

Cooperative Connections

A stylized illustration of a landscape. In the foreground, there are rolling hills in shades of green and yellow. A blue river or stream flows through the lower left. In the middle ground, there are several wind turbines with three blades each, and a large solar panel array. The background is a light blue sky with soft, white clouds.

**Where
Renewable
Energy Gets
Its Power**

Page 8-9

**Sensing
a Healthy
Electric Grid**

Page 12

Electricity Use Can Benefit the Environment



Ken Schlimgen

General Manager

Central Electric's recent member survey on solar energy indicated that one reason our members would consider solar energy is to reduce the use of electricity produced from fossil fuels. At our district meetings in January, we shared how your cooperative's mix of generation resources has seen a large increase in renewable energy resources since the year 2000.

This trend, and the fact that existing generation technologies are cleaner, mean that today's electricity uses less fossil fuels per kilowatt-hour produced vs. that same kilowatt-hour from even 5 years ago.

This idea of "environmentally beneficial electrification" means that innovations in energy technology are making the use of electricity more environmentally friendly every year versus the use of other fuels such as propane, natural gas or fuel oil.

The term beneficial electrification means that electric appliances, like your water heater, clothes dryer and oven, have the potential to become greener over time. When your electric co-op takes advantage of new technology and renewable resources, it means those benefits are passed along to you, the co-op member.

Large appliances typically have a lifespan of 15 to 20 years. That means you are able to benefit from renewable energy as it is added to the electric grid over the span of the appliance's lifetime, in addition to the increased efficiency of the new appliance. In other words, the high-efficiency electric oven you have today could be powered by a higher percentage of renewable sources 3 years from now. This would not be the case with gas appliances, where you are essentially locked into the technology of that gas appliance for the 15 to 20 year lifespan. As your co-op is able to tap

into more renewable options in the future, you are able to benefit

from this trend through the use of an electric appliance.

For our members looking for more environmentally-friendly energy options, choosing electric appliances over those powered by fossil fuels is an easy solution. Whether through electric rechargeable tools or through electric water heaters and other appliances, beneficial electrification is a means to reduce greenhouse gases and help the environment.

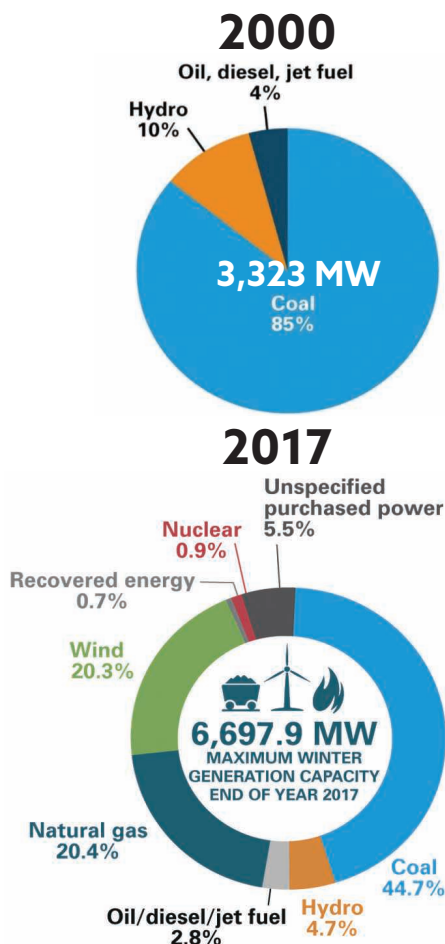
As part of the cooperative system that you own, Basin Electric is purchasing and generating more with renewable resources, bringing wind, and other environmentally friendly generation into the electric power system. This means electricity is becoming greener. As the overall energy sector continues to evolve, your cooperative is striving to take advantage of the advances in technology. This means we will increase our use of renewable power resources as we continue to deliver safe, reliable and affordable power to our members.

When it comes to value, electricity is a clear winner, and we are always looking for ways to make it an even better value. That's why your cooperative promotes energy efficiency and the wise use of electric energy.

I encourage you to consider electric appliances, heat pumps, tools and other electric equipment for future buying decisions. The successful transition to a clean energy future depends on the use of these electric technologies and others such as electric vehicles—all powered by an increasingly cleaner electric system.

Remember to mark your calendars on Tuesday, April 3rd for your cooperative's annual meeting. We are planning for another excellent buffet meal and a program that I think will be of interest to you. I hope to see you there.

Until next time, Stay Safe.



Basin Electric's generation resources from 2000 to 2017 have greatly diversified to include more renewables. As this trend continues, your home and electric use will become greener.

Note: Total hydro generation has not decreased; it has simply become a smaller piece of the total generation mix.



A Touchstone Energy® Cooperative 

(USPS 018-963)

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Office Information

M-F 8:00 a.m. - 4:30 p.m.
 800-477-2892 or
 605-996-7516
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Mission Statement

Provide Reliable Energy & Services
 with a Commitment to Safety and
 Member Satisfaction

Central Electric Annual Meeting

Exercise your cooperative membership and attend the Central Electric Annual Meeting on **Tuesday, April 3, 2018** at the Mitchell Corn Palace.



Director at Large Nominating Petition Available

The Director at Large seat on the Central Electric Board of Directors, currently held by James Headley, is up for election during the Central Electric Cooperative, Inc. annual meeting.

Any Central Electric member with an interest in serving on Central Electric's Board of Directors may pick up a petition at the Bett's Road Service Center located at 25487 403rd Ave, Mitchell SD after February 17, 2018. The petition must be returned by 4:30 p.m. on Friday, March 9, 2018. When filed, the form must bear the names of at least ten (10) Central Electric Cooperative, Inc. members.

For complete qualifications on becoming a director and Bylaw information for director elections, please refer to pages 6 & 7 of the December 2017 "Cooperative Connections" newsletter or contact the Mitchell Office at 800-477-2892.

Employee Years of Service

Norton Truman

March 1 - 12 years

Lindsey Wilson

March 2 - 3 years

Ryan Bigge

March 3 - 4 years

Thank you for your service to the cooperative!

Generator Safety

Portable or permanently installed standby generators can come in handy during long-term power outages. However, if you do not know how to use them properly, they can be dangerous. Contact a qualified



vendor or electrician to help you determine what generator is best suited to your needs. Before using, be sure to read and follow manufacturer's instructions.

If you are installing a permanent generator, it must have a transfer switch. The transfer switch prevents energy from leaving your generator and going back onto the utility electrical equipment when it could be dangerous to a lineman or others near downed power lines, a process known as "back feed." A qualified electrician should install your generator and transfer switch.

Safe Electricity has the following tips to use portable generators safely:

- Operate it outdoors in an area with plenty of ventilation. Never run a generator in a home or garage. Generators give off deadly carbon monoxide.
- Do not plug a generator into the wall to avoid back feed. Use heavy-duty extension cords to connect appliances to the outlets on the generator itself.
- Turn the generator on before plugging appliances to it. Once the generator is running, turn your appliances and lights on one at a time to avoid overloading the unit. Remember, generators are for temporary usage, prioritize your needs.
- Generators pose electrical risks especially when operated in wet conditions. Use a generator only when necessary when the weather creates wet or moist conditions. Protect the generator by operating it under an open, canopy-like structure on a dry surface where water cannot form puddles or drain under it. Always ensure that your hands are dry before touching the generator.
- Be sure the generator is turned off and cool before fueling it.
- Keep children and pets away from portable generators at all times. Many generator components are hot enough to burn you during operation.

Safe Electricity suggests that these safety guidelines as well as basic operating instructions be posted in the home and with the generator.

Source: safeelectricity.org

March 18-24, 2018

National Ag Week



In 2016, \$135.5 billion worth of American agricultural products were exported around the world.

Each American farmer feeds about 144 people! America needs agriculture...and we need our farmers, who provide Food for Life. This is why we're celebrating all things Ag on National Ag Day, March 20. Find out more: <https://www.agday.org/>

KIDS CORNER SAFETY POSTER



"Don't touch power lines."

Christopher Barranco, 5 years old

Christopher is the son of David and Catherine Barranco, Brandon, S.D. They are members of Sioux Valley Energy, Colman.

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.

Seafood Sensations

Seafood Quiche

- | | |
|---|------------------------|
| 1 (6 oz.) can crab, salmon or tuna, drained | 1 cup milk |
| 1 cup shredded Cheddar cheese | 1/2 tsp. salt |
| Onions | Pepper to taste |
| 4 eggs | Fresh chives, optional |
| | Paprika |

Spray a 10-inch pie plate with vegetable cooking spray. Combine seafood, cheese and onions. Press into bottom and up sides of pie plate. Beat eggs, milk, salt and pepper; pour over all. Sprinkle with paprika, if desired. Bake at 350°F. for about 30 minutes or until eggs are set. Let set a few minutes before cutting.

Elaine Rowett, Sturgis

Broiled Salmon with Lemon

- | | |
|---|--|
| 1 T. extra-virgin olive oil | 4 (6 oz.) center-cut salmon fillets (about 1-inch thick) |
| 1 tsp. grated lemon rind plus 1 T. fresh juice (from 1 lemon) | 1/4 tsp. kosher salt |
| 1 tsp. Worcestershire sauce | 1/4 tsp. black pepper |

Combine oil, rind, juice and Worcestershire sauce in a shallow dish. Place fillets, skin side up, in dish. Let stand 15 minutes. Preheat broiler with oven rack 6 inches from heat. Place fillets, skin side down, on a foil-lined baking sheet. Sprinkle with salt and pepper. Broil to desired degree of doneness, 8 to 10 minutes. Remove fillets from foil using a metal spatula.

Tina Haug, Pierre

Freeze Ahead Crab Appetizers

- | | |
|---------------------------------|------------------------------|
| 1 jar Old English cheese spread | 1/2 tsp. seasoned salt |
| 1/2 c. soft butter | 1 T. mayonnaise |
| 1/4 tsp. garlic salt/powder | 1 (7 oz.) can crab meat |
| | 6 English muffins, separated |

Mix first 5 ingredients together well; stir in crab. Spread on each half muffin. Cut each half muffin into 6 wedges. Place in ziplock bag and freeze. When ready to serve, don't thaw. Bake at 400°F. for 10 minutes.

Ginny Jensen, Volga

Spaghetti Squash Shrimp Lo Mein

- | | |
|---|---|
| 1 spaghetti squash, (about 2-1/2 lbs.) | 2 tsp. vegetable oil, divided |
| 1/4 cup reduced sodium soy sauce | 1-1/2 cups matchstick carrots |
| 2 T. honey | 1 medium red bell pepper, thinly sliced |
| 2 tsp. McCormick® Garlic Powder, divided | 1 lb. shrimp, peeled and deveined |
| 1-1/4 tsp. McCormick® Ginger, Ground, divided | 1/4 cup thinly sliced green onions |

Cut spaghetti squash crosswise into 1-inch thick rings. Remove seeds. Place rings on microwavable plate. Pour 1/4 cup water in the plate. Cover with plastic wrap. Microwave on HIGH 7 minutes or until tender. Let stand in microwave 10 minutes. Carefully remove from microwave. Peel the skin off the squash, then shred the flesh, using fingers or a fork, into long thin strands. Place squash noodles in large bowl. Discard the skin. (Should yield about 5 cups of squash noodles.) Meanwhile, mix soy sauce, honey, 1-1/2 tsp. of the garlic powder and 1 tsp. of the ginger in small bowl until well blended. Set aside. Heat 1 T. of the oil in large skillet on medium-high heat. Add carrots and pepper; stir-fry 3 minutes. Add shrimp and sauce mixture; stir-fry 2 minutes or just until shrimp turn pink. Remove shrimp mixture from skillet. Heat remaining 1 T. oil in skillet on medium-high heat. Add squash noodles, remaining 1/2 tsp. garlic powder and 1/4 tsp. ginger; cook and stir gently 1 minute to heat through. Return shrimp mixture to skillet; toss gently with squash noodles. Remove from heat. Sprinkle with green onions. Makes 7 (1 cup) servings

Nutritional Information Per Serving: Calories 165, Total Fat 5g, Saturated Fat 1g, Sodium 479mg, Cholesterol 96mg, Carbohydrates 18g, Protein 12g, Dietary Fiber 3g,

Pictured, Cooperative Connections

Please send your favorite appetizer, beverage and casserole recipes to your local electric cooperative (address found on Page 3).

Each recipe printed will be entered into a drawing for a prize in June 2018.

All entries must include your name, mailing address, telephone number and cooperative name.

Can You Help Locate these People?

Unclaimed Capital Credit Checks

Ackman, Paul	Erikson, Edwin E	Kuchenbecker, Len	Sorenson, Henry
Arhart, Edna	Espedal, T M	Kuyper, Eugene	Speck Brothers
Aronatequi, Carol	Fenske, Christina	Lewis, Wesley	Spider, Doremis
Ashes, Jerome	Fredericks, Sandy	London, Dennis	Spider, Stephanie
Ashley, Nikki	Frink, Joseph	Lynde, Tim	Steichen, Claude
Atkins, Irene A	Geiger, Alison	Manning, Tom	Stewart, Terry
Baker -Wulff	Gillen, Ted or Leona	Marshall, Ardis	Stoll, Howard
Barnes, Robert	Going, Clyde F III	Martin, Dave	Stratman, Clarence
Bartscher, Joyce	Goldammer, Michael	Martin Farm or Martin, Willard	Strohm, Connie
Beers, Mason	Gonzales, Eddi	Massie, William	Stulken, Marvin
Berg, Milton L	Gran, Mark Gran Enterprises	McBride, Lester	Stunes, Melvin
Big Eagle, Tricia	Grassrope, Merlin	McBride, Terry	Sullivan, Gwendoline E
Blaine, Barbara	Guinn, Doris	Mesa Medical Consulting	Swenson, Dave
Bowker, Gail	Hall, Doyle	Metcalf, Kally	Swenson, Douglas J
Bravek, Chad	Hanson, Gary L	Miller Bros Cattle Co	Taylor, Ricky
Brisbine, Judy or Olinger, Kaye	Hardick, Irma	Miller, Richard	Taylor, Shelley
Burmeister, Gerhard	Hanten, Nick	Mohnen, Cletus	Terveen, Kenneth
Bushman, Darleen B	Harvest Initiative	Morgan, Karen	Trachsel, Jeffrey
Buttrey, Esther	Herrboldt, Cory or Chad	Nelson, Bill	Tupper, Geneviene
Byrd, Karen S	Hilgenberg, Helen E	Nielson, Melvin	Turner, Lucille F
Central Builders & Equipment/ Winter, Darrell	His Law, Kristy	Olson, James W	Van Ert, Gary P
Christian Missionary Alliance	Hoekman, Ella	Page, Marie	Viereck, Virgil or Ruth
Christenson, Lars	Houska, Alvin	Pejsa, Joe	Vohland, Julie K
Cilliers, Gregory	Howard, James P	Buckley Pomani Estate	Weaver, Leslie
Corbin, Luther	Howe, John and Dawn	Priebe, Steve	Webb, Larry
Degelder, Art	Hubbard Implement	Reuland, Edward	Weber, Diane J
Dickson, John or Grace	Huey, W H	Roberts, Douglas	Weisner, Amelia
Ditzler, Dale	Isanti Construction Services	Schlichting, Arthur W	Wells, Wendy
Don's Ford - Mercury	Leota Johnson Farm	Scott, Wallace	Wind, Denise
Driving Hawk, Misty	Johnson, Robert	Sedlacek, James I	Winker, Nancy
Droge, Jake or Martha	Kane, Leonard	Selland Grain Inc	Withhorn, Nathan
Duxbury, Jerald	Kennedy, Valene	Sheesley, Carl	Wooner, Dale
Eggers, George	Keoke, Patty	Sievert, Ryan	Young, Keith
Engel, Lester	Kercher, Brooke	Sitting Crow, Eunice	
	Kluthe, Sylvester	Sitting Crow, Victor	

Applications Available

Empower Youth

Applications are now available for the Empower Youth leadership program!

What is Empower Youth?

Empower Youth is a leadership program which embodies several cooperative principals to inspire our next generation of leaders. The guiding cooperative principals include education, cooperation among cooperatives, and concern for community.

The program will involve three sessions, including two 1-day workshops and the 4-day South Dakota Youth Excursion.

Session 1 - May 31, 2018, Mitchell, SD

Session 2 - July 2018, Youth Excursion to North Dakota

Session 3 - late Summer 2018, date TBD

Who is eligible?

To be eligible, a student must be a high school freshman or sophomore who permanently resides within Aurora, Brule, Buffalo, Jerauld, Sanborn, Miner, Davison, or Hanson counties of South Dakota or be the dependent of a Central Electric member.

One student from each county or director district may be selected.

What is the cost?

There is no cost to the student to participate. The cooperative can provide assistance with transportation to and from sessions.

How do I apply?

Visit empoweryouth.coop and fill out the online application by April 18, 2018.



Win a Trip to Washington, D.C.

The deadline to apply for Youth Tour 2018 is March 1, 2018.

High school juniors who permanently reside within Aurora, Brule, Buffalo, Jerauld, Sanborn, Miner, Davison, or Hanson counties of South Dakota or are the dependent of a Central Electric member are eligible.

To apply, students must submit an essay on the given topic, not to exceed 1,000 words.

For the essay topic and full details, visit our website at www.centralec.coop.



Member Notice: Meter Testing in Your Area

Chapman Metering will be on Central Electric's project testing meters beginning in early March.

The technician's names are Terry Simons and Lenny McCall, and they will be driving white Chevy vans with Chapman Metering logos and Central Electric door decals.



They will be testing 300 meters on our system.

Again, if you see a white van in your area or yard, it should have Central Electric or Chapman Metering logos on it.

If you have any questions or concerns, please call Central Electric at 800-477-2892.





Solar energy generates about 1 percent of the nation's electricity.

WHERE RENEWABLE ENERGY GETS ITS POWER

Here are the basics of a small but fast-growing source of your electricity.

Paul Wesslund

NRECA Contributing Writer

Solar energy and wind power may not seem like a big deal. Unless you're talking about the future. Or maybe even the present.

For all today's talk about renewable energy, it still makes up a pretty small portion of the energy sources that generate our electricity. But it's coming on fast, and it's picking up speed.

Here's your crash course in how wind, the sun and water generate electricity.

Solar energy

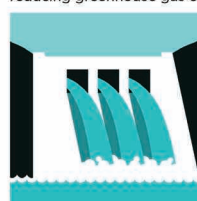
Solar energy generates only about 1 percent of the nation's electricity, but that's a stunning increase from just five years ago, when the number was too small to report for the U.S. Department of Energy. Solar growth will continue as costs fall, technology improves and people figure out better ways to use solar energy.

There are lots of ways to use energy from the sun. You can hang your washed clothes outside to dry, and you can open curtains to warm your home on a sunny day. More ambitious projects use the sun to warm pipes full of water that is pumped around a building for heat.

But what most people mean when they talk about solar energy is photovoltaic electricity. When certain materials get hit by sunlight, their atoms spit out an electron, and electricity is just

DID YOU KNOW?

Approximately 15 percent of the nation's electricity is generated from renewable energy sources, like hydro, wind and solar power. That percentage may seem low, but renewable energy generation is gaining momentum and continues to play an important role in reducing greenhouse gas emissions.



6.5%
generated by
hydropower.



5.6%
generated by
wind.



0.9%
generated by
solar.

*Additional sources, like geothermal and biomass, contribute to the 15 percent of renewable energy generation.

Source: Energy Information Administration

a stream of electrons. Over the decades, scientists and engineers experimented with solar-sensitive materials to make them into lighter, longer-lasting and more affordable wafers called photovoltaic cells, which are combined and integrated into solar photovoltaic modules. One of their first uses was space travel, and continued improvements are allowing solar to become a more down-to-earth kind of energy.

One of those improvements is cost. Solar panel prices dropped 85 percent in the past seven years with improvements in materials and larger-scale production methods.

Another technological advance is about to give the industry an

extra boost, says Dale Bradshaw, a technical consultant with the National Rural Electric Cooperative Association (NRECA). He says solar panels can now track the sun as it moves across the sky rather than sitting fixed in place, raising their productivity by collecting more sunlight throughout the day. This year, the U.S. Department of Energy's Energy Information Administration reported that half the large solar installations in the country already use some kind of sun-tracking technology.

It's also worth knowing that the solar industry is maturing with different forms of ownership: utility, industrial, commercial and residential scale, and community solar installations.

Utility scale is what you might expect – large banks of solar panels owned and operated by an electric utility or other large organization, producing many megawatts of solar energy. Industrial and commercial solar installations can range from kilowatts up to multi-megawatts and be placed on rooftops, over parking lots or on land near industrial and commercial enterprises. Industrial and commercial installations are beginning to increase as the price for solar continues to drop. Residential solar installations are also being installed primarily on rooftops, especially in the southwestern United States.

NRECA's Bradshaw says community solar can ease the higher expense of self-owned rooftop solar. With community solar, a utility builds a large solar installation and sells shares in the project to customers interested in an investment in renewable energy. That style of ownership and development is especially suited to consumer-owned electric co-ops, and many are offering solar shares to their members.

"Co-ops are doing a great job of building community-scale solar," says Bradshaw. "They're going full blast on that."

Bradshaw also notes that community solar allows a homeowner to avoid both maintenance of their own system, and the hassle of sorting out different offers from rooftop solar vendors.

Wind power

Wind power has increased significantly as costs continue to decrease. Wind power generates nearly 6 percent of the nation's electricity, and it is growing at a pretty good clip, with an increase of about 35 percent during the past four years.

In a way, wind generates electricity the same way as coal, natural gas and nuclear – by spinning a turbine that creates an electricity-producing magnetic field. The huge difference is that the turbine is turned by enormous propeller-like blades designed to catch the wind.

It's the size of those blades, and the height of the turbine towers (as much as 300 feet in the air) that makes the difference, says NRECA's Bradshaw.

"Wind is a really useful renewable, but it has to be utility scale," he says.

A tall utility-scale tower can capture as much as 50 percent of the wind, but there's not a practical, personal alternative to compare with rooftop solar. A rural residential customer or a rural commercial customer with a 50 to 100-foot tower will probably generate electricity only about 25 percent of the time. "It's really

not cost-effective for small-scale home use when compared to utility scale wind turbines," says Bradshaw.

Hydroelectric power

Another way to turn an electricity-generating turbine is to store water behind a dam then harness its power as it flows from the reservoir to the river below.

Specialists disagree on whether to count hydroelectric power as renewable energy. On the one hand, it doesn't create greenhouse gas or other chemical pollutants by burning fossil fuel. On the other hand, large-scale hydro typically calls for building a permanent dam across a river valley and flooding the area behind it. Another option is to put hydroelectric generators directly in rapidly flowing rivers to capture power, but this is a significantly more expensive option than using hydroelectric power from water stored behind a permanent dam. Then there's the question of whether you consider flowing water renewable, or something that can be used up.

Hydroelectric power generates nearly 7 percent of the electricity in the United States. Although that number changes a bit during times of drought or heavy rain, the amount of electricity produced by hydro power has been relatively stable during the past several years.

Paul Wesslund writes on cooperative issues 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.



Nationally, wind accounts for nearly 6 percent of the nation's electricity. For electric cooperatives in the Dakotas and Minnesota, the percentage is higher.

Power Blinks? Fowl Play.



Brian Bultje

Manager of Operations

Central Electric and East River continue with a rigorous maintenance schedule to help mitigate issues such as these.

Members on the Wilbur, Plankinton, Storla, Howard, and Fedora substations have recently experienced transmission blinks.

After investigating, East River crews are finding contaminants on the insulators which cause “arcing.” The insulator separates the energized wire from the pole and cross arms, which are grounded. In the right conditions such as wet weather, a blink or even an outage occurs.

In this case, the contaminants are bird droppings. The droppings cover the insulator, which allows electricity to track to the ground or “arc.”

Replacing this type of insulator can be a quick fix, but not a long-term solution. Long term mitigation would require rebuilding and updating a whole new line structure.

Central Electric and East River continue with a rigorous maintenance schedule to help prevent and fix issues such as these.



Left: This photo was taken last fall at our Plankinton substation and previously published in the newsletter. Since then, East River crews have installed predator calls in the substation to try and mitigate any damage caused by birds.

The predator calls let out a “squawk” sound every so often to imitate a predator and scare away the birds. It is similar to what’s used in a sunflower field.



Operation Round-Up board member Ellen Speck (far right) presents a check for \$1,500 to the Ethan Community Center Committee. Pictured left-right: Leah Mellegaard, Michelle Klumb, Betty Raymond, Don Garvis, Annie Haag, Marty Royston, Michele Pollreis, Ellen Speck.

Ethan Community Center Receives Funding



The Ethan Community Center received \$1,500 from Operation Round-Up for center renovations.

A volunteer committee has renovated the former Catholic church into a community center and gathering space for the community of Ethan.

Funds were used to install new carpet, light fixtures and a second bathroom.

To rent the room, contact Betty Raymond at the City Finance Office at 605-227-4230. Be sure to follow the Center's updates on Facebook as well!

Operation Round-Up is funded by our members who voluntarily round up their electric bills to the next dollar. The cents flow into a charitable fund, and 100% of the donations are invested back into our local communities. The average annual donation per member is \$6.00.

The next Operation Round-Up application deadline is May 1, 2018.

Since 2016, Operation Round-Up has awarded over \$45,000 to worthy local causes. Thank you to our members who donate to program. Small cents have made a big impact.

Individuals or organizations interested in applying for funds can find the full application and guidelines on our website at www.centralec.coop. The next application deadline is May 1, 2018.



Right: Recent renovations included new carpet, light fixtures, and a second bathroom.

Robots and Sensors

Electric co-ops use innovative technologies for real-time feedback on the health of the grid.

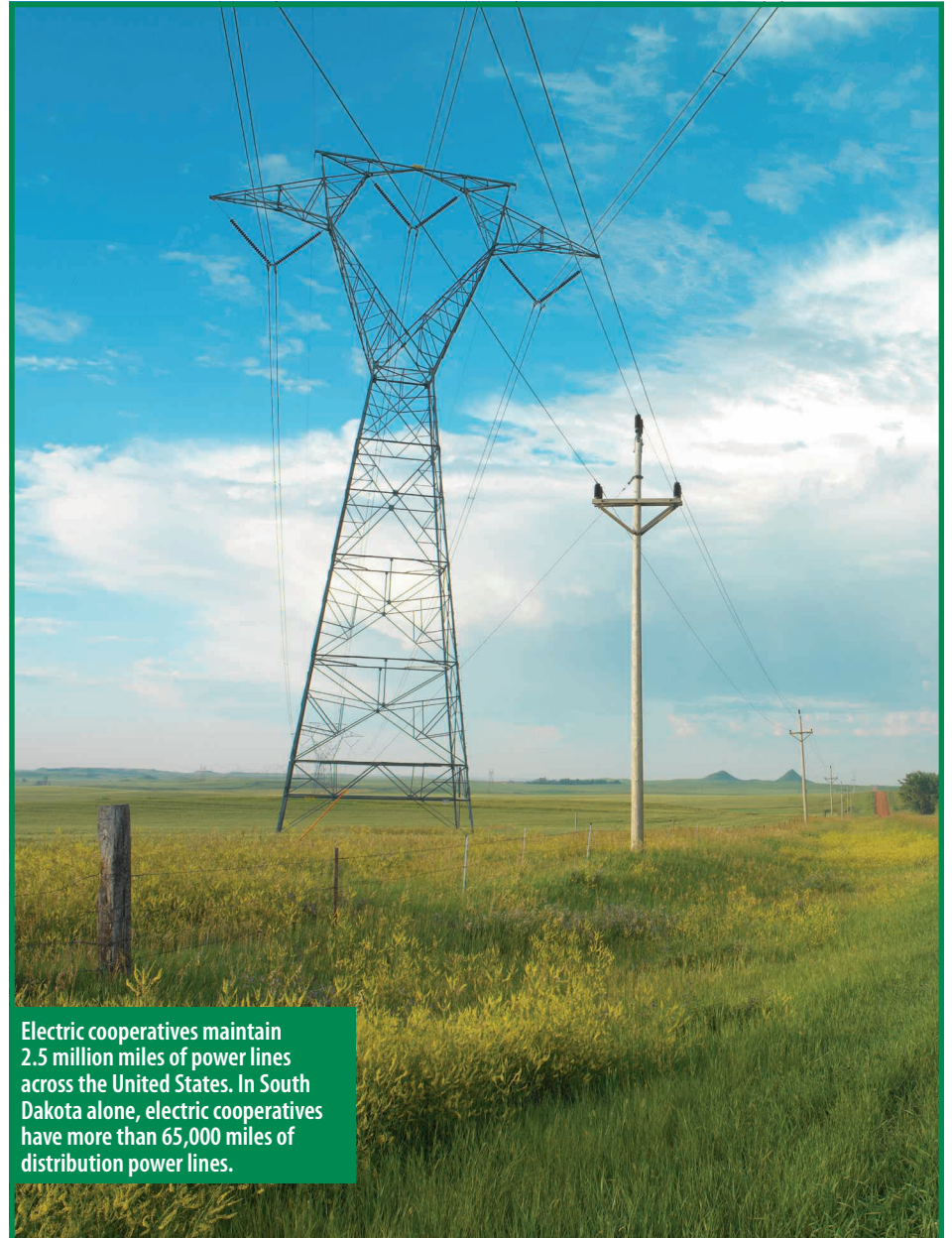
Thomas Kirk

NRECA Associate Analyst

Today, electric cooperatives may choose from a wide array of technologies that give them near real-time feedback on the health of the grid.

Electric grids are immense machines that span counties, and often entire states, bringing power to many homes and businesses. So how do the electric companies know what's happening on their lines? How much power is being delivered? What equipment needs to be replaced? These are important questions that electric cooperatives spend a lot of time and money to answer.

For many years, electric co-ops relied entirely on in-person inspections to determine asset conditions and calls from members to discover power outages. During and after storms, this could mean lengthy recovery times as supervisors evaluated the available information and decided where to send line crews, who then searched for damaged lines in order to make repairs and restore electric service. Even normal operations required personnel to be sent into the field constantly to perform manual inspections. Today, electric co-ops may choose from a wide array of technologies that give them near real-time feedback on the health of the grid. Monitoring and automation tech-



Electric cooperatives maintain 2.5 million miles of power lines across the United States. In South Dakota alone, electric cooperatives have more than 65,000 miles of distribution power lines.

nologies are becoming more affordable and gaining more functionality leading to greater use in the field.

Two of the most common technologies in this space are Supervisory Control and Data Acquisition (SCADA) and

Automated Meter Infrastructure (AMI).

SCADA systems have greatly evolved since their original development in the 1920s. Modern systems take advantage of communication, monitoring and automation technologies to give utilities a



Electric cooperatives are exploring a host of innovative technologies, such as smart meters and special sensors placed on power lines for niche applications, including fault location, power theft detection and asset management.

real-time picture of how substations are performing and make changes as needed. At the end of the line, AMI, also known as smart meters, report back to the utility how much energy consumers use, often on a 15-minute basis. Utilities can “ping” these meters to determine if they’re still receiving power during storms or other types of outages.

Beyond AMI and SCADA, utilities are exploring a host of other sensor technologies for niche applications including fault location, power theft detection and asset management. These applications are being enabled by a new wave of inexpensive sensors that cost one-tenth of what they did a decade ago. When a fault occurs on a transmission line (the large power lines that carry power from plants to substations), they create transient waves on the lines. By placing special sensors on transmission lines and measuring the time that a wave reaches two of these sensors, the location of a fault can be accurately and quickly determined. This lets the utility know exactly where to send repair crews.

Across the whole U.S. electric industry, roughly \$6 billion worth of electricity is stolen annually, which leads to higher prices for everyone. Traditionally, one of the best tools for identifying power theft

For members, these technologies provide three primary benefits: increased reliability, reduced outage times and lower prices.

is visual inspection of meters for signs of tampering, but with AMI systems, utility personnel aren’t visiting meters in-person as often. Load-monitoring sensors – often called current transformers (CTs) or current sensors – can be placed on distri-

bution power lines to help catch significant losses along a line, from theft or for other reasons. Data gathered by CTs can be reconciled with meter readings to investigate discrepancies between the electricity passed through the line and the electricity measured by the meters. CT devices are also valuable for diagnosing excessive line loss due to other problems, such as conductor damage or aging transformers.

For members, these technologies provide three primary benefits: increased reliability, reduced outage times and lower prices as the utility manages employee time and resources more efficiently. As sensors continue to improve and drop in price, expect to see more real-time grid monitoring.

Thomas Kirk is an associate analyst of distributed energy resources for the Arlington, Va.-based National Rural Electric Cooperative Association’s Business & Technology Strategies (BTS) division.

50 years ago

Page 2

TRI-COUNTY ELECTRIC NEWS

General Manager's Report

BY LEROY K. GREENWOLD

First elimination results of the Youth Essay Contest have just been received and we are proud to announce the top 13 winners. They are Julie Ann Franek, Gann Valley High School; Ken Edwards, Margaret Schmidt, and Bonita Olson, Plankinton High School; Donna Brugger, Jane Assmus, and Leon Kuyper, Stickney High School; Kathleen Wilson and Lynn Horsley, Wessington Springs High School; Lorraine Stoops, Kimball High School; Gladys Burmison, Alpena High School; Gail Swanson, Chamberlain High School; and Gloria Donker of White Lake High School.

These top 13 will present their essays to a panel of judges on March 22nd at the headquarters office. Two winners will be selected to represent Tri-County Electric in the Youth Essay Contest trip to Washington, D.C., early in June and the remainder will receive a free trip to Pierre where they will have dinner with Governor Boe and tour the Capital and Oahe Dam.

We want to congratulate the top 13. The competition was between 67 juniors and to be in the top 13 is an honor.

* * *

35 years ago

STATISTICS

POWER STATISTICS — January, 1968:

Kilowatt Hours (KWH) Purchased	3,590,509
System Kilowatt (KW) Demand	7,764
Average Line Loss (12 Months), Per Cent	10%

ENERGY SALES STATISTICS — January, 1968:

Kilowatt Hours (KWH) Sold	2,954,999
Number of Consumers Billed	2,243
Overall Average Use	1,317
Farm Average Use (KWH)	1,203
Overall Average Bill	\$30.25
Farm Average Bill	\$28.05

MISCELLANEOUS STATISTICS — January, 1968:

Taxes Paid	\$2,232.18
Interest Paid	\$4,404.63
Principal Repaid	\$9,095.37

INTERCOUNTY ELECTRIC NEWS

INTERCOUNTY ELECTRIC SERVING 3,337 MEMBERS IN DAVISON, HANSON, SANBORN AND MINER COUNTIES

March, 1983

Mitchell Vo Tech judging team has good year



Mitchell, S.D.

The Junior College Livestock Judging Team from the Mitchell Area Vocational School has just completed a successful year. The team traveled to the National Barrow show at Austin, Minnesota; the Northern International Livestock Exposition in Billings, Montana; and the American Royal in Kansas City.

The team as pictured includes from left to right standing; Loren Hodges, Presho; Alan Davis, Bath; Rick Carmichael, Salem; David Bosma, Armour. Front row left to right, Coach Myron Sonne; Robert Kunzweiler, Kimball; Julie Koch, Salem; Scott Nielsen, Highmore; and Curtis Wieczorek, Mt. Vernon.

Managers

Report

by

Lloyd Oleson



District Meetings Completed

We recently completed our District meetings, which are held each year in each district, to nominate Director candidates for the consideration of our membership in an election at the Annual meeting. Our attendance was down this year compared to the year before and we hate to see this happen.

This is an excellent opportunity to show slides and overheads and give reports on the years activities of your cooperative and to answer questions you may have. We try to have a program that is meaningful, informational as well as educational. We had several good comments this year on the program that was presented. We surely want to thank the folks who had these kind words. It would be so nice if each member who attended this year would make it a point to bring a neighbor along next year.

Our District meetings are followed soon after by the Annual meeting. Our Annual meeting this year will be March 23, 1983 and will be at the Corn Palace in Mitchell. Why not plan to attend this year and enjoy some good fellowship along with a cup of coffee and a donut or two? Who knows, you may even win a prize.

We have invited Mr. Iven Jacobson to give an "entertaining" talk which you will find very enjoyable.

There are certain reports and items of business which will be given at your Annual meeting to fulfill the requirements of the by-laws. We will try to cover these items as quickly as possible in order to move the meeting along.

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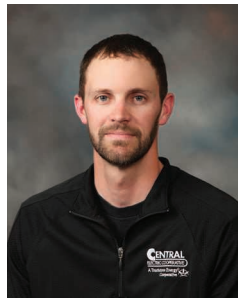
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March 3-6

2018 Summit League Basketball Championship, Sioux Falls, SD, 605-367-7288

March 9-10

Holiday Arts Spring Craft Show, Masonic Temple, Mitchell, SD, 605-359-2049

March 10

Farm and Home Show, 10 a.m. to 5 p.m., Auditorium, Gregory, SD, 605-830-9778

March 10-11

2018 Gun Show, American Legion Hall, Saturday 9 a.m. to 5 p.m., Sunday 9 a.m. to 3 p.m. MST, Philip, SD, 605-859-2280 or 605-441-8466

March 15-17

South Dakota High School State B Boys Basketball Tournament, Barnett Center, Aberdeen, SD

March 15-17

South Dakota High School State A Boys Basketball Tournament, Rushmore Plaza Civic Center, Rapid City, SD

March 15-17

South Dakota High School State AA Boys Basketball Tournament, Premier Center, Sioux Falls, SD

March 16-17, 23-24

60th Annual Schmeckfest, Freeman, SD, 605-925-4237

March 17

Annual Ag Day at the Washington Pavilion, Sioux Falls, SD, 605-367-6000

March 24

Spring Craft Fair/Flea Market, American Legion Hall, Wagner, SD, 605-384-3543



February 24: Annual Outhouse Races and Chili Cook-off Contest, Nemo, SD, 605-578-2708

March 24

Milltones Spring Show, 7 p.m., High School Theatre, Milbank, SD

April 5

McCrossan's Wildest Banquet Auction in the Midwest featuring A Night Out with the PBR, 5:30 p.m., Arena, Sioux Falls, SD, Tickets: \$75 each, 605-339-1203, www.mccrossan.org

April 6

SPURS Spring Dance, Dakota Events Center, Aberdeen, SD, Tickets available at the Hitch 'N Post or by calling 605-226-1099

April 6-7

Forks, Corks and Kegs Food, Wine and Beer Festival, Deadwood, SD, 605-578-1876

April 6-8

Professional Bull Riders Built Ford Tough Series, Sioux Falls, SD, 605-367-7288

April 7-8

Hats Off to the Artists Art Show, Faulkton, SD, 605-598-4160

April 25-29

Black Hills Film Festival, Hill City, SD, 605-574-9454

April 28-29

Bike Show, Ramkota Convention Center, Aberdeen, SD, 605-290-0908

May 10

Chris Young, Don Barnett Arena, Rushmore Plaza Civic Center, Rapid City, SD, 605-394-4115

May 13

1880 Train Mother's Day Express, Hill City, SD, 605-574-2222

May 18

Turkey Races, Huron, SD, 605-352-0000

May 18-19

Sioux Empire Film Festival, Sioux Falls, SD, 605-367-6000

May 18-20

State Parks Open House and Free Fishing Weekend, Pierre, SD, 605-773-3391

May 18-20

Tesla Road Trip Rally, Custer, SD, 605-673-2244

July 7

Hedahls Auto Value Car Show, Hav-A-Rest Campground, Redfield, SD, 605-380-9985

July 10-15

4th Annual 3 Wheeler Rally, Deadwood, SD, 605-717-7174, www.d3wr.com

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.