notifications can be sent to your e-mail, your tablet or smart phone, or as a text message to your phone. We will have more information on this in upcoming months.

This year's Annual Meeting went very well. Of course, the food was excellent again this year. The entertainment was provided by the BCC Headliners, they did a fantastic job. The door prizes are always a big hit to finish up the meeting. We would like to thank our vendors, suppliers and local businesses that donate those prizes.

As we move forward and are faced with new opportunities and challenges, we will strive to provide reliable energy and quality services for you, our members.

Operating & Maintaining Your Heat Pump

Like all heating and cooling systems, proper maintenance remains the key to efficient heat pump operation. The difference in electric use between a well-maintained heat pump and a severely neglected one ranges from 10 percent to 25 percent!

Remember not to set back a heat pump's thermostat if it causes any backup heating system to kick on; they are usually more expensive to operate. Continuous indoor fan operation can also hurt heat pump performance unless you use a high-efficiency, variable-speed fan motor. Operate your heat pump with the "auto" fan setting on your thermostat.

Clean or change filters once a month or as needed, and maintain the system according to manufacturer's instructions. Dirty filters, coils, and fans reduce airflow, which will decrease system performance and possibly damage the compressor. Clean outdoor coils whenever they appear dirty; occasionally, turn off power to the fan and clean it; remove vegetation and clutter from around the outdoor unit. Clean the supply and return registers within your home, and straighten their fins if bent.

You should also have a professional technician service your heat pump at least every year. The technician should do the following:

- Inspect ducts, filters, blower and indoor coils for dirt and other obstructions
- Diagnose and seal duct leakage
- Verify adequate airflow by measurement
- Verify correct refrigerant charge by measurement
- Check for refrigerant leaks
- Inspect electric terminals, and, if necessary, clean and tighten connections, and apply non-conductive coating
- Lubricate motors and inspect belts for tightness and wear
- Verify correct electric control, making sure that heating is locked out when the thermostat calls for cooling and vice versa
- Verify correct thermostat operation

To learn more about heat pumps, visit www.energysavers.gov.

The Magical Value of

Magicians may pull rabbits out of hats, but many homeowners perform captivating acts of their own by taking natural heat and cooling power from air and earth and transforming it into conditioned comfort. Yet this act doesn't involve any sleight of hand trickery: it simply requires a heat pump.

Heat pumps move heat into residences during winter and out of them in summer, trimming overall home heating and cooling costs by as much as 40 percent, according to the U.S. Department of Energy (DOE). In a national study, the Cooperative Research Network (CRN), a division of the National Rural Electric Cooperative Association that monitors, evaluates and applies energy technologies, revealed 11 percent of homes use a heat pump as their primary heating/cooling system. For all-electric homes, this jumps to 29 percent.

Different heat pumps succeed in specific regions. Air-source heat pumps work well in the Southeast, where temperatures rarely drop below freezing. In more northerly climates, geothermal heat pumps shine because their heat source remains shielded– the top 10 feet of earth consistently measures between 50 to 60 degrees Fahrenheit.

A heat pump system can deliver value to your home if the model used matches your region and if it's installed properly. Here's a guide to three different types of heat pumps.

Geothermal

Outside temperatures may vary, but the earth's temperature remains steady year-round and can be harnessed to make homes comfortable. According to DOE, geothermal heat pumps offer energy savings between 30 percent and 60 percent annually when compared to conventional baseboard or propane heating systems, and are typically the most efficient heat pump option.

Geothermal heat pumps move a liquid or water through pipes buried in the ground, then into a home. Also called ground-source heat pumps, there are two types of units: a ground-water (open-loop) system uses well or pond water, while an earth-coupled (closed-loop) model uses a water and antifreeze solution. Systems can be installed horizontally or vertically, depending on available space.

Geothermal efficiency depends on climate, soil and water conditions and landscaping. For example, soil that transfers heat easily requires less piping. Rocky terrain may require a vertical loop system instead of a more economical horizontal loop system.

When buying a geothermal system, compare two elements: coefficient of performance (COP) for heating

Geothermal heat pumps rely on energy of the ground to move heat into and out of a building, providing winter heating and summer cooling.

Heat Pump Systems

Ductless or "mini-split" heat pumps are ideal for room additions where adding duct work may not be possible.

and the energy efficiency ratio (EER) for cooling. ENERGY STAR-qualified models must provide a rating of at least 2.8 COP and 13 EER.

Air-Source

Air-source heat pumps use a system of coils to evaporate a refrigerant and, with it, draw heat away from a home, cooling the air. In winter the magic reverses with the flip of a valve, and your home heats.

The system delivers up to three times more heat energy than electricity consumed, but is not perfect. Air-source heat pumps often do not fare well in regions with sub-zero temperatures. A back-up system of electric resistance coils kicks-in when air temperatures dips below 40 degrees Fahrenheit, but this method of heating–similar to a toaster–isn't energy efficient, costing more to operate than traditional heating systems. Some air-source heat pump systems, notably reverse cycle chillers (RCC), offer heating alternatives to keep homes efficiently comfortable at lower temperatures–they store heat in an insulated tank of water. Others include gas-fired backup furnaces, also increasing their winter efficiency.

When shopping for an air-source heat pump, compare the seasonal energy efficiency rating (SEER) for cooling prowess, and heating seasonal performance factor (HSPF) for compressor and heating element strength. ENERGY STAR models guarantee a SEER of 12 or more and a HSPF of 7 or more. For warmer climates, SEER is more important than HSPF; in colder climates find a system with a high HSPF.

Ductless/Mini-Split

In a twist of a classic magic trick, ductwork funneling conditioned air to different rooms can cause some air to "disappear"–wasting from 15 percent to 20 percent of the energy used to heat or cool the air. While sealing air ducts and proper insulation helps, another option is to bypass ducts with a ductless version of an air-source heat pump (DHP), also called a "mini-split" heat pump.

Small and versatile, ductless heat pumps have two main parts: an outdoor compressor/condenser and one or more indoor air-handling units. These components are linked by a cable (refrigerant line). Many systems offer up to four indoor units to condition different rooms, and some systems come with wireless remotes or wall-mounted control units.

According to CRN, these devices use an estimated 50 percent to 60 percent less energy than traditional forms of heating. DHPs are ideal for room additions where duct work may not be possible, or for homes with "non-ducted" air conditioning (i.e. window units). Indoor models can be mounted in the ceiling, hung on the wall, or placed on the floor.

DHPs are costly–30 percent more expensive than traditional central air systems (not including ductwork). Installation can also be tricky–if a system is too big for the space, energy will be wasted and the correct temperature may not be reached.

Innovation Boosts Efficiency

Heat pump technology isn't new–geothermal has been used since the 1940s–but innovations are improving performance and efficiency.

Dual-source heat pumps combine geothermal systems and air-source technologies. Though not as efficient as true geothermal systems, the device costs less than putting in a geothermal system and avoids some of air-source's pitfalls during cold weather.

Another technology advancement, two-speed compressors, condition the desired amount of air (heating or cooling capacity) needed at different times–standard compressors only operate at full capacity. Having this option reduces compressor wear and saves energy.

With all heat pumps, compressor design further enhances performance–a scroll compressor offers quieter operation and provides 10 to 15 degrees Fahrenheit of warmer air in heating mode, when compared to systems with traditional piston-driven compressors.

Some heat pumps offer variable-speed or dual-speed motors for fans (indoor and outdoor) which minimizes drafts and keeps air flowing at a comfortable rate.

Saving on Systems

Although heat pumps are more expensive than traditional air conditioning, rebates and tax credits can help cut the cost. A federal tax credit equal to 30 percent of the cost for materials and installation, with no limit on total project expenses, applies to geothermal heat pumps through December 31, 2016. Butler REC members can also receive installation rebates on heat pumps and lower electric rates on geothermal heat pumps.

A list of requirements can be found at www.energystar.gov/taxcredits. To find incentives in your state, check the Database of State Incentives for Renewables and Efficiency at www.dsireusa.org.

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