

South Dakota Electric

Your Touchstone Energy® Partner 

Cooperative Connections

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**GROWING FUTURE
AG LEADERS** Pg-8



WE ALL HAVE A JOB TO DO. When it comes to using energy wisely, no job is too small. But some are pretty high up. Yet when every co-op member works together, it's a job that comes with countless benefits. Learn more about the power of your co-op membership at TogetherWeSave.com.



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Southeastern Electric, Marion, S.D.
Traverse Electric, Wheaton, Minn.
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West Central Electric, Murdo, S.D.
West River Electric, Wall, S.D.
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Efficiency Keeps Bills Affordable



Ed Anderson
General Manager, South Dakota
Rural Electric Association

Are you looking for creative ways to make ends meet in your monthly budget? Many budget-savvy consumers exercise ways to stretch every dollar, from clipping coupons and passing down clothes to shopping wherever the Co-op Connections® Card is accepted.

One potential saving hotspot is your electric bill. A few home improvements and simple changes in behavior can add up to big savings over the long run.

Your local home improvement store offers inexpensive products that can make your residence more efficient. Small foam insulators installed inside the wall plate on your outlets cut down chilly winter drafts. A few tubes of latex or silicone caulk for your windows

help hold warm air in while keeping cold winds out.

Changes in your daily routine can also translate into electric bill savings. Approximately 55 percent of the electricity used in the average home goes for heating and cooling. Did you know that the ideal winter setting for your thermostat is 68 degrees? Rather than turning up the heat on a cold day, adding a layer of clothing will keep you comfy while shaving power costs.

Ready for even bigger savings? Check your home's insulation. According to energystar.gov, the insulation in your home's attic should cover joists and be

Changes in your daily routine can also translate into electric bill savings.

evenly distributed.

It is also important to use insulation with the appropriate

R-value for your region. In South Dakota and Minnesota, R-38 to R-49 is recommended. The colder the climate, the higher the R-value you need to maximize savings.

Your local electric cooperative is a not-for-profit electric power provider. That means our mission is to provide you with the electricity you need to improve your quality of life – not turn a profit for a shareholder.

An important part of that mission entails empowering you to manage your electricity use. We want you to have more affordable power bills. It's good for everyone.

To learn how little changes can add up to big savings, visit TogetherWeSave.com or EnergySavers.gov.



S.D. Rodeo Girls Shine at NLBRA World Finals

Two South Dakota cowgirls were at the top of their sport at this summer's National Little Britches Rodeo Association World Finals.

Eleven-year-old Kaydin Davis, a sixth-grader at Dupree School, was named Rookie of the Year for the Junior Girls Division at the NLBRA World Finals where she also captured a World Champion title in barrel racing.



Kaydin Davis

Davis says barrel racing and breakaway roping are her favorite events. She is the daughter of Zach and Kim Davis who ranch between Isabel and Dupree and are members of Moreau-Grand Electric Cooperative in Timber Lake.



Taylor Engesser

Spearfish cowgirl Taylor Engesser

captured the NLBRA Senior Girls World All Around title with a total of 2,722 points during her NLBRA season. Engesser, who recently graduated from Spearfish High School, is the daughter of Punky and Shorty Engesser of Spearfish who are members of Butte Electric Cooperative in Newell. She is attending Gillette (Wyo.) College where she is a member of the rodeo team.

The National Little Britches Rodeo Association is headquartered in Colorado Springs, Colo. Each year, boys and girls ages 5 to 18 compete in one or more of about 300 franchised Little Britches rodeos held across the country. The world finals is held each July in Pueblo, Colo.

Cooking Tips for Thanksgiving Chefs

Thanksgiving is all about food and family – turkey, stuffing, sweet potatoes, pumpkin pie and family time. However, preparing holiday goodies can lead to disaster – the kitchen is the setting of more fires than any other room in the house and cooking is the leading cause of fires in the home. The American Red Cross has safety steps to use while preparing the Thanksgiving feast.

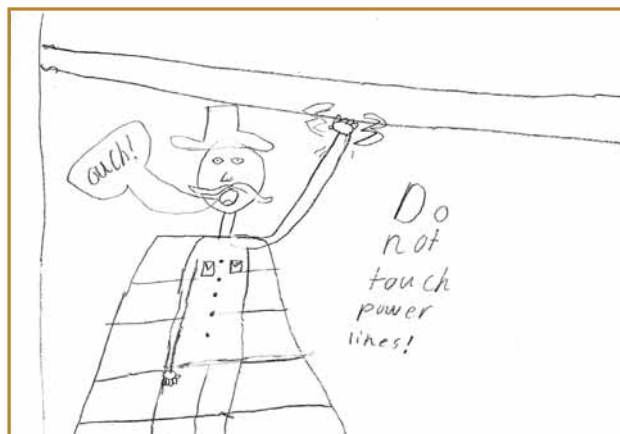
The cooks should start by not wearing loose clothing or dangling sleeves while cooking. Never leave cooking food unattended – stay in the kitchen when frying, grilling or broiling food. If someone must leave the kitchen for even a short period of time, they should turn off the stove. Other safety steps include:

- Check food regularly while cooking and remain in the home while cooking. Use a timer as a reminder that the stove or oven is on.
- Keep the kids away from the cooking area. Enforce a “kid-free zone” and make them stay at least three feet away from the stove.
- Keep anything that can catch fire – pot holders, oven mitts, wooden utensils, paper or plastic bags, food packaging and towels or curtains – away from the stove, oven or any other appliance in the kitchen that generates heat.
- Clean cooking surfaces on a regular basis to prevent grease buildup.
- Purchase a fire extinguisher to keep in the kitchen. Contact the local fire department to take training on the proper use of extinguishers.
- Always check the kitchen before going to bed or leaving the home to make sure all stoves, ovens and small appliances are turned off.
- Install a smoke alarm near the kitchen, on each level of the home, near sleeping areas and inside and outside bedrooms. Use the test button to check it each month. Replace all batteries at least once a year.

Source: www.redcross.org

Kids' Corner Safety Poster

“Do not touch power lines”



Sydney Ellingson, 8 years old

Sydney is the daughter of Brian and Tressie Ellingson, Prairie City, S.D. They are members of Grand Electric Cooperative, Bison, S.D.

Kids, send your drawing with an electrical safety tip to your local electric cooperative (address found on Page 3). If your poster is published, you'll receive a prize. All entries must include your name, age, mailing address and the names of your parents. Colored drawings are encouraged.

Wild Game



Four-Pepper Tequila Pheasant

- | | |
|---|---|
| 2 T. olive oil | 1/2 tsp. chipotle peppers,
ground to consistency of
crushed red peppers |
| 2 pheasant breasts, cut in
2-inch pieces | Pinch of ground cumin |
| 1 sliced red onion | 2 oz. tequila |
| 4 sweet bell peppers (1 red,
1 orange, 1 green,
1 yellow), sliced
julienne-style | 1/2 cup butter |
| 3 tomatoes, diced | Juice of 1 lime |
| 5 cloves garlic, minced | 1 lb. cooked pasta (fettuccine,
linguine, penne) |
| | Fresh cilantro, to taste |

Heat sauté pan on high. Add olive oil and sauté pheasant pieces; reduce heat. Add onion, peppers and tomatoes. Quickly stir-fry. Do not overcook; vegetables should be crunchy. Reduce heat; slide vegetables and pheasant to one side. Add minced garlic, chipotle peppers and ground cumin. Stir to mix. Remove pan from heat, add tequila. It will burn quickly as you deglaze the pan. Add cold butter and reduce heat. Add juice of 1 lime; stir to mix with butter. Serve over pasta. Sprinkle to taste with fresh, chopped cilantro. You can use regular crushed red pepper if chipotle peppers are not available.

Jodie Wheeler, Tea

Venison Stroganoff

- | | |
|------------------------------------|--|
| 1 lb. venison steak, cut in strips | 1/2 cup salad dressing |
| 2 T. olive oil | 1 cup cream of celery or
cream of mushroom soup |
| 1 medium onion, thinly sliced | Salt and pepper, to taste |
| 1 green pepper, cut in strips | Egg noodles |
| 1 cup sliced fresh mushrooms | |

Brown venison in olive oil. Add onions, green peppers and mushrooms; sauté until tender. Add salad dressing and soup. Season to taste. Simmer for 5 to 10 minutes. Serve over egg noodles. Sprinkle with paprika, if desired.

Carol Mizera-Amick, Lead

Pheasant Sandwiches

- | | |
|---|---|
| 3 cups cooked, chopped fine
pheasant | 1/2 cup finely chopped celery |
| 2 hard-boiled eggs, chopped fine | 2 tsp. sweet pickle relish |
| 2 carrots, grated | Salt and pepper to taste |
| 1/2 medium onion, finely
chopped | Mayonnaise or salad dressing
to blend nicely |

Mix together first 7 ingredients. Add dressing to taste; chill. Spread on sandwich bread.

WWII Pheasant Canteen, Aberdeen

Poor Man's Elk Wellington

- | | |
|-----------------------------|---|
| 2 lbs. ground elk | 2 cups shredded mozzarella cheese |
| 1 egg | 1/2 lb. shaved black forest ham |
| 1/2 cup breadcrumbs | 2 pkgs. Pillsbury Refrigerated Crescent
Dinner Rolls |
| 1 tsp. Worcestershire sauce | |
| 1/2 package onion soup mix | |

Unroll crescent rolls and press seams together. Mix elk, egg, breadcrumbs, Worcestershire sauce and onion soup mix; spread over dough. Sprinkle cheese over meat and lay thin slices of ham over cheese. Roll and pinch ends together and put on clay stone (a pizza stone will work). Bake at 375°F. for 45 minutes and let stand for 20 minutes. Slice and serve. Serves 6.

Nutritional information per serving: Calories: 492; Calories from Fat: 237; Fat: 26.4g; Saturated Fat: 11.6g; Cholesterol: 186.3mg; Sodium: 1195mg; Carbohydrates: 10.9g; Protein: 49.9g; Dietary Fiber: 1.1g; Sugars: 1.7g;

Pictured, Cooperative Connections

Pheasant Liver Pate

- | | |
|---|--|
| 1 lb. pheasant livers, about 16
"roosters" | 8 drops bottled hot pepper
sauce minimum, adjust
according to your taste |
| 1/4 to 1/2 cup chopped onion | 1/2 tsp. salt |
| 4 T. butter, divided | Dash pepper |
| 3 T. Miracle Whip | Assorted crackers |
| 2 T. lemon juice | |
| 1/2 tsp. dry mustard | |

In a skillet, cover and cook livers and onions in 2 T. butter about 5 minutes or until livers are no longer pink, stirring occasionally. Process liver-onion mixture and drippings in a food processor or blender. In a separate bowl, add salad dressing, lemon juice, 2 T. softened butter, pepper sauce, mustard, salt and pepper. Pour hot liver-onion mixture in bowl and mix well. Place in a 2-cup mold or bowl in which the bottom and sides have been greased with butter. Cover; chill for 6 hours or overnight. Serve with crackers. Try a cracker with pate, smoked oyster on top and a drop of Tabasco!

Loren Luckow, Hettinger, ND

Bacon Pheasant Wraps

- | | |
|---------------------|--|
| 2/3 cup brown sugar | 2 lbs. pheasant breast, cut into
small, square pieces |
| 1 T. chili powder | |
| 1 lb. bacon | |

Mix together brown sugar and chili powder. Roll pheasant pieces in sugar/chili powder mixture. Wrap with bacon and secure with a toothpick. Roll again in sugar/chili powder. Line a cookie sheet with aluminum foil. Bake at 350°F. for 35 minutes.

Penny Lemburg, Bison

Please send your favorite soup and bed/breakfast recipes to your local electric cooperative (address found on page 3). Each recipe printed will be entered into a drawing for a prize in December 2013. All entries must include your name, mailing address, telephone number and cooperative name.

Importance of Insulation



Jim Dulley
www.dulley.com

Dear Jim: My house is chilly and I know it needs more insulation. Will adding more make me feel warmer as well as cut my utility bills? What's the best type of insulation to use for this and a new room addition? – Sandi H.

Dear Sandi: It is generally understood that adding insulation to the walls or ceiling of a house will reduce monthly utility bills. The actual amount of savings for each home depend upon several

factors – the current level of insulation, your climate, efficiency of your heating/cooling system and your utility rates.

The current level of insulation is perhaps the most important factor in deciding whether or not to add more and how much. For example, doubling the amount of insulation in your attic will typically cut the heat loss through the room ceiling by about half. Your contractor can help you determine the payback from the savings as compared to the installation costs.

If you double that amount again and super-insulate the attic floor, it will cut the original heat by only another 25 percent (half of half). This diminishing return is important to keep in mind when determining the amount of insulation to add.

Various types of insulation can be used to reduce conductive heat loss and/or radiant heat loss. Standard fiberglass batts, blown-in fiberglass, cellulose, rock wool, foam – all are used to block conductive heat loss. This is the kind of heat transfer that travels through materials, such as drywall, studs, bricks, etc.

Radiant heat transfer is the way the sun heats the Earth or how you feel heat standing next to a raging fireplace even though the hot air is going up the chimney. Your house also loses heat to the cold outdoor air and nighttime sky by this method. Radiant barrier types of insulation, often an aluminum foil film, are effective for blocking this heat loss. Some standard insulation batts include a foil facing to reduce both types of heat loss.

You must have been doing your research on insulation because it will also make you feel more comfortable. If you are in a room at 70 degrees with little wall insulation, you may still feel chilly. This is because the exterior walls are cold and your body is losing its warmth by radiant heat transfer to the walls. During the summer, a hot wall makes you feel uncomfortably warm.

There really is not one “best” insulation to use in all locations in your house. For example, some effective attic insulation will settle if it is used in vertical walls. Even if there is just

a slight amount of settling, the relatively small uninsulated void in a wall will lose a lot of energy.

What is important when selecting insulation is its installed R-value, not just its thickness. Some types of insulation have twice the R-value per inch thickness as others. Also, blown-in insulation can be fluffed up when installed, not necessarily intentionally, resulting in less true R-value. Make sure your insulation contract specifies the final insulation value, not just the thickness.

Since you are planning to insulate your house to save money and conserve energy, you might consider an environmentally friendly insulation made of recycled materials. One good insulation is made from scrap blue jean material production. It looks similar to chopped up blue jeans in batt form. It is treated for fire safety and has an insulating R-value similar to fiberglass batts.

Fiberglass is made basically from sand so there plenty supply. Some manufacturers use 25 percent recycled glass, so check the packaging if you prefer recycled products. Rock wool insulation is made primarily from waste products. It and fiberglass have an insulation value of about R-3 per inch thickness.

The actual amount of savings for each home depends upon several factors – the current level of insulation, your climate, efficiency of your heating/cooling system and your utility rates.

If the amount of space available for the insulation is limited, as in a masonry wall, injected foam is a good option. Some polyurethane foams have an R-value twice that of fiberglass, so only half the thickness is needed. The closed cell foam also creates its own vapor barrier and stops air leaks. Looks for foam which uses no ozone-layer-damaging foaming agents.

Another option to minimize voids is called a blown-in-blanket method which will work well for your room addition. First a special film is stapled up over the wall studs. Next, loose-fill insulation is blown into the wall cavity to eliminate all voids. Then it is smoothed out through the film and the drywall is nailed over it. Another similar system adds some binders to the insulation to reduce settling over time.

The following companies offer insulation materials: Bonded Logic, 480-812-9114, www.bondedlogic.com; Certainteed, 800-782-8777, www.certainteed.com; Icynene, www.icynene.com, 800-758-7325; Johns Manville, 800-654-3103, www.jm.com; and Owens Corning, www.owenscorning.com.

Have a question for Jim? Send inquiries to: James Dulley, *Cooperative Connections*, 6906 Royalgreen Dr., Cincinnati, OH 45244 or visit www.dulley.com.

MTI Thanks Co-op Leader

Wayne Sterkel, manager of Lacreek Electric, Martin, S.D., recently retired from the Mitchell Technical Institute Power Line Construction and Maintenance advisory board, a position he served in for 18 years. Sterkel's expertise in the power line field was instrumental in helping to make the program what it is today. Sterkel also led an effort to help raise funds to develop the utility field at MTI and provide money for equipment upgrades.



MTI Power Line department head Mike Puetz recently traveled to Martin to personally thank Sterkel for his service and dedication to MTI. On behalf of the Institute and the other program instructors, Jerry Ehlke, Tom Osborne and Gary Trisco, Puetz presented Sterkel with a unique wood sculpture depicting a power pole and transformer.

Sterkel's seat on the board will be filled by Matt Hotzler, manager at H-D Electric, Clear Lake, S.D.

Electric Co-ops Decry 'All-But-One' Energy Policy

Jo Ann Emerson, CEO of the National Rural Electric Cooperative Association (NRECA), released the following statement in response to the testimony of U.S. Environmental Protection Agency (EPA) Administrator Gina McCarthy before the U.S. House Energy and Commerce Committee on Sept. 18, 2013. McCarthy outlined the Administration's proposed regulations governing carbon dioxide emissions from new power plants.

"NRECA and its member co-ops are disappointed to learn that the Administration has abandoned its "all-of-the-above" energy strategy and embraced an "all-but-one" approach that restricts the future use of coal to generate affordable electricity. The anticipated regulations are reported to require any new coal-burning facility to capture and store carbon dioxide, a prohibitively expensive technology that is not commercially viable.

"In doing so, the Administration is gambling with the economic well-being of future generations and our nation's economy. As not-for-profit, consumer-owned utilities, electric co-ops are deeply concerned about maintaining affordable, reliable electricity. It's worth noting that residents of rural communities already spend more per capita on energy than anywhere else.

"NRECA urges the Administration to reconsider this proposal and focus on work-

ing with co-ops as we continue to reduce power plant emissions, increase efficiency and develop affordable new technologies. Together, we can improve both the environment and the quality of life for future generations."



Jo Ann Emerson

Electric cooperative members may comment on the EPA's approach through the Cooperative Action Network, www.action.coop.

NRECA represents the nation's more than 900 private, not-for-profit, consumer-owned electric cooperatives, which provide service to 42 million people in 47 states.

TOP 4 FACTS

ABOUT THE EPA'S NEW CLIMATE REGULATIONS

1.

ABANDONS ALL-OF-THE ABOVE
The Administration is reversing course: ditching our All-of-the-Above energy strategy for an All-But-One approach that bans new coal plants.
2.

TECHNOLOGY GAMBLE
New regulations essentially require technology that's **not commercially viable and prohibitively expensive**—leading to higher bills down the line.
3.

LIMITS ACCESS TO AFFORDABLE, DOMESTIC ENERGY
By banning new coal plants, Americans forfeit a **236-year domestic source of energy** with a historically stable price.
4.

HISTORY REPEATS: ALL-BUT-ONE DOESN'T WORK
A 1978 mandate prevented use of natural gas & forced utilities into coal or nuclear—before common sense prevailed and it was repealed 9 years later.

Cultivating Ag Leaders

“This unique program is designed to provide leadership training to rural residents.”

FOR THE PAST 14 YEARS, SOUTH DAKOTA Agriculture and Rural Leadership has been gathering some of the state’s best current and future ag leaders.

The program’s vision states, “To ensure that the South Dakota rural and agricultural communities can keep pace with the rate of change, it is imperative that we continue to supply informed, decisive, communicative spokespersons to represent our industry and communities, keeping the public factually informed, as policies are constructed and decisions are made. To address these needs, SDARL provides an intensive study and training experience for future agricultural leaders of South Dakota.”

Formed in 1999, SDARL is dedicated to identifying and developing leaders in agriculture and

rural communities. This unique program is designed to provide leadership training to rural residents from farming, ranching, agri-industry and agricultural organizations. The goal is to assist program participants in gaining the vision, knowledge, confidence and commitment necessary to assume leadership roles in South Dakota’s agricultural industry.

Among the more than 200 participants of the program have been several current and former state legislators as well as electric cooperative directors and employees. Two South Dakota Secretaries of Agriculture – current secretary Lucas Lentsch and his predecessor, Walt Bones – were members of the second class.

by Brenda Kleinjan



Each SDARL class is comprised of approximately 30 individuals from a variety of locations and occupations who are actively involved in production ag or in agribusiness. They have all demonstrated past leadership, a thirst for additional learning and a willingness to serve.

Among members of SDARL Class VII is Ted Smith, Director of Engineering and Operations at Sioux Valley Energy in Colman, S.D., who was selected from among 40 applicants for a place in the class.

"I became involved with SDARL to make myself more knowledgeable in how agriculture contributes to our economy. A side thought was to be more educated in the good things that everyone is doing in agriculture. You hear the negative things from activists and it is up to those of us that are close to agriculture to tell the correct story," said Smith. "As our population gets more and more removed from the rural areas it is important that they know the truth about where their food comes from...and not what the activists would have them believe."

Class VII was announced in May 2012 and began meeting in November 2012 in Chamberlain. They followed up with sessions in Brookings, Pierre, Rapid City, the Black Hills and Sioux Falls, with sessions covering leadership, communication, government, looks at specific ag industries and biotechnology. Future in-state sessions are scheduled for the Cheyenne River Reservation, the Aberdeen/Milbank area and Huron/Mitchell before wrapping up their experience in Chamberlain in April 2014.

"The networking that goes on with our classmates during our session and with alumni after the sessions are over is the biggest pleasant surprise of SDARL," said Smith. "The sessions themselves are great but you pick up so much from your classmates and alumni when visiting about the sessions after the fact," said Smith.

The group went to Washington, D.C., in February 2013 for its National Study seminar and is scheduled to travel to South America to visit Chile and Peru in February 2014.

"To date, the session in Pierre and the session in Washington, D.C., were the most rewarding sessions," said Smith. "Knowing what goes on in these areas is everyone's responsibility."

Smith noted that all the sessions have been beneficial.

"I pick up something in every class that I am able to apply in my job. There are sessions on effective writing, giving speeches, leading a team and the list goes on and on...I get something from every session that I am able to implement almost immediately," Smith said.

Applications for Class VIII will be taken during the first quarter of 2014 with a class start date of November 2014.

"I believe this will be one of the most rewarding programs that you will ever be involved with. You won't regret applying for this," said Smith.

For more information on SDARL, visit <http://sdarl.org/>

MARL Grows Minnesota Ag

The Minnesota Agriculture and Rural Leadership program is a leadership development program for active and engaged adult agricultural and rural Minnesota. The MARL Program was created, designed, and is delivered to facilitate the development of the skills of people working on a daily basis to tackle the challenges and realize the opportunities of today as well as those that will present themselves tomorrow – agricultural and rural leaders in Minnesota. MARL identifies three main benefit areas of the program:

Economically: A business idea remains just an idea until a leader grabs it and runs with it. The MARL Program will give leaders access to the tools needed to reach the goal line.

Politically: Population shifts are redefining the face of politics. The MARL Program will prepare our leaders to more effectively participate in all aspects of politics and advance our interests.

Socially: Leaders, regardless of their skill level, are mentors to the people with whom they associate. By developing our top leaders, the MARL Program will raise the level of performance of the entire rural community.

Every two years, approximately 30 participants are selected for the program, with the goal of having two-thirds of participants active in production agriculture. The remaining third are business, civic, government and organization leaders in agriculture and rural Minnesota.

Participants take part in nine in-state seminars, a national study tour and an international study tour. The in-state seminars are held throughout Minnesota and the national tour lasts up to a week in Washington, D.C., the longer, international study tour, is up to two weeks long.

The MARL experience is designed to deliver leadership development in context. It features personal skill-building and leadership study delivered in academic and outside settings.

The MARL program is organized within the Southwest Minnesota State University Foundation at Marshall.

New MARL cohort classes begin in even-numbered years. In those years, applications are taken in the first three months, then candidates are interviewed and participants are selected in the spring with the seminars beginning in November.

For more about MARL, visit <http://www.smsu.edu/marl/>



The Smart Grid Grows Up

By Reed Karaim

WHEN YOU'RE YOUNG, LOTS OF CAREERS LOOK appealing. It's hard to sort out what makes the most sense to pursue. In many ways, the idea of a "smart grid" was like that in its earliest days: so many possibilities, so much to explore.

Today, the advanced technologies that make the smart grid possible have been around for a while. The smart grid is maturing and its future is becoming clearer.

In the beginning, many experts felt the smart grid would revolve around enhancing consumer efficiency. There was talk about smart chips in every home appliance enabling the devices to control themselves in response to changing conditions on the power grid and real-time monitoring systems would encourage homeowners to save power. Today, the picture looks different.

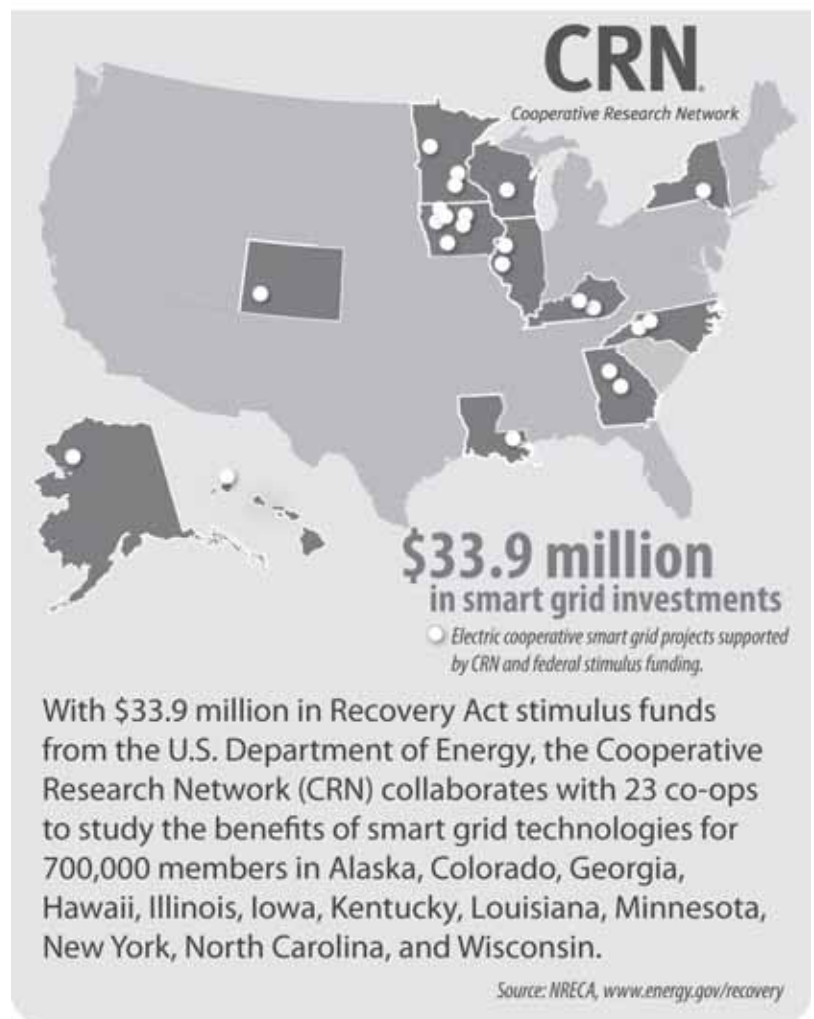
"Obviously, home energy efficiency had a large role in the smart grid as it was originally envisioned, says Craig Miller, chief scientist for the National Rural Electric Cooperative Association, which represents more than 900 not-for-profit co-ops nationwide. "Now, that's not seen as a particularly challenging area. Appliances hitting the market are much more efficient – you

can't buy a new inefficient appliance anymore."

As a result, the brightest possibilities have moved out of the household and onto distribution and even transmission lines, according to Miller. "Across the nation, utilities are modernizing electric distribution systems by deploying advanced communications and

The smart grid is maturing, and its future is becoming clearer.

Cooperatives Building a Smarter Grid



Right: This map showcases the 12 states where the Cooperative Research Network is testing smart grid technologies. Source: NRECA

automation technologies – including two-way digital meters – to improve reliability, increase efficiency and help control electricity costs for consumers,” Miller remarks. “The smart grid at its core provides electric co-ops a better idea of what’s going on out on their lines and a better means of troubleshooting issues.”

In substations, for example, the ability to switch quickly and efficiently between feeder lines, which carry power to consumers, can maintain system stability, reducing outages and costs. “Automatically controlled smart feeder switching is a big area,” Miller notes.

Electric cooperatives are finding innovative uses for those capabilities. Snapping Shoals Electric Membership Corporation, based in Covington, Ga., employs smart switching to prioritize the flow of power to critical accounts like hospitals and fire and police stations following service interruptions, such as those caused by a storm.

Automated equipment also lets co-ops cut line losses through efficient management of voltage levels from the beginning to the end of a line. “Basically, every volt reduced at a substation translates into a 1 percent reduction in peak demand – the electric utility industry’s equivalent of rush-hour traffic, when power costs run the highest,” Miller explains. “It’s just one way the smart grid helps co-ops meet rising consumer expectations regarding reliability and costs – bolstering the commitment to service that’s at the heart of the member-co-op relationship.”

Smart technology is also making America’s transmission lines more efficient. Transmission cables are sized to carry a certain amount of energy, but that can be affected by a variety of factors, including weather. To be safe, transmission systems assume the lowest capacity on any line. But through dynamic line rating, utilities can look at what the real capacity is at any given moment and adjust accordingly.

“This offers tremendous potential to make the nation’s grid more efficient and reliable, saving consumers billions of dollars down the road,” Miller comments.

A national push to get smart

In 2009, the federal government made a big push to expand the smart grid by handing out grants through the \$821 billion stimulus bill. As always, electric co-ops, long recognized as industry trailblazers in crafting cutting-edge ways to boost service and reliability while keeping electric bills affordable, led the way.

More than 50 cooperatives and public power districts in 15 states captured \$215.6 million in smart grid investment and demonstration grants, amounts that were matched with local

funds. In a key effort, the Cooperative Research Network (CRN), an arm of NRECA, was awarded \$34 million for half of a \$68 million ground-breaking, coast-to-coast initiative under which 23 cooperatives in 12 states are studying more than 225,000 smart grid components.

Results are coming in, according to Tom Lovas, a CRN contractor. Even though final conclusions won’t be ready for a few months, some insights are already clear.

One is the critical role played by two-way communications in smart grid schemes. Co-ops have found handling the vast amounts of data being generated – as much as 10,000 times more – necessitates a careful reworking of their communication networks.

“Every smart grid project has, at its heart, a communications project,” Miller stresses.

Another significant finding concerns the prepaid metering systems some cooperatives have implemented. These programs, by allowing members to pay for electricity in advance, requires them to track power consumption on a home display and adopt wiser energy use patterns to avoid going over the prepaid amount.

“That’s been really surprising, the popularity of prepaid offerings,” Miller says. “I think you’re seeing the smart grid, in that mechanism, reaching into behavior and producing more knowledgeable consumers.”

Moving to a Smarter Future

One of the stimulus-funded projects Miller sees as the most interesting was launched by Great River Energy, a generation and transmission (G&T) cooperative based in Maple Grove, Minn., and two of its North Star State member distribution co-ops, Lake Region Electric Cooperative in Pelican Rapids, and Minnesota Valley Electric Cooperative in Jordan.

In 2012, the three cooperatives were awarded a \$2.5 million grant that makes it possible for Great River Energy to monitor what’s happening on individual household meters, fostering a new level of demand response and load control. “You see distribution cooperatives and their wholesale power suppliers starting to share data in real time,” Miller points out. “That’s tremendously exciting.”

It’s all part of an evolving smart grid, a process that Miller argues will only accelerate as time goes on. To stay abreast of the latest smart grid developments visit www.smartgrid.gov.

Sources: Cooperative Research Network Reed Karaim writes on consumer and cooperative affairs for the National Rural Electric Cooperative Association, the Arlington, Va.-based service arm of the nation’s 900-plus consumer-owned, not-for-profit electric cooperatives.

What is the Smart Grid?

Although there are hundreds of ways to describe what constitutes a smart grid, all center around technologies and tools that help electric utilities better meet consumers’ needs reliably and affordably. This is chiefly accomplished by allowing utilities to more effectively monitor demand and system conditions on a near real-time basis.

The smart grid combines digital meters and automated equipment, software applications and two-way communications that help utilities to track the flow of electricity with great precision; pinpoint outages; identify voltages out of permitted ranges; and transmit messages to transformers, capacitors, circuit breakers and other distribution equipment to initiate diagnostic or corrective (self-healing) actions that can isolate, reroute power around or even remotely repair the cause of a power interruption. Utilities can also record consumer electric use in various time intervals, communicate that consumption data among authorized staff and provide consumers with hourly or more frequent power pricing information so they can respond to changing electricity needs.

The U.S. Department of Energy lists seven functions of a smart grid: enabling informed participation by consumers; accommodating all generation and energy storage options; creating new products, services and markets; delivering power quality for the range of needs in the 21st century; optimizing asset utilization and operating efficiency; addressing disturbances – automated outage prevention, containment, and restoration; and operating resiliently against physical and cyber attacks and natural disasters.

Talking Turkey About LED Lighting

THERE'S AN INCREASING CHANCE THAT THE HOLIDAY bird your family will enjoy this Thanksgiving had its way lit by high-tech lighting.

A handful of turkey farmers in Minnesota are participating in a pilot program to make their operations – including lighting – more energy efficient.

Minnesota is the No. 1 turkey production state in the United States, raising approximately 48 million turkeys in 2008.

In 2007, state lawmakers passed the Energy Independence and Security Act which will require the implementation of high performing lighting technologies across all industries. This caused the state's poultry producers to look for alternative options to incandescent lamps to maintain safe and productive growing conditions in their facilities.

Challenges for the producers looking for alternatives to the traditional incandescent lights were

with the durability of compact fluorescent lights (CFLs) in harsh farm environments and the cost of installing light emitting diode (LED) bulbs without knowing how durable and effective the LEDs would ultimately be.

Enter The Minnesota Project's Clean Energy Program.

The Minnesota Project is a St. Paul, Minn., non-profit whose mission is to promote the sustainable production and equitable distribution of energy and food in communities across Minnesota.

The Minnesota Project used a Conservation Applied Research and Development (CARD) grant from the Division of Energy Resources at the Minnesota Department of Commerce to launch a pilot project to measure the energy savings, performance and durability of LED lighting technologies designed specifically for poultry projects.

By Brenda
Kleinjan



Producers participating in the study receive a cost share on the lamps as well as a discount from the project partner, Once Innovations, Inc., of Plymouth, Minn. Once Innovations manufactures specially-designed LED lamps which allow for color temperature adjustments and variations of light intensity at different times in the poultry production cycle.

The study will document the energy use and performance of the newly-installed LED lighting systems in barns across the state to determine energy savings potential and to evaluate the dependability of LED technology for both producers and electric utilities.

Poultry operations – including those raising turkeys – require lighting systems which allow the poultry to live in optimum growing environments. The birds respond to various changes in color, intensity and length of lighting exposure.

Once Innovations has two lamps that are used in different areas of turkey operations. In one area, a 12-watt bulb can replace a 100-watt incandescent and in another area, a 3-watt LED can replace a 25-watt incandescent.

Given that there are 250 turkey farmers in the state operating about 600 different turkey farms, the impacts of the research could be sizeable. Producers involved in the study light their barns at 100 percent light intensity from 12 to 18 hours a day.

One of the first five participants in the turkey study is western Minnesota turkey farmer Dennis Buysse who is a member of Minnesota Valley Electric Cooperative in Montevideo, Minn.

Buysse was the first producer in the project to instal LED lamps in a brood barn where turkeys spend their first six weeks. His 80-foot by 208-foot brood barn, which houses up to 40,000 birds, is lit by 36 CFL bulbs and 36 LED bulbs. The lights are controlled by different switches, allowing him to vary his lighting program.

According to initial findings by The Minnesota Project, Buysse had more than 8,300 lighting hours a year, but saw his lighting energy use fall by half, dropping from .936 kilowatts to .432 kilowatts, resulting in a savings of nearly 4,200 kilowatt hours a year.

Shining a Light on LEDs

LED lamps and fixtures installed in the United States have increased tenfold over the last two years – from 4.5 million units in 2010 to 49 million units in 2012. These installations, which include common indoor and outdoor applications such as recessed lighting and streetlights, are expected to save about \$675 million in annual energy costs.

During the same period, the cost of an LED replacement bulb has fallen by about 54 percent. Switching entirely to LED lights over the next two decades could save the United States \$250 billion in energy costs and reduce electricity consumption for lighting by nearly 50 percent.

By 2030, LED lighting is projected to represent about 75 percent of all lighting sales, saving enough energy to power approximately 26 million U.S. households.

Source: U.S. Department of Energy

Farm Lighting Systems Advance with LEDs

By Brian Sloboda and Martha Carney, CRN

One of the biggest developments in lighting our homes, businesses, and streets involves the use of light emitting-diode (LED) technology. LEDs convert electricity directly into bright, white light far more efficiently than other lighting options, and farmers are taking notice.

Farms pose unique challenges for lighting. Harsh environments — excessive dirt, dust, heat, humidity, and ammonia emissions — impact lightbulb performance. To date, conventional light sources have not been able to successfully address these challenges.

LEDs may offer a robust, environmentally sustainable, and potentially longer-lasting solution. Even better, since light from LEDs can be manipulated, the technology may be able to improve production.

Hundreds of LED fixtures being tested at roughly 50 farms across rural America — several of which involve or are led by electric cooperatives — save on energy and maintenance costs. Savings are highest when lights operate as long as manufacturers' claims. With a rated life of 35,000 to 50,000 hours, LEDs can last up to 33 times longer than traditional incandescent bulbs, four to eight times longer than linear fluorescent bulbs and compact fluorescent lamps, and more than twice the time of high-intensity discharge lamps.

LEDs are more expensive than traditional lighting, but the U.S. Department of Energy reports a price drop of 54 percent over the last two years. LEDs offer farmers several attractive attributes, including:

- Rugged and vibration-resistant construction
- Directional lighting results in less wasted light
- Customizable colors (for example, blue light for calming)
- Dimmable capabilities and integration with lighting controls programmed for maximum production
- No mercury content or waste disposal costs
- Water- and ammonia-resistant lamps can be hosed or foam-cleaned without fixture damage

While assessment continues, many claims about LED farm performance are anecdotal, not yet backed by statistically sound science. Preliminary results imply promising and significant energy savings and hint at production boosts.

Farmers can remain cautiously optimistic that research and LED companies will be able to create lighting that is cost effective, long-lasting, and has a positive impact on animal health and well-being.

Learn more about farm and home lighting options at energy.gov/lighting. Want more ways to save on the farm? Use the animal housing, irrigation, nitrogen, tillage and grain drying energy calculators at EnergyTools.sc.egov.usda.gov.

CRN

Cooperative Research Network

As the research and development arm of the National Rural Electric Cooperative Association, CRN pursues innovative solutions that help electric cooperatives deliver safe, reliable and affordable power to their consumer-members.

Dry Fork Station Up and Running

WHEN YOU LOOK AT A POWER PLANT, THE THINGS that stand out to you depend on who you are and what you do.

If you've never seen a power plant before, you might first notice the chimney or stack. Or maybe the color.

If you know your way around a power plant, you might see that this one uses an air-cooled condenser rather than a cooling tower. And, maybe you'll notice the color.

But just looking at a power plant, you don't actually see the thing that matters most.

The Dry Fork Station, Basin Electric's first coal-based power plant to begin operation in 25 years, generates enough electricity to power about

300,000 homes as a baseload resource – 24 hours a day, seven days a week.

The ability to generate electricity like that isn't common today.

But when Basin Electric's board of directors approved the new power plant in 2004, the cooperative membership needed an additional constant stream of electricity they could count on.

The Dry Fork Station, near Gillette, Wyo., fueled by sub-bituminous coal from the Powder River Basin's Dry Fork Mine, cost about \$1.35 billion to build. But its benefit to the co-op members in the nine states served by Basin Electric members will be a legacy felt for decades.

By Tracie
Bettenhausen
Basin Today



From need to speed

Every two years, Basin Electric completes a load forecast to identify how much electricity the membership may need over the next 10 years.

According to a story published in the March-April 2005 issue of *Basin Today*, by the time the Basin Electric board came to its decision to build the Dry Fork Station, staff had been studying the project for four years, evaluating options for transmission access, air permitting, water availability and fuel supply.

The location for the plant was chosen to implement the mine-mouth model of operation. Also, Basin Electric is part owner of the Dry Fork Mine.

Construction began Oct. 17, 2007. During the groundbreaking ceremony on Nov. 2, scrapers ran across the plant site, eventually moving more than 1.5 million cubic yards of soil.

Now retired, Vice President of Coal-Based Resources Clyde Bush said, "There's been a lot of sweat equity from a lot of good people."

One of the cleanest in the country

The perspiration didn't stop once ground was broken.

The team, made up of not only Basin Electric staff, but a massive contractor force as well, continued construction and commissioning for more than three years. The plant site reached a peak construction work force of more than 1,300 construction workers, ranging from basic labor to skilled tradesmen, in September 2009. The men and women who built the plant came from more than 40 states.

The work force was building one of the cleanest coal-based power plants in the country. More than \$336 million has been invested for environmental controls and about \$5 million will be spent every year to operate those controls.

One of those is the reflux circulating fluid bed dry scrubber, which removes sulfur dioxide emissions. It's designed by Graf Wulff, a German company, and is the largest of its type in the nation.

"This air quality control system is state of the art for plants of this type in the United States," said Mike Massey, Dry Fork Station project manager.

"We think we have advanced the ball past what has been done frankly anywhere else in the world with the selection of the scrubber," Bush says. "That scrubber showed very favorable results for a mine-mouth operation. What we were interested in was securing what we called the 'Porsche' of a scrubber, which was a scrubber that could respond to the immediate change in coal quality.

Since this is a mine-mouth plant, there is no stockpile or significant blending capabilities. What is mined in the middle of the night will get burned later that same day."

The amount of water used is important in a dry climate. The air-cooled condenser is the first application of this technology in Basin Electric's generating fleet. Plant Manager Tom Stalcup says other plants use cooling towers, which cool steam using evaporation.

"The Dry Fork Station needs to use water very efficiently.

We have to use deep wells for our water. We don't have rivers or lakes or a source of water other than deep wells." A plant with an air-cooled condenser uses one-tenth of the water used at plants which use other methods for cooling.

Other environmental controls at the plant include selective catalytic reduction, over-fire air and low-NOx burners to control emissions of oxides of nitrogen, activated carbon injection to remove mercury emissions and a baghouse to remove fly ash.

Small thumbprint

The permitting process was rigorous, according to Bush. "In regards to the air permit, we modeled the emissions projected from the plant and looked at potential impact in all directions," Bush says. "The Wyoming Department of Environmental Quality did extensive review of our application and modeling and approved the permit for the plant in October 2007."

Project planners also worked to alleviate the impact on the local community. Housing, health care and education in the area were studied. "Securing adequate, affordable housing for the influx of the construction work force was the primary concern," Bush says

Staff worked with a neighboring coal mine to refurbish a retired mobile home park for workers bringing their personal RVs to Gillette. The park provided 175 RV spaces.

An apartment developer agreed to support the project's worker housing needs by offering a number of apartments on a take-or-pay basis, which helped facilitate better financing. Also, staff negotiated with regional motels to put into place

long-term rental agreements. "Basin Electric, from the very beginning of the organization, has always kept a strong commitment to the local area in which it operates. It's kind of the way we do business," Bush says.

Today, as the plant becomes operational, the impact continues, but it's all positive. "We have 83 full-time employees that use all the services in Gillette, in Campbell County and the region. With 83 employees, they buy groceries, they shop retail, they have kids that play sports, they're in the local school system," Stalcup says. "Dry Fork Station provides a steady stream for the economy."

Wyoming Municipal Power Agency has a 7.1-percent ownership share of the

plant. Larry LaMaack, executive director of WMPA, says the agency's share of the output will be combined with other projects, like Laramie River Station in Wheatland, Wyo., to meet the needs of eight member cities and towns.

"It truly is a source of pride for us. It's an opportunity to participate in a project where we're using Wyoming resources and developing them for the people of the state of Wyoming."

Whether you're getting your first look at Dry Fork Station or you've been following its progress for years, one thing rings true. It's a stable energy resource for Basin Electric's membership. It was built under strong cooperative ideals and will operate with the highest standards and best technology available.

Dry Fork Station Facts

Located 7 miles north of Gillette, Wyo., the Dry Fork Station is a new coal-based electric generation power plant owned by Basin Electric Power Cooperative (92.9 percent) and the Wyoming Municipal Power Agency, Lusk, Wyo. (7.1 percent).

Design capacity of Dry Fork Station is 422 megawatts (MW); however, the maximum net generation is estimated to be 385 MW. One megawatt of capacity is generally considered to be sufficient electric power for 800 homes, so the Dry Fork Station's output would theoretically provide enough electricity for 308,000 homes.

Regional Dateline

October 18-20

SDRA Finals Rodeo
 James Kjerstad Events Center
 Rapid City, SD, 605-529-5107

October 19

Arts and Crafts Festival
 Faulkton, SD, 605-598-676

October 19

SACOTA Craft Fair
 Wessington Springs, SD
 605-539-1515

October 20

Korczak Ziolkowski
 Remembrance Day
 Crazy Horse, SD
 605-673-4681
www.crazyhorsememorial.org

October 20

Moments to Cherish Fall
 Bridal Show, Brookings, SD
 605-692-7539

October 25

Hairball in Concert
 Brookings, SD, 605-692-7539

October 25-26

Black Hills Grand Outdoors
 Sports and Recreation Show
 Deadwood, SD, 605-559-1187
deadwoodmountaingrand.com

October 25-26

Deadweird, Deadwood, SD
 800-344-8826

October 25-27

Autumn Festival
 An Arts and Crafts Affair
 Sioux Falls, SD, 402-331-2889
www.hpifestivals.com



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To have your event listed on this page, send complete information, including date, event, place and contact to your local electric cooperative. Include your name, address and daytime telephone number. Information must be submitted at least eight weeks prior to your event. Please call ahead to confirm date, time and location of event.

Events of Special Note

November 7-9

Ringneck Festival &
 Bird Dog Challenge
 Huron, SD, 605-352-0000
www.huronsd.com

November 8-9

Paralyzed Veterans of
 America Pheasant Hunt
 Platte, SD, 605-337-2170
www.plattedsd.org

October 26-27

Annual Gun Show
 Mitchell, SD, 605-268-0254
www.dtgca.net

November 1-2

PRCA First Chance
 Bonanza Rodeo
 Brookings, SD, 605-692-7539

November 8

Hairball in Concert
 Deadwood, SD, 605-559-1187
deadwoodmountaingrand.com

November 9

9th Annual Holiday
 Shopping Extravaganza
 Mitchell, SD, 605-996-8563

November 9

Area Merchants Holiday
 Open House, Sisseton, SD
 605-698-7425

November 9-10

Quilt Show 2013
 "Dakota Pieces XII"
 Sioux Falls, SD, 605-367-4100

November 15

Bill Burr in Concert
 Deadwood, SD, 605-559-1187

November 16

Fall Buffalo Auction
 Custer, SD, 605-255-4515
www.gfp.sd.gov

November 22

Rodney Carrington in Concert
 Deadwood, SD, 605-559-1187
deadwoodmountaingrand.com

November 22-23

Holiday Arts Christmas
 Craft Show, Mitchell, SD
 605-248-2526

November 23

Area Seed Stock Pen
 Expo & Cattle Dog Trial
 Platte, SD, 605-337-2275
www.plattedsd.org

November 23

Craft Show, DeSmet, SD
 605-854-9309
www.desmetsd.com

November 23-24

Winterfest, Aberdeen, SD
 605-226-1557
www.aberdeen.sd.us

November 26-December 28

Christmas at the Capitol
 Pierre, SD, 605-773-4010

November 29

Annual Holiday Open House
 of the SD State Historical
 Society Pierre, SD
 605-773-6000

November 29

Olde Tyme Christmas/
 Dickens Celebration
 Hill City, SD
 605-574-2368

November 29-December 31

Annual Train Show and
 Christmas Celebration
 South Dakota State
 Railroad Museum
 Hill City, SD
 605-574-9000