

# South Dakota Electric

Your Touchstone Energy Partner 

## Cooperative Connections

SEPTEMBER 2013 VOL. 65 NO. 9



# AN ENERGY POWERHOUSE

Pg. 8

# THERE'S SOMETHING TO BE SAID ABOUT STAYING IN THE SAME NEIGHBORHOOD.

## HOUSE

1936.....\$3,925  
2013.....\$313,700

INCREASE.....80X

## ELECTRICITY

1936..... 5¢  
2013..... 11¢

INCREASE.....2X

BASED ON AVERAGE COST PER KILOWATT HOUR



Over the past 75 years, the price of a home has increased dramatically. But we've helped to ensure that the price of electricity has barely moved. Learn more about the power of your co-op membership at [TogetherWeSave.com](http://TogetherWeSave.com).



**BASIN ELECTRIC  
POWER COOPERATIVE**

A Touchstone Energy® Cooperative 

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Black Hills Electric, Custer, S.D.  
Bon Homme Yankton Electric, Tabor, S.D.  
Butte Electric, Newell, S.D.  
Cam Wal Electric, Selby, S.D.  
Central Electric, Mitchell, S.D.  
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Cherry-Todd Electric, Mission, S.D.  
Clay-Union Electric, Vermillion, S.D.  
Codington-Clark Electric, Watertown, S.D.  
Dakota Energy, Huron, S.D.  
Douglas Electric, Armour, S.D.  
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Grand Electric, Bison, S.D.  
H-D Electric, Clear Lake, S.D.  
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Lacreek Electric, Martin, S.D.  
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Northern Electric, Bath, S.D.  
Oahe Electric, Blunt, S.D.  
Renville-Sibley Co-op Power, Danube, Minn.  
Rosebud Electric, Gregory, S.D.  
Rushmore Electric, Rapid City, S.D.  
Sioux Valley Energy, Colman, S.D.  
Southeastern Electric, Marion, S.D.  
Traverse Electric, Wheaton, Minn.  
Union County Electric, Elk Point, S.D.  
West Central Electric, Murdo, S.D.  
West River Electric, Wall, S.D.  
Whetstone Valley Electric, Milbank, S.D.  
City of Elk Point, S.D.

*South Dakota Electric Cooperative Connections* is published monthly for \$6 annually for member cooperatives, \$12 annually for non-members by South Dakota Rural Electric Association, 222 W. Pleasant Drive, Pierre, S.D. 57501. Correspondence to: Editor, *South Dakota Electric Cooperative Connections*, PO Box 1138, Pierre, SD 57501; telephone (605) 224-8823; fax (605) 224-4430; e-mail editor@srea.coop

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TDG Communications, Deadwood

# Connecting Farmers to the Future

**America's farmers help feed** the world and support America's economy.

That's why South Dakota's electric cooperatives are proud to help farmers run the most efficient operations possible. From irrigation and motor efficiency to lighting choices, electric cooperatives are testing new technologies and developing programs to support agricultural members.

More than 50 field tests are under way across the country to explore the benefits of light-emitting diode (LED) technology, the next wave of lighting innovation.

LEDs have been found in stoplights, exit signs, and nightlights for some time, but only recently have the ultra-efficient, ultra-rugged lamps been tried in barns and other farm buildings. LEDs are still pricey to purchase, but over the past two years the U.S. Department of Energy tracked a 54 percent price cut. LEDs also offer longer lifespans and use a fraction of the energy consumed by traditional commercial lighting systems. For example, if an LED lasts 10 years, experts expect payback to be only five years, thanks to energy and maintenance cost savings.

Electric co-ops also offer energy-saving programs for farms, often related to irrigation and some conduct energy audits for savings across a farm's facilities.

**Electric co-ops also offer energy-saving programs for farms, often related to irrigation and some conduct energy audits for savings across a farm's facilities.**

Leading many of the experiments is the Cooperative Research Network (CRN), the research and development arm of the National Rural Electric Cooperative Association, an Arlington, Va.-based service arm of the nation's 900-plus consumer-owned, not-for-profit electric cooperatives. CRN helps create energy-saving solutions for co-ops, which equals energy and cost savings for all of South Dakota's thousands of consumer-members. Because electric cooperatives are not-for-profit – they do not generate excess profits to benefit shareholders, and return any margins earned to members – technological innovations are good for production, efficiency, and consumers' pocketbooks.

Electric cooperatives were born from the pioneering spirit of farmers in the 1930s. Now, co-op leaders are continuing to engineer ways to keep America's farms running well into the future.





# Belle Fourche Teen Represents South Dakota's Cooperatives



**Belle Fourche High School** student Alexander Kiley was selected from among 39 South Dakota teens as the state's representative to the

Rural Electric Youth Leadership Council.

Kiley had represented Butte Electric Cooperative of Newell, S.D., on the 2013 Rural Electric Youth Tour to Washington, D.C., in June. While there, he was chosen to return to Washington in July for the YLC. He will also represent the state in March at the National Rural Electric Cooperative Association's annual meeting in Nashville, Tenn.

As part of the YLC duties, Kiley competed in a speech competition. In his speech, Kiley observed:

"My trip to D.C. taught me that cooperatives were all about teamwork. Without teamwork you have individuals undertaking monumental tasks that are impossible under the strength of one man alone. When people work together to form a cooperative, that weight is spread across everyone, lightening the load."

"...Throughout my trip in Washington there were many times when I would be at a monument or reliving some part of our history or even learning about our future when I would notice how ordinary people, like myself, became extraordinary just by doing what they knew had to be done."

In Belle Fourche, Kiley is a member of the school's soccer and golf teams, student council, choir and National Honor Society. He received "Best in Show" in the school's woodworking contest in 2013. He's also involved with his church, indoor soccer and serves as a soccer referee.

Kiley is the son of Pete and Clara Kiley of Belle Fourche.

# Safe Use of Harvesting Equipment

**Harvesting equipment** is a necessity on farms to gather the crops for a bountiful harvest. Harvest time is primary revenue time on many farms and is also one of the peak periods for farm injuries and deaths. Many of these injuries can be prevented through effective farm safety management.

- Develop a "safety first" attitude. Follow safe work practices all the time and set a good example for others.
- Be physically and mentally fit before operating equipment. Fatigue, stress and worry can distract you from safely operating equipment. Take frequent breaks.
- Pay attention to all safety information. Read operator's manual and warning decals.
- Inspect the equipment and correct any hazards before operating.
- Identify hazardous areas on equipment and make sure you stay away from moving parts. Beware of pinch points, shear points, wrap points, pull-in areas, thrown objects, crush points, stored energy hazards and freewheeling parts.
- Make sure everyone who operates the equipment has the appropriate training and is physically able to operate it safely.
- Shut down equipment, turn off the engine, remove key and wait for moving parts to stop before dismounting equipment.
- Keep bystanders and others away from equipment operation area. Do not allow "extra riders," especially children.

## Inspection

- Are PTO shields in place?
- Are guards and shields in place?
- Are safety locks operational?
- Are there any leaks in hydraulics?
- Is reflective "Slow Moving Vehicle" signage in place?
- Are lights working properly?
- Is a 20 lb. "ABC" fire extinguisher in place?

Source: [www.necasag.org](http://www.necasag.org)

## Kids' Corner Safety Poster

**"Please don't overfeed the outlet; it has the power to kill."**



**Kyan Overbo, 8 years old**

*Kyan is the son of Dan and Laura Overbo, Volga, S.D. They are members of H-D Electric Cooperative, Clear Lake, 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.

# Garden Delights



## Zucchini Oatmeal Muffins

- 2-1/2 cups flour
- 1-1/4 cups sugar
- 1 cup nutmeats
- 1/2 cup quick-cooking oats
- 1 T. baking powder
- 1 tsp. salt
- 1 tsp. cinnamon
- 1/2 tsp. nutmeg
- 4 eggs
- 1 medium zucchini, finely shredded
- 3/4 cup salad oil

Measure first 8 ingredients into large bowl. In medium bowl, beat eggs lightly with fork; stir in zucchini and oil. Add all at once to flour mixture. Stir just until flour is moistened (batter will be lumpy). Spoon batter into greased muffin cups or use paper liners. Bake at 400°F. for 20 to 25 minutes or until a toothpick inserted in center comes out clean.

**Mary Jessen, Holabird**

## Salsa

- 1 gallon peeled and chopped tomatoes
- 7 or 8 jalapeno peppers, chopped
- 4 large onions, chopped
- 4 T. canning salt
- 4 T. white sugar
- 4 cloves garlic, chopped fine
- 2 cups white vinegar
- 2 large red, yellow or green peppers, diced or 3 small cans green peppers
- 1/2 to 1 can tomato paste

Combine all ingredients and bring to a boil; simmer for 1-1/2 to 2 hours, depending on thickness. Pour into sterilized jars and place in hot water bath for 20 minutes.

**Arlene Baanhofman, Corsica**

## World War II Veggie Dish

- 1 can SPAM, diced
- 1 small pepper, diced
- 1 medium onion, diced
- 2 tomatoes, diced
- 1 (15 oz.) can tomato sauce
- 1 cup water
- 1 lb. fresh green beans, cut
- Garlic, salt and pepper to taste

In a skillet, sauté SPAM, peppers and onions in oil for about 5 minutes. Add remaining ingredients; cook until green beans are tender. Add more water if needed.

**Rose Tucker, Hot Springs**

*Note: This is a family recipe that I used when SPAM was issued during the war and we had to have ration tickets. It is our own recipe.*

## Frozen Cucumbers

- 2 quarts cucumbers, peeled and sliced
- 1 onion, sliced
- 1/2 green pepper, sliced
- Salt to taste
- Pepper to taste
- 1-1/2 cups sugar
- 1/2 cup white vinegar

Combine cucumbers, onions, green peppers, salt and pepper. Mix and let set 2 hours. Drain and rinse in clear water. Combine sugar and vinegar until sugar is dissolved (do not heat). Pour over vegetables. Mix thoroughly and freeze in plastic containers.

**Elroy Schmidt, Harrisburg**

## Fresh Green Bean Casserole

- 2 lbs. fresh green beans, ends trimmed (halved, if desired)
- 2 T. salt
- 2 T. unsalted butter
- 1 (12 oz.) pkg. sliced button mushrooms (about 4 cups)
- 3 large cloves garlic, finely chopped
- Ground black pepper
- 3 T. all-purpose flour
- 1-1/2 cups water
- 1 (12 oz.) can NESTLÉ® CARNATION® Evaporated Milk
- 1 tsp. MAGGI Instant Chicken Flavor Bouillon
- 1 (2.8 oz) container French fried onions

Spray 13x9-inch or 3-quart casserole dish with nonstick cooking spray. Fill large bowl half full with ice cubes; fill with cold water. Bring 4 quarts of water to a boil in large saucepan; add green beans and salt. Cook, stirring occasionally, for 5 minutes or until crisp-tender. Drain and immediately drop into ice-cold water to stop the cooking. Once cool, drain again. Melt butter in same saucepan; add mushrooms and garlic. Season with pepper. Cook, stirring frequently, for 5 minutes or until mushrooms are tender. Stir in flour; cook, stirring frequently, for 1 minute. Stir in water; bring to a boil. Reduce heat to medium; add evaporated milk and bouillon. Cook, stirring occasionally, for 10 minutes or until sauce is thickened. Add green beans; stir to coat. Transfer to prepared casserole dish. Sprinkle evenly with French fried onions. Bake at 425°F. for 15 minutes or until onions are golden brown and sauce is bubbling around edges. Serve immediately. Yield: 10 servings

*Nutritional information per serving: Calories: 160; Calories from Fat: 80; Fat: 9g; Saturated Fat: 4g; Cholesterol: 20mg; Sodium: 220mg; Carbohydrates: 17g; Protein: 6g; Dietary Fiber: 4g; Sugars: 6g;*

**Pictured, Cooperative Connections**

## Asparagus Onion Casserole

- 1 lb. fresh asparagus, cut into 1-inch pieces or 2 (10 oz. each) pkgs. frozen, cut asparagus, thawed
- 1 medium onion, sliced
- 5 T. butter, divided
- 2 T. flour
- 1 cup milk
- 1 (3 oz.) pkg. cream cheese, cubed
- 1 tsp. salt
- 1/8 tsp. pepper
- 1/2 cup shredded Cheddar cheese
- 1 cup soft bread crumbs

In a skillet, sauté asparagus and onion in 1 T. butter until crisp-tender, about 8 minutes. Transfer to an ungreased 1-1/2 quart baking dish. In a saucepan, melt 2 T. butter. Stir in flour until smooth; gradually add milk. Bring to a boil; cook and stir for 2 minutes or until thickened. Reduce heat. Add cream cheese, salt and pepper; stir until cheese is melted. Pour over vegetables. Sprinkle with Cheddar cheese. Melt remaining butter; toss with bread crumbs. Sprinkle over casserole. Bake at 350°F., uncovered, for 35 to 40 minutes or until heated through. Yield: 4 to 6 servings.

**Frances Poste, Wall**

*Please send your favorite pasta, wild game and holiday treat 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.*

# Gadgets Can Help Save on Water, Energy Use



**Jim Dulley**  
www.dulley.com

**Dear Jim:** Both my energy and water bills are increasing, so I plan to install low-flow showerheads. I tried them before, but my family didn't like them. Are they any better now and how do I pick a good one? – Pat V.

**Dear Pat:** Bathing uses a lot of water a month for most families and hot water drives

costs up. Low-flow showerheads can help cut down on both.

For many years now, all showerheads sold in the United States have been limited to a maximum water flow rate of 2.5 gallons per minute (gpm) at a water pressure of 80 pounds per square inch (psi), as mandated by federal energy efficiency standards. Some older showerheads may use as much as 5 gpm without even providing an adequate, forceful water flow.

Many of the new low-flow showerheads provide good water flow using even less than 2.5 gpm. I must have tested more than a dozen low-flow showerheads this year alone and I found there are significant differences in showerhead sprays for ones with identical flow rates. The most efficient ones are as low as 1.5 gpm and the savings in water and energy use can pay back their cost in just a few months.

Keep in mind that whether you like a specific shower spray pattern and force is a personal matter.

There are a number of factors that determine how much water and energy will be saved. Water savings is affected directly by the gpm rating for the showerhead, while energy savings is determined by both the gpm rating and how much hot water has to be mixed with cold water for a comfortable shower.

The type of spray pattern has an affect on how warm the water feels on your skin. Showerheads that create larger water droplets feel warmer because large droplets have a lower percentage of surface area, so they cool down less before they reach your body.

Some needle-type, low-flow showerheads create tiny water droplets. These might lose more heat as they move through the air. If this happens, people tend to set the faucet handle to a greater percentage of hot water and may actually end up using more hot water – and more electricity – than before. Some showerheads also add air to the spray for more force, but this

might also cool the water spray.

It's easy to distinguish a narrow needle-spray design because they are usually small. For a fuller spray, look for ones with many holes across a larger face. Some might appear to have a large face with many spray holes. If they have adjustable patterns, not all the holes are used simultaneously so they may actually create a needle spray if you desire that at times.

A handheld adjustable showerhead is very effective. I use one that has four spray settings selected by rotating the head. Water flow can be directed where you want it, which can save water.

There are two inexpensive add-on devices that can help reduce water use on any showerhead. One is a tiny push/pull trickle valve (also called a lathering valve) that's mounted between the shower arm and the showerhead. When you don't need water, push the button to slow the water to a trickle without having to readjust the temperature at the faucet each time.

**Water savings is affected directly by the gpm rating for the showerhead, while energy savings is determined by both the gpm rating and how much hot water has to be mixed with cold water for a comfortable shower.**

Another water-saver is a Lady Bug valve by ShowerStart (also known as Evolve Showerheads). People often turn on the hot water and walk away, waiting for the hot water to reach the shower. Gallons of hot water may be wasted down the drain until you actually get into the shower.

With the Lady Bug, when the water temperature at the showerhead reaches 95 degrees, the flow is automatically slowed to a trickle so very little hot water goes down the drain. When you're ready to get into the shower, pull the string on the handle and the warm shower starts flowing at full force. The following companies offer showerheads and systems: Delta, 800-345-3358, www.deltafaucet.com; Moen, 800-289-6636, www.moen.com; Price Pfister, 800-732-8238, www.pricepfister.com; ShowerStart, 480-496-2294, www.evolvehowerheads.com; and Speakman, 800-537-2107, www.speakmancompany.com.

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



# Trio To Be Inducted to S.D. Co-op Hall of Fame

**Three men who** have dedicated their careers to cooperatives will be inducted into the South Dakota Cooperative Hall of Fame Sept. 24 at the Cedar Shore Resort in Oacoma, S.D.

Induction into the cooperative hall of fame recognizes co-op leaders who have contributed in especially significant ways to the enhancement of the cooperative idea.

**Thomas E. Hueners** of Winfred, S.D., has spent the past 40 years ensuring that TrioTel Communications (formerly McCook Cooperative Telephone Company) has been meeting the communications needs of his neighbors. Hueners joined the co-op's board of directors just weeks after the passing of his father, who had served on the board for nearly 20 years.

"With a calm, quiet disposition, he has led one of the smallest cooperatives in the state of South Dakota to a prosperous and one of the most advanced telecommunications providers in the U.S.," wrote TrioTel General Manager and CEO Bryan Roth.

**John D. Johnson** grew up near Spearfish, S.D., and went on to lead CHS Inc., one of the nation's leading energy, grains and foods companies. Johnson began his co-op career in 1976 as a feed consultant in the GTA Feeds division in Sioux Falls. He moved up through the ranks and in 1995 became president and CEO of Harvest States. With the 1998 merger of Harvest States and Cenex, he was named president and general manager and in 2000 became president and CEO of CHS Inc. He retired in 2010.

**Loren Noess** grew up in Sinai, S.D. He began his co-op



**Tom Hueners, TrioTel Communications, Salem, S.D.**



**John D. Johnson, CHS, Inc., Inver Grove Heights, Minn.**



**Loren Noess, Central Electric Cooperative, Mitchell, S.D.**

career in 1969 at Sioux Valley Energy in Colman. He then went to Intercounty Electric in Mitchell as office manager and became the co-op's manager in 1990. He continued on as co-op manager after Intercounty and Tri-County Electric of Plankinton consolidated in 2000 to form Central Electric Cooperative, which he still serves as general manager.

Noess has served on the national Touchstone Energy® Cooperatives board of directors and was appointed to the South Dakota State Fair Commission in 2006.

For more information about the S.D. Cooperative Hall of Fame or for tickets to the induction banquet, contact the South Dakota Association of Cooperatives at 605-945-2548 or by e-mail at [office@sdac.coop](mailto:office@sdac.coop).

## Legislators Get Up Close with Coal

**Twelve legislators** from South Dakota got to tour Basin Electric's facilities July 23 as part of an educational program sponsored by the South Dakota Rural Electric Association, Rushmore Electric Power Cooperative of Rapid City, S.D., East River Electric Power Cooperative of Madison, S.D., and Basin Electric Power Cooperative of Bismarck, N.D.

"You can't replace this, you can't replace the connection and the visuals and actually being there and being on a turbine floor and hearing that hum and seeing the control boards," said Ed Anderson, general manager of the South Dakota Rural Electric Association in Pierre, S.D.

Anderson said the tour is an effort to give lawmakers an understanding of how the power generation process works and how all the different players work together. He said this education should translate to better understanding once the legislative session is under way. "The value of these tours, I think, cannot be overestimated."

Rep. Mary Duvall, R-Dist. 24, said her father and brother serve on local electric cooperative

boards and they recommended the tour. "REAs (rural electric cooperatives) are really important in South Dakota, all areas of the state, and this is an opportunity to come and learn more. I'd heard about the Basin plants and everything that Basin is doing and I thought this would be a great opportunity to see first-hand what was going on."

Sen. Larry Lucas, D-Dist. 26, lives at Rosebud, S.D., and is one of the investors with the South Dakota Wind Partners, the group which invested in seven turbines in the Crow Lake Wind Project near Mitchell, S.D. "Basin is pretty progressive. They're willing to balance environmental issues with the need to provide stable electricity for the consumers within common sense."

Sen. Larry Tidemann, R-Dist. 7, lives in Brookings, S.D., located near the Deer Creek Station, Basin Electric's intermediate generation, natural gas-based unit in Brookings County. "I am learning about our dependence upon coal and that you can't just shut that off, and yet solar and wind energy help add to the balance. It's so

critical that we keep our number one source, coal. ... Without coal, we would be out of electricity two-thirds of the year."

Other lawmakers participating were Reps. Gary Cammack, R-Dist. 29, Union Center; Peggy Gibson, D-Dist. 22, Huron; Jenna Haggard, R-Dist. 10, Sioux Falls; Isaac Latterell, R-Dist. 6, Tea; Liz May, R-Dist. 26, Kyle; Betty Olson, R. Dist. 28B, Prairie City; Scott Parsley, D-Dist. 8, Madison; Dean Schrempp, D-Dist. 28A, Lantry; and Sen. Dan Lederman, R-Dist. 16, Dakota Dunes.



**Legislators take a photo next to the dragline at the Freedom Coal Mine near Beulah, N.D.**

Photo by Basin Electric

# Dakota Gasification

*Energy Powerhouse Shines Brightly on North Dakota Prairie*

**“Your cooperative has long been benefitting from the resources that lie just below the surface”**

**by Brenda Kleinjan**

**I**N THE PAST FEW YEARS, WESTERN NORTH DAKOTA’S energy boom has been grabbing headlines.

While the new focus is on oil and fracking, your cooperative has long been benefitting from the resources that lie just below the surface of the state’s western plains.

Co-ops have been generating electric power from coal-based plants in western North Dakota for the last half-century. And, for the last 30 years, the Great Plains Synfuels Plant near Beulah, N.D., has been producing natural gas by a process called coal gasification.

The \$2.1 billion plant began operation in 1984 and was purchased in 1988 by Dakota Gasification Company, a subsidiary of Basin Electric Power Cooperative. The Synfuels Plant is part of a \$4 billion energy complex that includes a coal mine and Basin Electric’s coal-based Antelope Valley Station power plant.

The Synfuels Plant was purchased from the U.S. Department of Energy after its original owners defaulted on a loan guarantee. As part of the purchase agreement, Dakota Gas shared more than \$390 million in revenue with the DOE during a 20-year commitment.

The Synfuels Plant is the only commercial-scale coal gasification plant in the United States that manufactures natural gas. Each day, the plant on average churns out about 153 million cubic feet of equivalent natural gas which is piped to Iowa in its way for distribution in the eastern United States.

## **How the gasification process works**

Gasifying coal involves dismantling its molecular structure with heat and pressure and reassembling the resulting hydrogen and carbon as methane gas (methanation), which is sent to a pipeline.

The heart of the Synfuels Plant is its 14 gasifiers.





These gasifiers are cylindrical pressure vessels, 40 feet high with an inside diameter of 13 feet. Each day 18,000 tons of lignite coal are fed into the top of the gasifiers. Steam and oxygen are injected into the bottom of the coal beds causing intense combustion at 2,200 degrees F.

The hot gases break down the molecular bonds of coal and steam, releasing compounds of carbon, hydrogen, sulfur, nitrogen and other substances to form a raw gas that exits the gasifiers.

The raw gas is cooled. Tar, oils, phenols, ammonia and water byproducts are condensed from the gas stream, purified and sent on. The gas moves to a cleaning area where further impurities are removed.

The Rectisol unit washes the stream with cold methanol, separating carbon dioxide. Methanation occurs when the cleaned gas passes over a nickel catalyst causing carbon monoxide and remaining carbon dioxide to react with free hydrogen to form methane.

The gas is then cooled, dried and compressed. It enters the pipeline with a heating value of 975 Btu per cubic foot.

Dakota Gas has invested close to \$477 million in the plant since 1988 to achieve environmental compliance, improve efficiency and develop new coproducts.

## Coproducts Produced

As part of the manufacturing process, the plant produces an increasing number of coproducts. Carbon dioxide produced at the plant is captured and sold to two customers through a 205-mile pipeline, which delivers the CO<sub>2</sub> to Saskatchewan, Canada, for use in enhanced oil recovery. From October 2000 to early 2013, more than 25 million metric tons of carbon dioxide has been captured for delivery. The Canadian projects that use the carbon dioxide are the largest carbon capture and storage project in the world.

In addition to carbon dioxide, seven other coproducts are made as part of the gasification process: anhydrous ammonia, crude cresylic acid, krypton and xenon gases, liquid nitrogen, naphtha and phenol.



**Above:** In 2012, DGC began studying the feasibility of adding urea to its line of coproducts. **Opposite page:** DGC's Great Plains Synfuels Plant is part of a \$4 billion energy complex near Beulah, N.D. **Cover:** Lights cast a glow at dusk over the Rectisol gas processing unit at GPSP.

In 2012, DGC looked to add its ninth coproduct to its line up. Studies were conducted about producing urea, a granular fertilizer used in the agricultural industry.

Steve Liebelt, marketing manager for Dakota Gasification Company, said in a release about the proposed project that urea has a high nitrogen content,

and along with reduced handling, storage and transportation costs over other nitrogen forms, makes it desirable fertilizer for the agricultural industry. "When properly applied, urea will result in crop yield increases similar to anhydrous ammonia,

## Coproduct Profiles

As part of the gasification process, several coproducts are also produced and marketed. While the lineup continues to expand, these are products marketed as of the end of 2011:



**Ammonium sulfate** is an agricultural fertilizer marketed under the name Dak Sul 45<sup>®</sup>. Approximately 105,000 tons are produced yearly by a flue gas desulfurization system.



**Anhydrous ammonia** is used as fertilizer for farming and as a feedstock for producing various chemicals. Dakota Gasification Company has the ability to produce about 400,000 tons per year and operates a railcar fleet of about 238 cars.



**Carbon dioxide** is used for enhanced oil recovery. About 8,000 metric tons are sent to Canada daily.



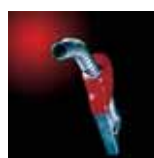
**Crude cresylic acid** is used in the manufacture of pesticides and products such as wire enamel solvent, phenolic and epoxy resins and antioxidants. About 30 million pounds are produced annually.



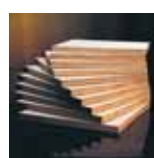
**Krypton and xenon** gases are used for specialty lighting, such as high-intensity lighting and lasers, and for thermopane window insulation. About 3.6 million liters of krypton-xenon are produced annually.



**Liquid nitrogen** is used for food processing refrigeration, as an oil well additive and in chemical processes. About 11,700 gallons is produced annually.



**Naphtha** contains products that can be used as a gasoline blend stock, in making solvents and in benzene production. About 8.7 million gallons are produced annually.



**Phenol** is used for the production of resins in plywood manufacturing and in the casting industry. About 31.5 million pounds of phenol are produced annually.

which also has a high nitrogen content," he said.

To learn more about the Great Plains Synfuels Plant or to schedule a tour, go to <http://www.dakotagas.com/> You can also contact your local electric cooperative about possible consumer tours the co-op hosts to the plant.

# An Energized Experience

By Brenda Kleinjan

**F**ORTY SOUTH DAKOTA TEENS TOOK AN UP-CLOSE look at the energy complex owned by the region's electric cooperatives.

The participants from a dozen South Dakota cooperatives traveled by bus to North Dakota for the annual Rural Electric Youth Excursion.

While on the trip, students learned about the history of electric cooperatives and the Touchstone Energy® Cooperatives brand. They also learned about the seven cooperative principles, energy efficiency tips and general electrical safety.

They toured Basin Electric Power Cooperative's Antelope Valley Station, a 900-megawatt coal-based electric generation plant. Students were able to get a bird's-eye view from the plant's 17th floor observation deck which afforded them a view of the adjacent Couteau Properties' Freedom Coal Mine and Dakota Gasification Company's Great Plains Synfuels Plant.

Coal from Freedom Coal Mine, one of the nation's largest lignite coal mines, is used to power AVS and is also converted into synthetic natural gas at the Synfuels Plant. Additional coal is shipped to

Basin Electric's Stanton Station, which students also drove by. During the coal mine tour, students were able to watch giant earth-moving equipment in action. The bucket on each of the Freedom Mine's draglines is large enough to hold four full-sized Suburban vehicles or 1.5 million golf balls. Students learned that the coal supplies available at the mine are enough to power generations to come.

Students also toured the Great Plains Synfuels Plant and learned about coal gasification.

The last leg of the energy tour included a drive through NextEra Energy's Wilton Wind Project. Power generated by the 99-MW wind project located north of Bismarck, N.D., is purchased by Basin Electric and its members.

Students tested their knowledge in competitive game-show style competitions before spending the remainder of the evening dancing, swimming or playing games.

Before heading home, students learned about career opportunities that will be available in the future as cooperatives face a significant number of retirements in coming years.





## 2013 Youth Excursion Participants



Photos by Brenda Kleintjans/SDREA



**Above:** Students look at the 17-story tall boiler that powers AVS. **Top:** An AVS tour guide shows the results of a tube leak failure within the plant's boiler system. **Right:** A student enjoys the 17th-floor view of the prairie. **Below:** Hard hats are adjusted and hearing and eye protection donned prior to the AVS tour. **Left:** Participants pose for a photo with the \$4 billion energy complex as the back drop.



- Michael Anderson, H-D
- Chelsy Bailly, Northern
- Mikaela Blumhardt, Northern
- Trevor Bohl, Northern
- Skyler Carlson, Codington-Clark
- Devin Clark, Bon Homme Yankton
- Michaela Dewald, Whetstone Valley
- Taylor Faw, FEM
- Nikolaus Frank, West River
- Rachel Geier, FEM
- John Godoy, Cherry-Todd
- Cassity Goetz, West River
- Dalton Gray, Cam Wal
- Heather Hauger, Bon Homme Yankton
- Stephanie Hauger, Bon Homme Yankton
- Hannah Hintz, Codington-Clark
- Jenna Hornaman, Northern
- Marranda Hulm, Grand
- Rachel Johnson, Whetstone Valley
- Blaze Jones, Lake Region
- Trey Jones, Lake Region
- Mason Kilker, Lake Region
- Brandon Kriese, Codington-Clark
- Hans Leonhardt, Northern
- Luke Little Moon, Lacreek
- Jena Lunzman, Northern
- Jacob Lux, FEM
- Angie McDonnell, Lacreek
- Lane Melius, FEM
- Mary Merxbauer, Northern
- Samantha Opdahl, H-D
- Autumn Pitz, FEM
- Tanner Podoll, Northern
- Ron Pope, West River
- Rylie Rasmussen, Northern
- Justin Rau, Cam Wal
- Nicolette Schmidt, Codington-Clark
- Emily Smith, FEM
- Shelby Stanfiel, Northern
- Tori Voller, Grand



# A Growing Concern

## *Popularity of Farmers' Markets Expand*

**F**ROM COUNTRY-FRESH EGGS TO HOMEMADE BREAD and a bevy of garden produce, farmers' markets across the region have seen a growth in popularity in recent years.

**By Brenda Kleinjan**

As of August, the Minnesota Department of Agriculture listed 145 farmers' markets in that state while the South Dakota Department of Agriculture's "Dakota Flavor" map listed 60.

"They've really doubled in the last five years," said Alison Kiesz, an ag development representative with the South Dakota Department of Agriculture. Kiesz works with the state's farmers' markets.

"Consumers are really interested in knowing where their food come from, so they value being able to talk with the producers at the markets," said Kiesz.

Supporting local businesses is another benefit of the markets, she said.

"Also, a lot of people like being able to support

their community and want to support their local producers," Kiesz said.

Based on survey information gathered during the 2012 farmers' market season, which typically runs 16 weeks between June and September (the actual season varies by site), the state ag department estimates that consumers spent more than \$583,000 in direct sales at the markets that were operated that year.

"I think that number is a bit conservative," said Kiesz, noting that the base survey used for developing the numbers did not sample farmers' markets in larger communities and the number of markets in 2013 have increased.

The survey also indicated that farmers' markets averaged 81 customers a week per market and those customers in turn reported they intended to spend \$10 per week at the market.

Kiesz said a sample survey conducted early in the







**Left:** A shopper at the Downtown Aberdeen Farmers' Market looks over the selection offered by the Grassland Colony booth. The market is held Thursday afternoons. **Below:** Shoppers wait in line to make purchases at a booth at the Aberdeen market. Survey numbers indicate the number of people shopping at South Dakota farmers' markets is up in 2013. **Opposite Page:** Offerings at the Springerridge Barnyard Products booth vary through the season.

Photo by Erica Sperry

2013 market season indicated that the number of customers stopping at the markets has increased to about 90 a week.

Kiesz said in many communities the farmers' markets are not only a place where the harvest is gathered but also where people gather.

"They've become a community gathering spot, especially the evening markets," said Kiesz. "They're a place to gather and visit with neighbors and often times help local groups raise funds."

Kiesz noted that in some communities, especially where the farmers' market is held in the late afternoon and evening, various groups serve a meal as a fund-raiser.

"Knowing that the produce came from South Dakota is important to our consumers," said Kiesz.

In addition to the typical garden produce – which varies throughout the season – vendors bring variety of other goods to the table.

Artisan breads, jams, jellies, fresh eggs and homemade soaps and lotions are just a few of the other products that can often be spotted at the farmers' markets.

"One of the interesting products I've seen and heard of is canned apple pie filling. People have probably been doing that for years and years for their own use, and now it's available at

the farmers' markets," said Kiesz.

Kiesz noted that canned products and other processed products have to have their preserving process verified before they can be sold.

The growth of the markets is something vendors are counting on.

"I should have bought a bigger trailer," said Ernie Lehmkuhl, co-owner of Springerridge Barnyard Products of rural Gettysburg as he looked over his booth that had been emptied of most of its goods with two hours left to go on sale day.

*For more on farmers' markets in Minnesota, visit <http://www.mda.state.mn.us/food/minnesotagrown/minnesotafarmersmarkets.aspx> and for a map of South Dakota's farmers' markets, go to <http://dakotaflavor.com/news/>*



Photo by Erica Sperry



Photo by Brenda Kleinjan



Photo by Erica Sperry

**Above:** Shoppers make their selection of artisan breads sold at the Canton Bread booth at the Downtown Aberdeen Farmers' Market which is held Thursday afternoons. **Left:** Ernie and Terry Lehmkuhl's produce selection at their Springerridge Barnyard Products booth is nearly gone after a busy Saturday morning of sales in Pierre.

Photo by Brenda Kleinjan



# Bin by Bin

## Redfield Teen Saving Lives

**A** RECENT REDFIELD AREA HIGH SCHOOL GRADUATE has been testing the entrepreneurial fields for the last few years.

Colin Blume runs his own business and wants to save lives. A recent graduate of Redfield Area High School, Blume is attending Lake Area Technical Institute in Watertown, S.D., to study agriculture production.

Blume, who turns 19 in September, became an entrepreneur at 15. His business, Blume Welding, produces grain cages.

The cages Blume makes, when installed into grain bins, help prevent clogging in the center sump due to grain that has crusted or clumped together.

Grain becomes unpredictable as it becomes

crusted in a bin. Farmers can be quickly entrapped, which could lead to suffocation, as they try to unclog grain bins.

Blume said he hears of at least five or six accidents each year involving grain bins, and that's why he began making grain cages.

"I saw that our farm needed something like that and then neighbors wanted some as well," he said. "I just flew right into the business."

According to a study completed at Purdue University, South Dakota was one of the states that had the most documented incidents of grain entrapment in 2011.

That includes incidents that were fatal and non-fatal. However, it's unknown how many get trapped

**By Kay Nguyen**  
*Farm Forum*





each year in grain bins because of the lack of an official reporting system.

"It keeps the farmer out of the bin and from being trapped and killed," Blume said of his cages. "It's cheap insurance and I think you can't afford not to have one."

His business took off after he sold the cages to his neighbors near Redfield and to other Spink County farmers.

"They're the ones who gave me a chance," he said.

He has sold more than 400 units to farmers in South Dakota, North Dakota and Minnesota.

"Everything spread through word of mouth," he said.

The jagged edges on the cage, or sickle sections, break up the grain clumps so farmers don't have to. Different cage sizes are available and Blume does customizations, too.

The cages were designed after he needed to find a project to do for a welding class during his sophomore year.

He learned to weld when he was 11 or 12 when he needed to fix something on the farm.

"My dad happened to be gone that day and he told me I better fix it," he said.

When it comes to welding, Blume says a person just has to have a feel for it and develop their own methods.

Blume balances his schoolwork with his welding business, which can sometimes make for a grueling schedule.

At times, he might go straight into the shop after school and work until the early hours of the morning.

The cage is hand-welded into one piece and has no moving parts. He usually works alone, but sometimes enlists the help of some of his classmates.

It's all been a learning experience, Blume said. He said he's thankful for the advice he has received from agriculture and business teachers at Redfield Area High School.

"Trying to sell it has been the toughest part," he said. "If you can't see it, then you might not understand exactly what it does."

He has also picked up a couple of mentors along the way. Blume met Kelly Melius, owner of Common Sense Manufacturing in Faulkton, when he began buying steel from Melius.

"He helped get me into farm shows," Blume said. "It's not only about talking to the bin owners, I have to talk to the bin dealers, too."

His hope is to make his grain cage a must-have safety product that farmers automatically get when buying a grain bin.

He has also gotten some help from neighbor Margo Gillette, who has helped with legal and business issues. That included getting a patent for his cage design.

He said his parents, Kenneth and Kellie, have been supportive of his business and its status as another branch of the family farm east of Redfield.

"It's another thing that keeps us busy year-round and keeps income flowing," he said.

Blume plans to certify in welding at LATI and take a few years of agriculture classes. He wants to grow his business, with the intention of carrying and selling other product lines or to begin producing new products.

"I want to keep it going for as long as I can," he said of his business. "It's just taken off."

Blume said promoting his invention is not just about bringing in business. It's also about preventing accidents on farms just like his family's.

**Left: Colin Blume, 18, is a business owner and 2013 graduate of Redfield Area High School. He founded Blume Welding when he was 15 after designing a cage that prevents the clogging of grain bins. He designed the cage in a school welding class.**

## GERT: Increasing Safety

**South Dakota Wheat Growers** has taken an industry-leading initiative to develop a portable Grain Engulfment Rescue Trainer (GERT), which simulates several different grain engulfment incidents in a controlled environment to provide an opportunity for both rescue training and grain safety insight.

This unique safety education tool is traveling throughout Wheat Growers trade area, providing training and grain safety education to farmers, students, first responders and agribusiness.

GERT was designed and built by Wheat Growers as part of the cooperative's ongoing commitment to safety training in the Dakotas.

GERT's construction was completed in early September 2012 and features two cone-bottom bins that realistically represent on-farm situations.

Two entrapment trainings can take place concurrently

and a video system allows a larger audience to view the simulations outside the trailer.

"GERT is an excellent example of Wheat Growers' commitment to making sure that every community we conduct business in has the right equipment and the right training to respond to agriculturally-related emergencies," said Wheat Growers Vice President of Safety and Environmental Affairs, Bill Spreeman.

"Participants in the training very quickly gain new and renewed respect for working around grain that could engulf a person."

Prior to the GERT initiative, Wheat Growers donated 42 grain rescue tubes to communities served by its cooperative locations for use by emergency responders.

GERT training will allow those first responders to practice using the rescue tubes in a safe, simulated environment so they are more prepared in the event of an actual grain entrapment situation.

Rescue tubes provided by Wheat Growers have been directly linked to saving two lives in 2012.

A response team that had received training from GERT a week prior to the incident was responsible for one of the rescues.

The GERT training program encourages participants to not only practice being a rescuer but also play the role of victim to experience how they would want a rescuer to react.

"The GERT initiative aims to reach out to every local fire department and get knowledge into their hands.

"That ties into our mission to take safety beyond the work place, out to our patrons and their families," said Safety Team Leader Beth Locken.

"The ultimate goal is to start seeing reduced number of fatalities due to grain entrapments and fewer incidents overall."



Photo by South Dakota Wheat Growers

## Regional Dateline

### August 24

Ride Pink Poker Run  
Sioux Falls, SD, 605-334-2721

### August 25

Air Show, Aberdeen, SD  
605-228-3373

### August 28-29

Red Wilk Constructions  
CBR Bull Bash  
Huron, SD, 605-353-7340  
[www.sdstatefair.com](http://www.sdstatefair.com)

### August 29-September 2

South Dakota State Fair  
Huron, SD, 605-353-7340  
[www.sdstatefair.com](http://www.sdstatefair.com)

### August 30-September 1

Lifelight South Dakota  
Festival, Worthing, SD  
605-338-2847  
[www.Lifelight.org](http://www.Lifelight.org)

### August 30-September 2

60th Annual Cheyenne  
River Sioux Pow Wow  
Eagle Butte, SD  
605-964-6685

### August 30-September 2

Labor Day Wacipi Celebration  
Winner, SD, 605-208-0187

### August 31

Rockin' RibFest  
Yankton, SD, 605-665-2263

### August 31

Friends of Custer County  
Search and Rescue Poker Ride  
Custer, SD, 605-431-4097  
[www.custersdsar.com](http://www.custersdsar.com)



PHOTO COURTESY OF S.D. TOURISM

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

### August 21-25

Corn Palace Festival  
Mitchell, SD, 605-995-8430

### August 24

Tour de Corn Bicycle Ride  
Mitchell, SD, 605-990-2553  
[www.sdtourdecorn.com](http://www.sdtourdecorn.com)

### September 6-7

Ribs, Rods and Rock 'n Roll  
Vermillion, SD, 605-624-5571  
[www.sdbbq.us](http://www.sdbbq.us)

### September 7

Foothills Bull Bash  
Wessington Springs, SD  
605-770-4370

### September 7

Grape Stomp and  
Harvest Festival  
Volga, SD, 605-627-5545  
[www.schadevineyard.com](http://www.schadevineyard.com)

### September 8

Ranch Rodeo, Redfield, SD  
605-450-0332

### September 8

31st Annual Auto-Cycle-Truck  
and Parts Swap Meet  
Central States Fairgrounds  
Sioux Falls, SD, 605-348-7373  
[happymotoring@bluebottle.com](mailto:happymotoring@bluebottle.com)

### September 13-14

Deadwood Jam  
Deadwood, SD, 800-344-8826  
[www.deadwoodjam.com](http://www.deadwoodjam.com)

### September 14

Car Show, Menno, SD  
605-387-2427

### September 14-15

Beef n Fun Days  
Mobridge, SD, 605-845-2387

### September 14-15

Kuchen Festival and Old Time  
Harvest Festival  
Delmont, SD, 605-779-2211  
[www.delmontsd.org](http://www.delmontsd.org)

### September 14-15

Quilt Show and Sale  
Hill City, SD, 605-574-2368

### September 20-22

German-Russian Schmeckfest  
Eureka, SD, 605-284-2332  
[www.eurekasd.com](http://www.eurekasd.com)

### September 20-22

North Country Fiber Fair  
Watertown, SD  
605-254-8434  
[www.northcountryfiberfair.org](http://www.northcountryfiberfair.org)

### September 21

Outkasts Cruise-in and  
Car Show, Mitchell, SD  
605-996-7203

### September 21-22

Pioneer Power Show  
Menno, SD, 605-387-5161  
[www.pioneeracres.com](http://www.pioneeracres.com)

### September 21-22

Northeastern Celtic Faire  
and Games, Aberdeen, SD  
605-216-3403  
[www.nesdcelticfaire.com](http://www.nesdcelticfaire.com)

### September 26-29

South Dakota Film Festival  
Aberdeen, SD, 605-226-3481  
[www.southdakotafilmfest.org](http://www.southdakotafilmfest.org)