Sioux Valley Energy
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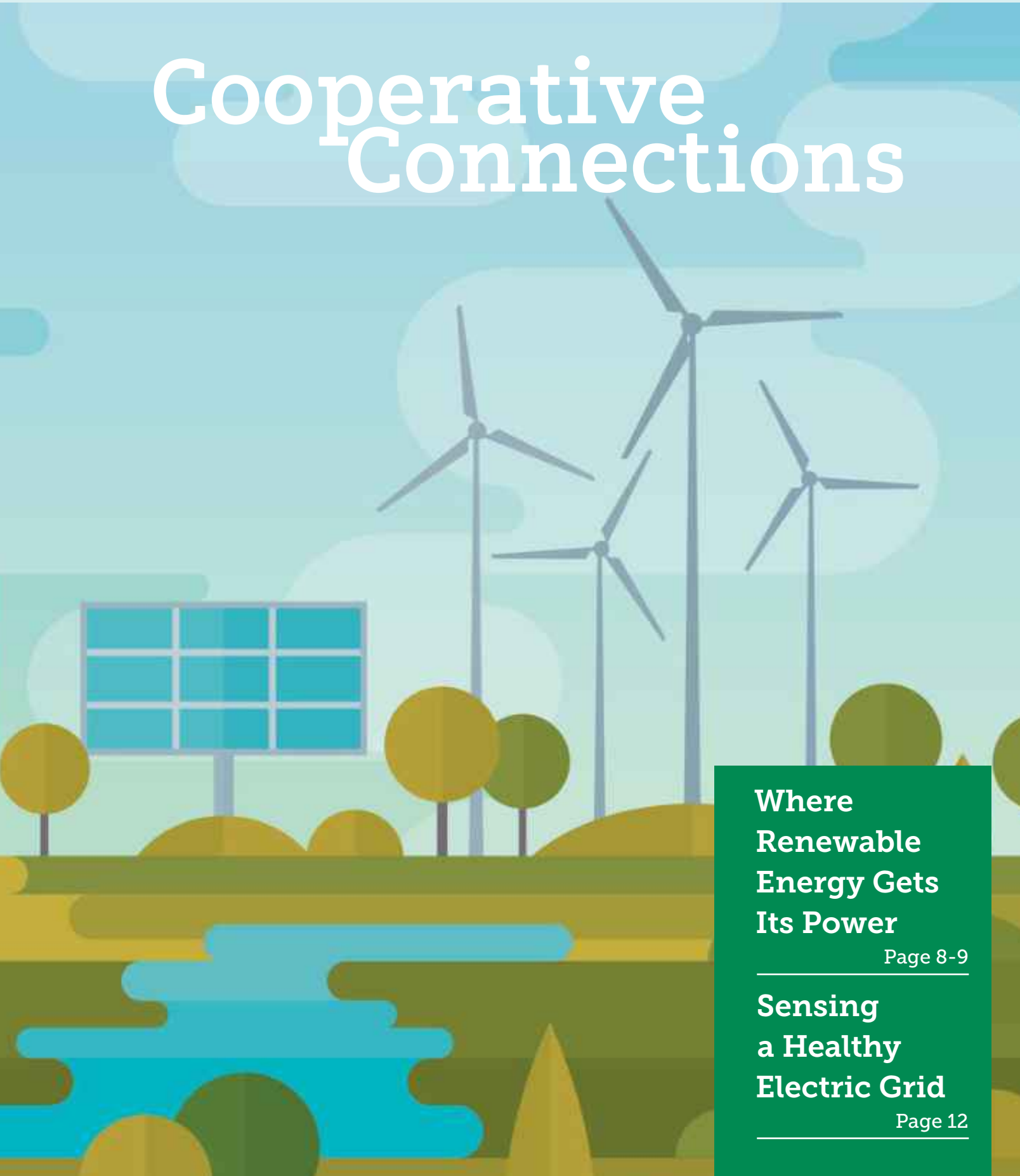
Cooperative Connections



Where Renewable Energy Gets Its Power

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Sensing a Healthy Electric Grid

Page 12

BALANCED SCORECARD

SVE PLAN OF ACTION

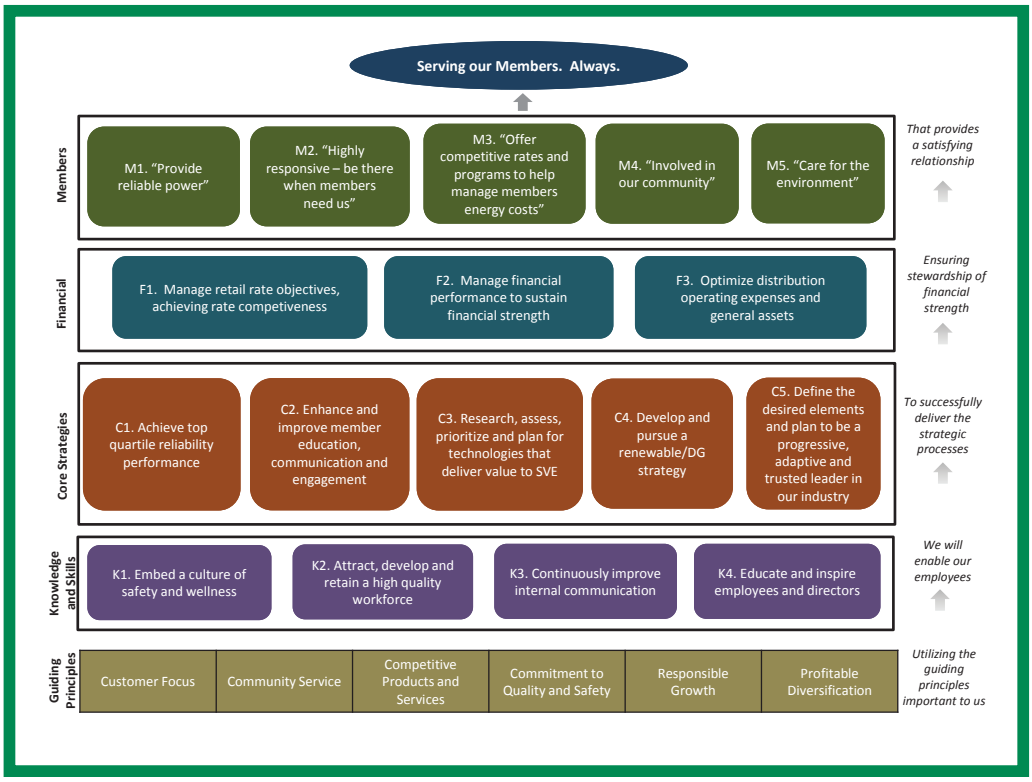
Tim McCarthy, GM/CEO
tim.mccarthy@siouxvalleyenergy.com

Putting a plan of action to work… Sometimes it's called strategy; other times it's called goal setting. Regardless of the words used to describe it—it's essential for all organizations.

The Sioux Valley Energy Board of Directors meets each summer to develop focus for the cooperative and set plans for the future. A few years ago, they began utilizing a tool that has helped build a solid, long term strategy—it's called a balanced scorecard. It's not like a golf scorecard, where the person with the lowest score wins. It's more of a continuous process which develops from the Cooperative's guiding principles-customer focus, community service, competitive products and services, commitment to quality and safety, responsible growth and profitable diversification. Sioux Valley Energy's strategy is built from the foundation of these principles.

A balanced scorecard offers four different perspectives—**financial, member, internal and organizational**. It helps tie high level strategy to the actual work being done at the Cooperative for the members. Employees are able to practice and support the Cooperative's guiding principles through knowledge and skills—those internal initiatives include: embedding a culture of safety and wellness; attracting, developing and retaining a high-quality work force; improving internal communications; and educating and inspiring employees and directors.

In light of those initiatives, we view the safety of our employees and members as our number one priority. To support that view, we have revitalized our safety culture utilizing the approach developed by the Caterpillar Corporation. We also have increased public education and developed a reorganized safety steering committee. These efforts have helped strengthen our culture of safety. There are no shortcuts when it comes to safety and we will not compromise that position, even if it takes a little bit longer to get the lights on.



As you move up on the balanced scorecard you will see that knowledge and skill of employees comes into focus. That commitment from employees allows us to successfully deliver the following Sioux Valley Energy core strategies: Achieving top quartile reliability performance; Enhancing member education, communication and engagement; Researching, assessing, prioritizing and planning for technologies that offer value; Developing and pursuing a renewable and distributed generation strategy; and to develop a plan to be a progressive, adaptive, and trusted leader.

Continued on Page 3

Sioux Valley Energy

Cooperative Connections

(USPS No. 497-440)
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e-mail: sve@siouxvalleyenergy.com
Website: www.siouxvalleyenergy.com

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As we work on those initiatives, we are evaluating what our members are asking for. As an example, we now have members who come to us to ask questions about renewable energy. They not only want advice; they also want to utilize new technologies that are made possible via renewable energy. We are trying to develop a well-thought out plan that meets those desires of the membership. For example, this year we are offering an electric car plug-in incentive rate and rebate. That's just the start—as we build this strategy you will see a more in-depth plan for the utilization of renewables for our members.

Those initiatives are only possible if Sioux Valley Energy maintains a strong financial position. The next level of the balanced scorecard includes three initiatives: Manage retail rate objectives and financial performance as well as optimize distribution operating expenses and general assets. We continuously monitor Sioux Valley Energy's equity level which is our members' allocated capital credits. We strive to keep it between 30 and 40 percent. This equity level allows us to re-invest in our electric system and places the responsibility of maintaining the electric system on all members. At the end of 2017 our equity was just under 36 percent. This is right where we want to be. If we fall below or above our set monitoring points, we will take a closer look at our capital credit retirement program and our operating budget. Currently, we retire 2.5 percent of the capital credits each year in the form of a bill credit.

To top off the balanced scorecard and to successfully live the mission of "Serving our Members. Always.", we work to create relationships with our members, through providing reliable power, being highly responsive, offering competitive rates and programs, being involved in our community and caring for the environment.

When we say our mission is **"Serving our Members. Always."** It's not just a statement written on a piece of paper. It's the core of everything we do. The key is to listen to your membership and respond to their needs… For example, our directors and employees will be out and about this summer hosting community picnics; we are developing a blog that will help answer common member questions more effectively; we also plan to update our website as well as host an event to celebrate Earth Day, just to name a few.

That is what this balanced scorecard is all about, but in the end, we always keep the member our prime focus. Here at Sioux Valley, we don't just say it, we live it: **Serving our Members. Always.**

Evink's Win Nest Thermostat

Jerry and Wendy Evink from Edgerton, MN are the winners of the Nest Wifi Learning Thermostat given away for month three of the Energy Makeover Contest.

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

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 shredded Cheddar cheese

Onions

4 eggs

1 cup milk

1/2 tsp. salt

Pepper to taste

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

1 tsp. grated lemon rind plus 1 T. fresh juice (from 1 lemon)

1 tsp. Worcestershire sauce

4 (6 oz.) center-cut salmon fillets (about 1-inch thick)

1/4 tsp. kosher salt

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 c. soft butter

1/4 tsp. garlic salt/powder

1/2 tsp. seasoned salt

1 T. mayonnaise

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.)

1/4 cup reduced sodium soy sauce

2 T. honey

2 tsp. McCormick® Garlic Powder, divided

1-1/4 tsp. McCormick® Ginger, Ground, divided

2 tsp. vegetable oil, divided

1-1/2 cups matchstick carrots

1 medium red bell pepper, thinly sliced

1 lb. shrimp, peeled and deveined

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.

Enter this month's contest and watch for next month's challenge to enter to win another valuable prize!

12 MONTH CHALLENGE TO SAVE MONEY AND WIN BIG!

You Could be a Winner!

The Energy Makeover Contest gives you 12 chances to win valuable prizes to enhance efficiency and conservation efforts in your home or business. Each month we will focus on a new topic to help you learn how little changes can help you save big!

The information gathered will help Sioux Valley Energy continue to educate our members about energy saving practices, safety, and to ensure the programs we offer meet your needs.

- **ENTER FOR A CHANCE TO WIN AN XBOX ONE GAMING STATION WITH POWER STRIP ($250 VALUE)!**
- **THIS MONTH'S CHALLENGE – INVENTORY YOUR ELECTRONIC DEVICES AND HOW OFTEN YOU USE THEM. UNPLUG ANY DEVICES THAT YOU CAN OR CONSIDER USING A POWER STRIP THAT CAN BE TURNED ON AND OFF (OR PUT ON A TIMER).**

Please complete the entry below and mail to Sioux Valley Energy, Energy Makeover Contest, PO Box 216, Colman, SD 57017. The entry is also available online at www.siouxvalleyenergy.com. One entry per member. ***Challenge Month Six entry must be received byMarch 31 to be eligible for the drawing.***

When Off Isn't Really Off

Name:_____

Address:_____

City:_____

State:_____ Zip: _____

Account Number: _____

Phone Number:_____

Email: _____

Where you able to unplug any electronics or use power strips to avoid standby power when not in use? yes☐ no☐

If yes, what items? _____

Are the monthly efficiency and conservation tips provided in the contest making you more aware of small changes you can make to save money on your electric bill? yes☐ no☐

I would like more information on:

☐Sealing/Insulation Guide ☐Heat pump rebate ☐Residential LED program ☐Commercial/Ag LED program ☐Weatherization Program ☐Yard Light rebate ☐Residential Water Heater ☐Energy Audit ☐Electric Heat Rate ☐Electric Car Charging Rate ☐Time of use Rate ☐Energy Tips ☐Commercial/Ag Water Heater ☐Third Party Irrigation Rebate

CHALLENGE MONTH SIX

WHEN OFF ISN'T REALLY OFF

Are your electronics hidden energy hogs that are impacting your wallet? There's a significant amount of energy that goes into powering all the devices you have plugged in even when you think they are turned off. According to Energystar.gov, it's estimated that US households spend approximately $100 per year to power devices while they aren't in use. Across the country, standby power accounts for more than 100 billion kWh of annual electricity consumption and $11 billion in annual energy costs. If you're in the market to purchase new electronics, look for Energy Star rated ones. This can include TVs, home theater systems, DVD players CD players, receivers, speakers, printers and much more.

Here's a few ways to save electricity for some common electronics:

- The television is one of the most used electronics in the home, with an average user keeping it on for 6.5 hours day. This usage could add another $230 on to your annual electric bill for one TV. You can reduce the energy consumption of your current TV by not leaving it on standby mode and reducing the back light setting. Energy Star rated TVs are about 25% more efficient that conventional models.
- Power manage your computers and monitors to enter a low-power sleep mode after a period of inactivity and shut them off when not in use.
- Unplug chargers, such as those used for laptops and cell phones, when they are not being used.
- Set-top boxes connect your cable to your entertainment system, but it's not just their clocks that run when no one is watching. The cable and satellite providers are improving the energy efficiency of their equipment. When choosing your pay-tv provider, select an Energy Star partner. Some Americans are now using streaming devices such as Roko or Apply TV in place of pay-tv. These devices use as little as 5 kWh a year per room.
- Game consoles may have some power-saving features, but the unit has to be turned off to take advantage of those capabilities. Many users just leave them on in standby mode or just shut off the TV. Newer consoles have an auto power-down feature. Use your laptop or tablet for streaming instead of your game console—they consume ten times less energy when streaming.
- Plug electronics into a smart power strip which allows you to designate "always on" for devices that need to maintain network connection, while cutting power from devices when they are not in use.

District 8
Candidate Profiles

Anthony Gacke

Address: Luverne, MN

Work History: 1986 to 2000: United States Navy; 2000 – present: Successful general contractor mainly installing tension fabric buildings for farmers in Iowa, Minnesota, and South Dakota

Reason for wanting to be a Sioux Valley Director: I've been interested in expanding my knowledge of Sioux Valley Energy's performance and contribution to our district. Learn and inform our consumers what innovations our Co-op is looking at and what all we can do to reduce our carbon footprint.

Skills: I'm a straight shooter, so no reservations being honest when need to be. I will provide an excellent work integrity and the charisma to carry or begin a conversation will any of our consumers.

Dan Leuthold

Address: Rural Ellsworth, MN

Work History: Having grown up on a farm southwest of Kanaranzi, I have worked on a farm my entire life. After completing an A.A.S. degree at the University of Minnesota, Waseca, I returned home to start my own operation. I continue to operate a grain and cattle farm today.

Reason for wanting to be a Sioux Valley Director: I feel it is important to be involved in the community and give back. Becoming involved in our cooperative and being willing to serve is one way I can do that. My son, having returned to the farm upon completing college and being involved with our operation, will allow me the time necessary to be on Sioux Valley Energy's board of directors. I feel that local control is the best control. That being said, we can't always expect someone else to serve. We have to be willing to step up and take our turn. As a user of electricity I probably have taken it for granted that it will always be there when we need it and how much we depend on it. So by being involved in our cooperative, I will strive to ensure that it will always be a reliable source at an affordable price for generations to come.

Skills: As a business owner, I make decisions every day that have long-term effects. Looking at all sides, perfoming due diligence and using common sense to make important decisions would help me in this position. As a farmer, one has to deal with ever changing conditions like markets, weather and technology, realizing that some things we can control, and others we cannot. It is important to be flexible and willing to change, yet sensible to know when to hold back or forward think into the future. **Other boards/ committees:** Current Rock-Nobles Cattlemen Secretary - 4 years; Past Church Finance Committee - 6 years; Past Church Education Committee - 3 years; Past Ellsworth Pre-School Board - 2 years.

Paul Doherty

Address: Magnolia, MN

Work History: I've been running the family farm since 1978 which included raising chickens, hogs, cattle and crops. Last year our farm was recognized as a century farm.

Reason for wanting to be a Sioux Valley Director: Being a long time member of the cooperative, I have seen the many changes in its operation. I feel with my past board experience, I can help guide the cooperative through its future changes and challenges. I feel I have the ability to take information that is presented to a board and make an informed decision on those facts. I would be honored to represent you.

Skills: My many years of board experience include chairman of Rock County Rural Water and Rock County Planning and Zoning. Member of Rock County Corn and Soybean, MinWind advisory board, Kanaranzi Lions Club, Representative to Lewis and Clark Water System for RCRW. Also, a number of church boards including Knights of Columbus and Parish Council.

District Meeting Schedule Set

- **Thursday, March 1**
  District 6 – Location: Brandon Valley High School – Brandon, SD
- **Monday, March 5**
  District 4 – Location: Madison High School Commons – Madison, SD
- **Tuesday, March 6**
  District 3 – Location: William J. Janklow Community Center – Flandreau, SD
- **Thursday, March 8**
  District 1 –
  Location: McKnight Hall – White, SD
- **Monday, March 12**
  District 2 – Location: Sioux Valley Middle School Gym – Volga, SD
- **Monday, March 19**
  District 5 – Location: Taopi Hall – Colton, SD
- ****Tuesday, March 20**
  District 10 – Location: Edgerton Public School – Edgerton, MN
- **Thursday, March 22**
  District 7- Location: West Central School – Hartford, SD
- ****Monday, March 26**
  District 9 – Location: Pipestone High School – Pipestone, MN
- ****Tuesday, March 27**
  District 8 – Location: Grand Prairie Events Center – Luverne, MN

**Denotes Election Meetings

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

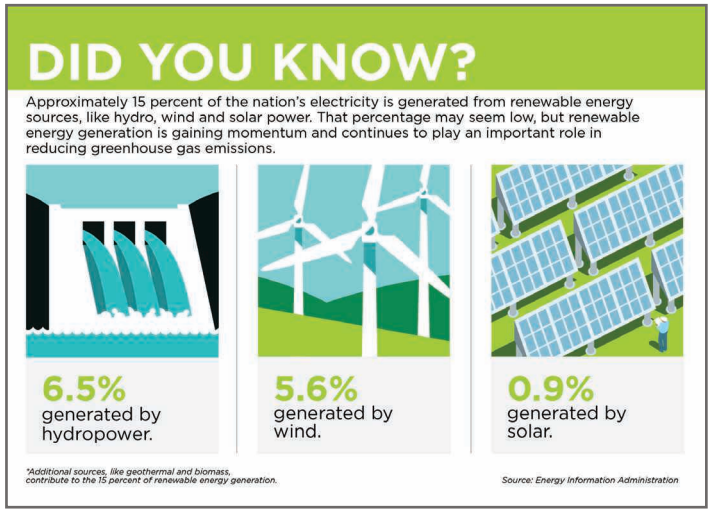
Solar energy generates only about 1 percent of the nation's electricity, but that's a stunning increase from just five years ago, when the number was too small to report for the U.S. Department of Energy. Solar growth will continue as costs fall, technology improves and people figure out better ways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

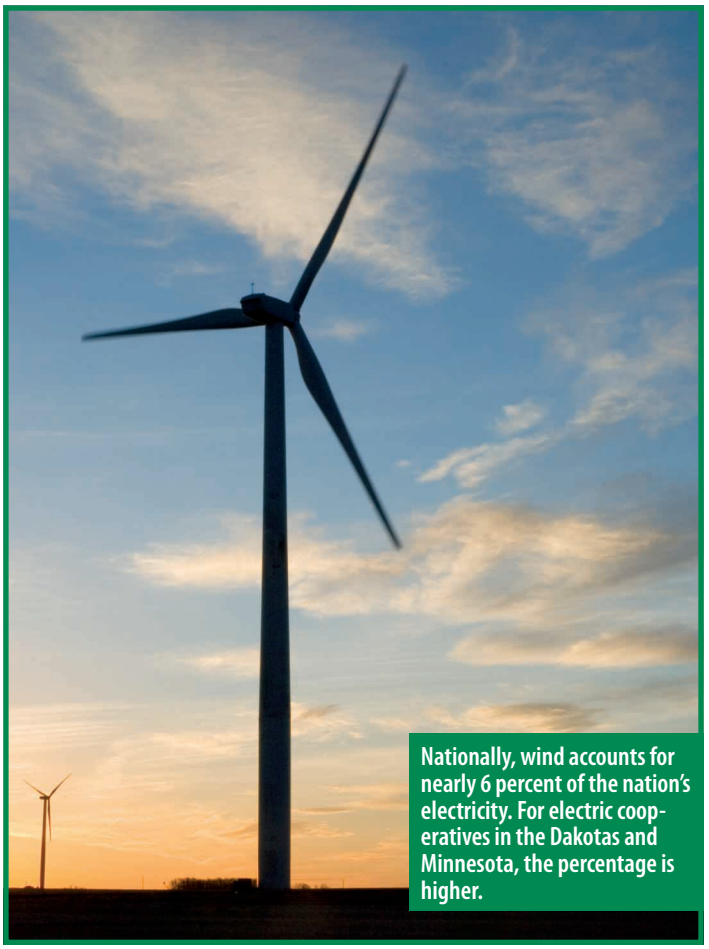
Hydroelectric power

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.

EMPOWER

Youth Leadership

Making Your Mark on the World!

Deadline to apply:

Friday, May 11th

EmPOWER youth Leadership

What does leadership look like to YOU?

Sioux Valley Energy encourages you to apply for the opportunity to learn and EmPOWER yourself with a leadership skill-set through excitement and collaboration! Learn what makes cooperatives unique and how their business model EmPOWER's members and communities to succeed. You will also have opportunities to travel and earn scholarships!

Opportunities to Grow!

College and Future Preparation

Scholarships and Travel

Explore Careers

Four fun-filled program days focusing on:

- Cooperative Business Model
- Self Confidence/Awareness
- Financial Future
- College and Career Prep
- Professional Networking
- Personal Strengths
- Communication
- Friendship
- Teamwork
- Leadership

To Apply:

- Be a sophomore or junior during the 2018-2019 school year.
- Apply online at:

empoweryouthleadership.com

Questions? Ask your guidance counselor or email AMY.VOELKER@SIOUXVALLEYENERGY.COM or call 800-234-1960

Brought to you and sponsored by:

SIOUX VALLEY ENERGY

A Touchstone Energy® Cooperative

800-234-1960

GERAETS CHOSEN AS SCHOLAR OF THE WEEK

Ethan Geraets is named Touchstone Energy Scholar of the Week. Sioux Valley Energy's Sheila Gross presented him with the award. Ethan is the son of David and Katti Geraets of Humboldt.

Ethan Geraets, a senior at Chester Area High School, has been chosen as a Touchstone Energy Cooperative 'Scholar of the Week'. Ethan was recognized with a cash award by Sioux Valley Energy and was featured on the KSFY news for his accomplishments. He is the son of David and Katti Geraets of Humboldt.

Touchstone Energy Cooperatives, like Sioux Valley Energy, and KSFY Television have joined together to recognize the achievements of high school seniors throughout the region. Recipients are highly motivated high school seniors who excel in the classroom and community. This program was founded on the four pillars of Touchstone Energy: Integrity, Accountability, Innovation and a Commitment to Community.

"Ethan is an extraordinary young individual. He was an active part of Sioux Valley's EmPOWER Youth Leadership program and has numerous accomplishments both in and out of the classroom. He is an example of what we need in our future leaders," said Tim McCarthy, Sioux Valley Energy General Manager/CEO.

Lisa Hansen, counselor at Chester Area School, says Ethan's depth of character goes beyond his athletic and classroom successes.

"Ethan is a dedicated young man with high morals and values. His character is described as trustworthy, respectful, and caring. He exhibits traits of a solid citizen. These traits lead into his leadership, where he leads by example. Not only is he a leader within our school – academically and in extra-curricular activities, but after he participated in Sioux Valley Energy's EmPOWER program, he was also elected to become part of its Advisory Committee. Ethan is a well-rounded individual with great promise for success."

ANNUAL CO-GENERATION NOTIFICATION TO THE MEMBERSHIP

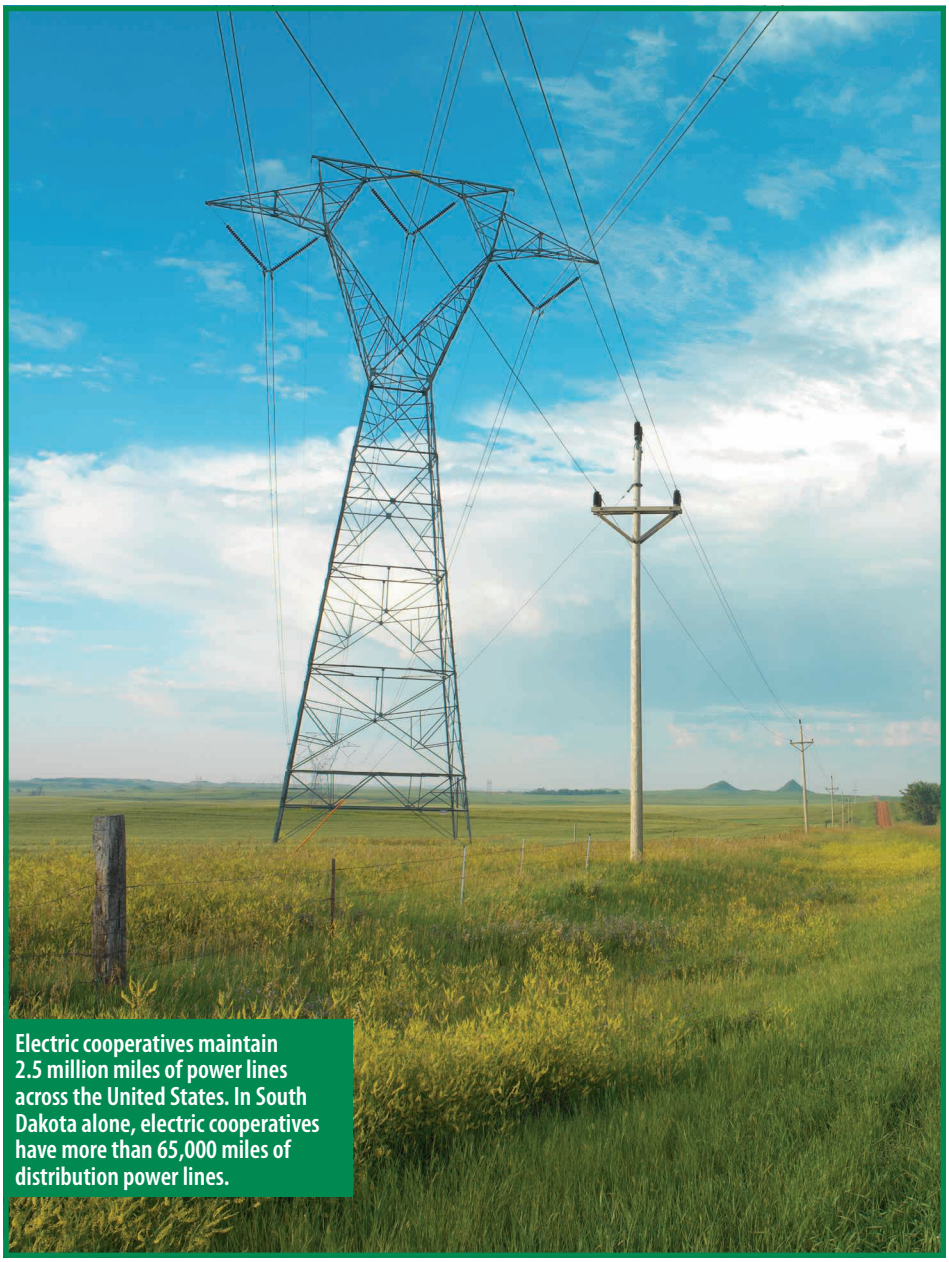
In compliance with Sioux Valley Energy adopted rules relating to Co-Generation and Small Power Production, Sioux Valley Energy is obligated to interconnect with and purchase electricity from co-generators and small power producers whom satisfy the conditions of a qualifying facility. Sioux Valley Energy is obligated to provide information free of charge to all interested members upon request regarding rates and interconnection requirements. All interconnections require an application and approval to become a qualifying facility. Any dispute over interconnections, sales and purchases are subject to resolution by the Cooperative. Interested members should contact Sioux Valley Energy, PO Box 216, Colman, SD 57017 or call 800-234-1960.

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 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.

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 technologies 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 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 distribution 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.

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.

Dakota Gasifcation Company's Great Plains Synfuels Plant is located near Beulah, N.D., and is adjacent to Basin Electric's Antelope Valley Station.

VALUE OF AN ASSET

Why Basin Electric will continue to operate Dakota Gasification Company

Tracie Bettenhausen

Basin Electric Senior Editor

Here is a high-level look at why the decision to continue to operate Dakota Gas makes sense for Basin Electric's members.

Spend a bit of time thinking about your hardest business decision.

Was it always clear it was the right thing to do? What about the moments you questioned yourself, or outside forces made the decision seem foolish? Did you stick it out? Has it paid off?

The nature of the business surrounding Dakota Gasification Company's Great Plains Synfuels Plant is based on commodity prices. The price of oil and natural gas, the prices that crops are selling for, the price of fertilizer and, though less so, the price of other products like carbon dioxide.

When commodity prices were higher, profits meant Basin Electric was able to return a lot of money to its members. The Great Plains Synfuels Plant has served as a $1.4 billion benefit to its members since 1988, and continues to provide benefits.

However, the most recent 10-year financial forecast shows losses every year.

Basin Electric directors and senior staff have decided the cooperative needs to hang steady with Dakota Gasification Company while maintaining its focus on strategic cost management and continuing to look at other options.

The decision was explained to Basin Electric members during a Members Strategic Direction Meeting in November.

"We wanted to be able to have an open dialogue with our members, where they could ask specific questions we just can't answer in an open meeting," says Paul Sukut, Basin Electric CEO and general manager. "We were pleased with how that meeting turned out. It was very well attended, and we took as much time as everyone needed to get questions answered. There is still work to do on this, but I know by going to our cooperative roots, using the business model's best attributes of transparency and democracy, we are making the best decisions we can."

Here is a high-level look at why this decision makes sense for Basin Electric's members.

History of the purchase

Basin Electric bought the Great Plains Synfuels Plant from the U.S. Department of Energy (DOE) as a way to salvage the synergies that had been built between the Synfuels Plant and Antelope Valley Station. The DOE had acquired the plant after the original owners failed.

"At the time the DOE announced its intent to close the plant, Basin Electric was under a great deal of financial stress," says Mark Foss, Basin Electric senior vice president and general counsel. "The load growth the cooperative had forecasted was not materializing, and Basin Electric had about 2,000 megawatts (MW) of generation. Our peak loads were only at 1,000 MW."

Basin Electric formed two subsidiaries to make the deal: Dakota Coal Company paid $69 million for the coal rights, Dakota Gas paid $16 million for the natural gas pipeline that reaches to the Northern Border Pipeline, and Basin Electric paid $0. As part of the deal, Basin Electric agreed to forgo production tax credits and go through with a profit-sharing agreement for 15 years.

Basin Electric had interest in keeping the plant operating for several reasons, including those related to member rates. The Synfuels Plant used about 90 MW of electricity when operating at full load. If the plant had closed down at that time, Basin Electric would have had to increase rates by 14 percent, Foss says.

From 1988-2014, Dakota Gas invested $845 million into the plant in capital improvements, all funded with self-generated cash, including the proceeds from a legal settlement concerning the gas pipeline, according to Foss.

Bottom line impacts

While the decision to buy the Synfuels Plant paid off initially, the benefits proved themselves year after year when commodity prices were high.

Of the $1.4 billion in benefit Dakota Gas has had to Basin Electric since 1988, $300 million has been through dividends and bill credits paid to members, and $1.1 billion is in synergies in operations between the various facilities, according to Susan Sorensen, Basin Electric vice president and treasurer.

Sorensen explains that the shared coal supply keeps costs down for other Basin Electric facilities. If the Synfuels Plant would be shut down, the cost of mining coal would need to be absorbed by other users. A shutdown of the Synfuels Plant would increase coal prices for Leland Olds Station and Antelope Valley Station, coal-based power plants near Stanton, N.D., and Beulah, N.D., respectively.

Also, because the Synfuels Plant shares water and rail services with Antelope Valley Station, those benefits would be shifted over to the power plant.

"Dakota Gas currently pays about 30 percent of the overhead costs at Basin Electric Headquarters," Sorensen says. "That percentage that is already netted down when considering some costs, like a haul road or computer mainframe, cannot be reduced by selling the asset."

The Synfuels Plant uses a large amount of electricity, which supports Basin Electric's margins. Also, the Freedom Mine, which supplies coal to the North Dakota facilities, is a large electricity consumer of Roughrider Electric Cooperative, a Basin Electric Class C member.

Rates and projects

The urea production facility at the Synfuels Plant has had financial challenges for some of the membership. The budget increased over the course of construction due to increases in quantity of materials and costs of labor required to build the facility. The project was further challenged by the quality and timeliness of engineering, and ultimately, staff released the general contractor for sustained poor performance. Once those issues were resolved, the project has consistently met its targets and is set to go into production by the end of January 2018.

Despite those struggles, recent rate increases can't be attributed to the construction project's budget.

"Basin Electric's average member rate went up through 2016 due to several factors," says Dave Raatz, senior vice president of Resource Planning. "Member growth was increasing across the entire membership, and we were building infrastructure to support that. Especially in the Bakken oil region of western North Dakota and eastern Montana, the growth meant Basin Electric was building generation and transmission to support the reliability of the transmission system."

The plant will produce 360,000 tons of urea each year. According to Ken Rutter, Basin Electric senior vice president of Marketing and Asset Management, there is 2.2 million tons of demand each year within a 200-mile radius of the plant.

Backing up the decision

While these factors may be enough on their own for Basin Electric to keep the Synfuels Plant operating, staff knows more action needs to be taken.

Through September 2017, Dakota Gas employees have been able to find ways to reduce expenses by $24.5 million.

Once the urea production facility is operating, the Synfuels Plant will need 160 MW of electricity, and is expected to run at a 93-percent capacity factor, according to Dave Sauer, Dakota Gas senior vice president and chief operating officer.

A creative tactic would change the way the power contract between Dakota Gas and Basin Electric is written. Currently, the Synfuels Plant pays a higher-than-market rate. Having the plant pay market rates wouldn't impact Basin Electric. Also, a plant write-down is being considered, which wouldn't affect operation of the plant.

Employees of Dakota Gas and Basin Electric continue to search for ways to reduce costs and operate the plant more efficiently. Normal staff attrition has helped reduce the workforce as employees leave due to retirement and other opportunities.

On the Basin Electric side, directors are looking at a revenue deferral plan, which would allow for financial flexibility for future instances like what is happening today. Staff is working to optimize the generation fleet, focus on market exposure, and work on a coal asset strategy.

Urea Plant Starts Up

North Dakota's first urea fertilizer production facility, located at Dakota Gasification Company's Great Plains Synfuels Plant near Beulah, N.D., is successfully making product and was declared commercial Feb. 1.

Urea is a dry, granular fertilizer commonly used in agricultural applications, and has the highest nitrogen content of all solid fertilizers. The facility produced urea for the first time Jan. 19. Employees are currently working toward the goal of producing up to 1,100 tons of product per day.

"I want to thank the employees of Dakota Gasification Company and Basin Electric for working safely and efficiently to achieve this major milestone," said Paul Sukut, Basin Electric CEO and general manager. "Hard work and innovation are hallmarks of America's Heartland, and I'm proud that the completion of this project carries on that tradition.

The plant has the ability to shift a portion of the urea production to produce diesel exhaust fluid, used to reduce emissions of nitrogen oxides from diesel engines. Additionally, the new facility has the capability of producing liquefied carbon dioxide, which is expected to be used in the oil production industry. The products bring the Synfuels Plants total product count to 13.

Construction on the project started in July 2014.

February 24
Ham Dinner and Wild Game Feed, Izaak Walton League, Doors open 5:30 p.m., Serve at 6:30 p.m., Sioux Falls, SD, 605-332-9527

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 11
Trap Shoot (Meat Shoot), Gun Club, Lunch Available 11 a.m., Garretson, SD, 605-359-6843

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 16-18, March 22-25
Green Earth Players presents KOLD Radio – Whitefish Bay, Palace Theatre, Luverne, MN, 507-283-4339

March 17
Annual Ag Day at the Washington Pavilion, Sioux Falls, SD, 605-367-6000

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

Photo courtesy travelsd.com

March 18
Trap Shoot (Meat Shoot), Izaak Walton League Club, Lunch Available, 11 a.m., Sioux Falls, SD, 605-332-9527

March 24
Spring Craft Fair/Flea Market, American Legion Hall, Wagner, SD, 605-384-3543

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 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 28
Season Opening and 50th Anniversary of Brookings County Museum, Noon to 5 p.m., City Park, In concert with that, there will be a grand opening of the Trygve A. Trooien Horse-Drawn Museum that is now a part of the six-building county museum complex, prizes, drawings, tours, refreshments, Volga, SD, Contact Chuck Cecil at cfcecil@swiftel.net

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.