

Cooperative Connections



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Changes Affecting Where Your Electricity Comes From: The Electricity "Supermarket"



Ken Schlimgen

General Manager

The history of your electric cooperative dates back to the late 1940's. Powerlines were being built at a rapid pace to deliver electric power to rural homes, farms and businesses so they could take advantage of this life changing technology. A technology that would provide light, pump water, keep food fresh, and power motors and make life so much easier and more productive.

Today, your cooperative provides electric service to about 7,100 meters across eight counties. Over the past 70 plus years, we have found more and more ways to utilize that electric energy. Ways that could not have been imagined or dreamed about when this cooperative was started. Technology will continue to advance, and we will continue to find more ways to utilize electricity to make life more convenient and be more productive.

Our electric power supply has also seen changes that affect the way we do business. Traditionally, Basin Electric Power Cooperative was responsible for electric generation assets that would provide electricity to Central Electric and all of its member cooperatives across 9 states. Today, utilities and cooperatives like Basin Electric work together through Regional Transmission Organizations or RTOs. Belonging to an RTO allows the sharing of generation and transmission resources in an effort to avoid duplication and deliver electricity at a lower cost.

There are several RTOs serving various regions across the United States. To over simplify what an RTO does could be described as a supermarket for electricity. Every day, utilities who are part of an RTO sell every Kwh of electricity they produce to the RTO and then buy back every Kwh they need from the RTO. This is done through a bidding process, and power produced at the lowest price is generally sold first.

As you know, electricity is produced with natural gas, wind, nuclear, coal and several other resources. Each generation type has different limitations, different costs for production and is offered into the RTO

market at different prices, quantities, and times of the day. When the demand for electricity is high, prices rise as more expensive generation units come online. Inversely, there are times when there is an oversupply of electricity and prices go down.

To most of us, the concept of a market for electricity sounds like a pretty good deal, right? Let's just say it is not that simple. The RTO has volumes of rules and requirements to insure we have a reliable source of electric power. In addition, each power producer has financial obligations (loans) that were agreed to prior to the forming of RTOs. These obligations were based on the life of the power plant and an original plan for that power plant to produce and sell electricity every day. As more generation resources enter the market, there is more competition for the same Kwh sales and not all generation will be able to operate every day.

Plants that generate electricity with coal or nuclear power are at times at a disadvantage as they are not able to ramp production up and down based on market pricing. However, these plants deliver electricity when other power plants can't.

So what does all this mean to you? I suggest you become more familiar with the terms used in the electric industry. Knowing and understanding demand, energy, off-peak, and time of use for example, will help you to make better energy decisions in the future.

I predict that someday, in the distant future, all of our electric bills will include facility, demand, energy and other components based on the cost to deliver electric energy and the market prices that change hourly. This does not mean electric costs will increase. It simply means that each monthly electric bill will more accurately reflect how and when we utilize electric energy resources. It also means if we can manage how and when we use electric energy resources, we will have yet another opportunity to lower the cost of the electricity we use.

Until Next Month – Be Safe



A Touchstone Energy® Cooperative 

(USPS 018-963)

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Mission Statement

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

Ag Appreciation Day

Wednesday, August 8
 W.H. Lyon Fairgrounds,
 Sioux Falls, SD

Free Admission with ticket until
 1:00 PM

Free Lunch 11:00 AM - 1:00 PM

Pick up your free ticket at the
 Central Electric Office located on
 Betts Road. Limited number of
 tickets available.

Gate sponsored by the Touchstone
 Energy® Cooperatives of South
 Dakota



Touchstone Energy®
 Cooperatives

The power of human connections®

Surplus Vehicle

2007 Chevy Silverado 1500 4WD - \$7,000



203,640 miles
 V8 Engine
 5.3 Liter
 Automatic
 Tilt wheel, Cruise control
 Power steering, power
 breaks, air conditioning
 New tires
 Regular maintenance

**The vehicle will be available for
 purchase on Tuesday, July 24th at
 9:00 A.M.** If multiple buyers are
 present, a lottery will be held to
 determine the buyer.

To view the vehicle prior to the
 purchase date, call 605-996-7516
 and visit with Doug or stop by our
 office.

Employee Years of Service

Daren Hoffer

August 1 - 18 years

Doug Schley

August 26 - 33 years

Patrick Soukup

August 17 - 3 years

Thank you for your service to the cooperative!

Home Project Safety

More people are doing their own remodeling, repairs, maintenance, landscaping, and construction projects inside and outside the home. Safe Electricity urges all do-it-yourselfers to take precautions, especially when working around electrical equipment and overhead power lines.



Make sure outdoor outlets have a ground fault circuit interrupter (GFCI). Use a portable GFCI if your outdoor outlets don't have them. It's also a good idea to have GFCIs professionally installed in wet areas of the home, such as the kitchen, bath and laundry.

Safety tips to remember include:

- Look up and around you. Always know of the location of power lines, particularly when using long metal tools, like ladders, pool skimmers, and pruning poles, or when installing rooftop antennas and satellite dishes or doing roof repair work.
- Be especially careful when working near power lines attached to your house. Keep equipment and yourself at least 10 feet from lines. Never trim trees near power lines — leave that to the professionals. Never use water or blower extensions to clean gutters near electric lines. Contact a professional maintenance contractor.
- If your projects include digging, like building a deck or planting a tree, call the national underground utility locator at 8-1-1 before you begin. Never assume the location or depth of underground utility lines. This service is free, prevents the inconvenience of having utilities interrupted, and can help you avoid serious injury.
- Always check the condition of cords and power tools before using them. Repair or replace worn or damaged cords and tools.
- Electricity + water = danger. If it's raining or the ground is wet, don't use electric power or yard tools. Never use electrical appliances or touch circuit breakers or fuses when you're wet or standing in water. Keep electric equipment at least 10 feet from wet areas.

Make certain home electrical systems and wiring are adequate to support increased electric demands of new electric appliances, home additions, or remodeling projects. An older home may be inadequately wired for today's electricity consumption, putting your family at risk for fire and electrical shock. Have a professional replace worn and outdated circuitry and add outlets for appliances and electronics – this is not a job for casual do-it-yourselfers!



**It took years to make it a farm...
It takes one call to keep it safe.**

The soil on your farm or ranch is rich with nutrients and minerals... AND underground gas, oil and water pipelines.

Excavations, terracing projects, fence post installation, tiling or subsoiling can create safety hazards due to the depth of the excavations.

CALL BEFORE YOU DIG in order to notify utility companies who will be affected by the excavation. This service is FREE.

No one digs more dirt than America's farmers and ranchers. Understanding what is below ground will help you DIG SAFELY above ground. Call before you dig!

KIDS CORNER SAFETY POSTER



"Never remove a plug when your hands are wet."

Aida Mikkonen, 10 years old

Aida is the daughter of Patrick and Carrie Mikkonen, Mt. Vernon, S.D. They are members of Central Electric Cooperative, Mitchell, 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.

Sensational Salads

Tzatziki Potato Salad

- | | |
|---|--|
| 2 lbs. unpeeled Yukon Gold potatoes, cut into 1-inch cubes (about 6 cups) | 2 tsp. McCormick® Garlic Powder |
| 3/4 cup (6 oz.) plain Greek-style yogurt | 1-1/2 tsp. McCormick® Oregano Leaves |
| 1/4 cup reduced fat sour cream | 1/2 tsp. McCormick® Black Pepper, Coarse Ground |
| 2 T. milk | 1/2 tsp. Sea Salt from McCormick® Sea Salt Grinder |
| 1 T. lemon juice | 1 cup diced unpeeled, seeded cucumber |
| 2 tsp. honey | 1/4 cup chopped red onion |

Place potatoes in water to cover in large saucepan. Bring to boil on high heat. Reduce heat to low; simmer 10 to 12 minutes or until potatoes are fork-tender. Drain well. Cool completely. Mix yogurt, sour cream and milk in small bowl with wire whisk until well blended. Add lemon juice, honey and seasonings; mix until well blended. Place potatoes, cucumber and onion in large bowl. Add yogurt dressing; toss gently to coat well. Garnish with crumbled feta cheese, if desired. Cover. Refrigerate until ready to serve. Makes 10 (2/3 cup) servings.

Nutritional Information Per Serving: Calories 97, Total Fat 1g, Sodium 109mg, Cholesterol 3mg, Carbohydrates 18g, Protein 4g, Dietary Fiber 2g

Pictured, Cooperative Connections

Pineapple Pretzel Salad

- | | |
|-----------------------------|---|
| 1 stick butter | 1 (12 oz.) container whipped topping |
| 1 cup crushed pretzels | 1 (20 oz.) can crushed pineapple, drained |
| 1 cup sugar, divided | |
| 1 (8 oz.) pkg. cream cheese | |

Melt butter. Stir in pretzels and 1/2 cup sugar. Spread on 9x13-inch baking sheet. Bake at 350°F. for 7 minutes. Cool. Break into pieces and set aside. Beat together softened cream cheese and remaining 1/2 cup sugar. Stir in whipped topping and pineapple. Add pretzel mixture just before serving.

Beth Eickman, Salem, S.D.

Chicken Salad

- | | |
|---------------------------------------|---|
| 1 chicken, roasted, deboned and diced | 2 cups diced celery |
| 2 lbs. red grapes, washed and halved | 1 to 1-1/2 cups real mayonnaise |
| 2 cups diced carrots | 1 (9 oz.) can Pik-Nik Shoestring Potatoes |

Mix together first 5 ingredients. Add shoestring potatoes just before serving. This looks lovely on a large leaf of lettuce.

Judy Mendel, Doland, S.D.

Make Ahead Rhubarb Salad

- | | |
|-----------------------------------|-------------------------------------|
| 2 cups diced rhubarb | 1 cup chopped celery |
| 1/2 cup sugar | 3/4 cup chopped nuts |
| 1 (3 oz.) pkg. strawberry gelatin | 1 (8 oz.) container whipped topping |
| 1 (3 oz.) pkg. cream cheese | |

In a saucepan, cook rhubarb and sugar for 10 minutes; remove from heat. Stir in gelatin and cream cheese; cool. Add celery and nuts. Fold in whipped topping. Refrigerate overnight.

Elaine Rowett, Sturgis, S.D.

Fruit Salad

- | | |
|--------------------------------------|--|
| 1 can peach pie mix | 1 pint fresh strawberries, sliced or diced |
| 1 small can chunk pineapple, drained | 1 (16 oz.) container whipped topping |
| 2 bananas, sliced or diced | |

In a large bowl, fold together all ingredients.

Shirley Thedorff, Centerville, S.D.

Please send your favorite salad, garden produce and pasta 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 2018. All entries must include your name, mailing address, telephone number and cooperative name.



General Manager Ken Schlimgen presents a check to committee members Erin Geuke, Kelsi Tobin, and Melissa Davis

POOL IMPROVEMENTS

Committee “Makes a Splash” with Updates

The Plankinton Pool Committee received a grant for \$700 from the Central Electric Operation Round-Up program towards the purchase of pool chairs. Additional funding for the recent updates have come from money budgeted from the city and overwhelming support from local businesses and citizens.

The Plankinton Pool Committee is dedicated to improving the pool for the city’s patrons and has been actively fundraising to complete major updates. Recently, the committee purchased and installed a new water slide and seating. Future improvements include updating the pool bathhouse.

While new chairs may seem like a small step forward, seating is a huge component in attracting patrons. According to a recent survey, 70% of respondents stated they utilized other pool facilities due to lack of seating.

The pool has already seen a significant increase in attendance and memberships purchased. In addition to serving as entertainment to the citizens, the pool also provides summer jobs for seven lifeguards.

The committee has been able to install a new slide and purchase seating thanks to community support.



Visit Us at Dakotafest

August 21-23, Schlaffman Farms, Mitchell, SD

Visit us at Booth #215 during Dakotafest! Take a break from the heat in our air-conditioned building. For more information about the event, visit www.ideaggroup.com/dakotafest



General Manager Ken Schlingens presents a check to committee members Amy Tlam and Dave Anderson.

MAKING A DIFFERENCE IN MOUNT VERNON

The Mount Vernon Economic Development group received a grant for \$2,500 from the Central Electric Operation Round-Up program towards improvement projects for "The Hall."

After St. Michael's Catholic Church in Mount Vernon closed, the city council and Mt. Vernon Economic Development group felt a strong responsibility to put the empty building to good use. The former church, now called "The Hall," serves as a community center and gathering area with a full kitchen for residents to use.

In the chapel area, the Mount Vernon Area Historical Society, Inc. will display items to preserve the history of the area and educate visitors.

Rent for the facility is extremely reasonable and provides an area for parties, classes, reunions, dinners, vendor fairs, meetings, as well as leased private office space.

In addition to organizing The Hall, the individuals of the Mt. Vernon Economic Development group have brought in new homes and residents through a housing project. President Dave Anderson stated for the first time in many years, the Mt. Vernon school's kindergarten class is larger than the graduating class.

For more information on The Hall, email thehall@mtvernon.com.

Soukup Graduates from "Leadership Mitchell"



Manager of Member Services & Marketing Patrick Soukup recently graduated from "Leadership Mitchell" with the Mitchell Area Chamber of Commerce.

Participants must apply and be accepted into the 8 month program. Graduates learn about the Mitchell Area in depth, areas of need, and work toward solutions for the community.

Deinert Earns National Certification



Manager of Communications Courtney Deinert has been recognized as a Certified Cooperative Communicator (CCC) through the National Rural Electric Cooperative Association.

To become a CCC, Deinert was required to pass a portfolio review and four-hour examination that tested her knowledge and abilities as a co-op communicator. Deinert is one of six in South Dakota who has received this certification and 233 active CCCs nationwide.



On a previous visit to the Rushmore State, the Touchstone Energy® Cooperatives balloon made a stop near the Crazy Horse Memorial, pictured in the background.

UP, UP AND AWAY

Cooperative Brand takes to Southern Hills Skies

Brenda Kleinjan

editor@sdrea.coop

Look to the skies above Hot Springs in late August and you'll likely see a familiar sight, albeit in a slightly unfamiliar location.

The Touchstone Energy® Cooperatives brand will be wafting above the Southern Hills when it takes part in the Fall River Hot Air Balloon Festival Aug. 25 and 26 in Hot Springs.

The Touchstone Energy® Cooperatives balloon is one of five operated by the Illinois-based Cooperative Balloon Associates. CBA was organized in 1999 to help promote the newly launched brand of America's electric cooperatives. Two decades later, the brand ambassador continues its journey.

The Touchstone Energy Cooperative balloon is just one of about 20 hot air balloons scheduled to appear at the third annual Fall River Balloon Festival.

Weather-permitting, balloons will launch at 6 a.m. both Saturday and Sunday mornings at the Hot Springs Municipal Airport. A night glow – where the balloons inflate their envelopes and illuminate their craft with their burners – is set for 8:30 p.m. Saturday at the airport.

Throughout the day, visitors to Hot Springs can



Between 15 and 20 balloons are expected for the 2018 Fall River Hot Air Balloon Festival in Hot Springs, S.D.

take part in ballooning inspired activities.

A Plein Air arts event is scheduled for downtown and organizers are seeking 15 artists to participate. Those registering prior to Aug. 15 have a chance to win a hot air balloon ride.

On Saturday morning, visitors can walk on the inside of a balloon envelope from 9 a.m. to 11 a.m. at the Mammoth site.

A vintage car show and an art walk and chalk are also planned.

For more information about the festival, visit their Facebook page at [facebook.com/FallRiverHotAirBalloonFestival](https://www.facebook.com/FallRiverHotAirBalloonFestival) or go to the Hot Springs Chamber of Commerce site at HotSprings-SD.com.

About the Touchstone Energy Balloon

The Touchstone Energy® Hot Air Balloon serves as a goodwill ambassador for Touchstone Energy® Cooperatives and its member cooperatives. The fleet's two newest balloons are 77,000 cubic foot hot air balloons that stand over 77 feet tall and are 60 feet wide when fully inflated. Each are built of hyperlife fabric panels and boast a 14 cubic foot ascot basket. They carry a pilot and two average size passengers. The balloons are fired by dual propane burners and fueled by two 15-gallon propane tanks. The balloons

were built by Lindstrand Balloons of Hanover, Ill., in 1999, 2002, 2005, 2007, 2009 and 2014. The first two balloons have been retired.

The balloons have the Touchstone Energy® Cooperatives logo in bold letters on three sides. Everywhere the balloons go,

Everywhere the balloons go, they promote the brand and the values of Touchstone Energy Cooperatives.

they promote the brand and the values of Touchstone Energy Cooperatives... providing service with integrity, accountability, innovation, and commitment to community. These values are demonstrated through the presence of the balloons at national competitions and special events, and the team's interactions with spectators. These values are also conveyed in local philanthropic fundraising activities which the Touchstone Energy Hot Air Balloon program supports whenever and wherever the balloons are flying.



Mount Rushmore was another stop on a previous visit of the Touchstone Energy® Cooperatives Balloon. The 2018 Fall River Balloon Festival will make the balloon visible in the southern foot hills.



Great Plains Balloon Race

Look to the skies over Sioux Falls Aug. 10-12 and you will likely see a colorful display.

The Great Plains Balloon Race is set to launch from Kenny Anderson Park near Sioux Falls Washington High School in the city's northeast corner. About 10 or 11 balloons are expected for this year's race.

Among the balloons scheduled for the race is the Call811.com balloon which will be promoting the importance of calling before you dig. The balloon's appearance coincides with national 8-1-1 Day on Aug. 11.

Schedule

All launches at Kenny Anderson Park

Aug. 10 – Founders Cup Challenge
Balloon Launches at 7 p.m.

Aug. 11 –
Launches at 6:30 a.m. and 7 p.m.
Balloon Glow at 8:30 p.m.

Aug. 12
Balloon Launches at 6:30 a.m.
All activities are weather-permitting.

Also on the Calendar

Balloons over DTSF on Aug. 3. and Sept. 7 at 7 p.m. – Downtown Sioux Falls

Sept. 1 – Balloons and Beer at A Homestead Brew at Valley Springs.

For more information, contact the Sioux Falls Ballooning Association.

"Once in a Lifetime Experience"

Seven local students travel to Washington, D.C. for Youth Tour 2018

This trip has made a significant impact on my life and will hold a special place in my heart.

South Dakota electric co-ops sent 45 students to Washington, D.C., on June 7-14 – marking the 53rd annual Electric Cooperative Youth Tour.

Nationwide, more than 1,800 youth attended this tour of our nation's capital. Patrick Ahearn, NRECA's director of political affairs, said this year's tour was the largest nationally. It was also a record-setter for the Rushmore state.

Attendees from Central Electric Cooperative included Heather Munsen, White Lake; Collin Powell, Chamberlain; Caleb Jarding, Mitchell; Shaina Determan, Alexandria; Renee Farmer, Letcher; Isaac Kolousek, Wessington Springs; and Anna Schwader, Winfred.

Students attending the all-expenses co-op paid trip toured historic and government landmarks. They also visited with South Dakota's legislators, received leadership training and learned about their co-ops' purpose and business model.

"All the wonderful monuments and important sites that we saw and



Students from across South Dakota in front of the White House



Collin Powell searches for a name on the Vietnam Veterans Memorial Wall



Renee Farmer pictured in front of the White House



The South Dakota students located the SD pillar at the World War II Monument.



Central Electric participants in front of the U.S. Capitol Building, L-F: Collin Powell, Isaac Kolousek, Heather Munsen, Caleb Jarding, Anna Schwader, Renee Farmer, Shaina Determan

I will never forget how much I learned and experienced during this trip and all the great people I met along with it.

explored were interesting in their own ways and very stunning,” said Powell. “I will never forget how much I learned and experienced during this trip and all the great people I met along with it.”

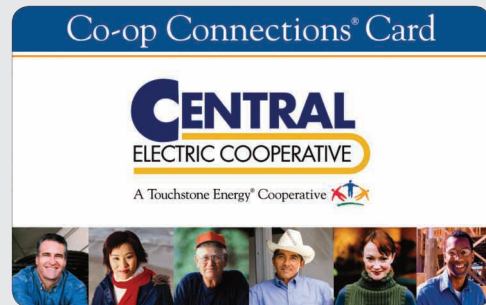
“Not only did I learn more about cooperatives, I am also blessed with wonderful opportunities, countless memories, and lifelong friends,” said Schwader. “This trip has made a significant impact on my life and will hold a special place in my heart. I am more than thankful for my cooperative, wonderful employees and for this outstanding program.”

Youth Tour participants are sponsored by Central Electric Cooperative as a way to invest in our future communities and leaders. Central Electric has sponsored students on the trip since 1963, and many participants go on to use their experience to make a future impact.



Anna Schwader pictured in front of the White House

Local Discounts with your Co-op Connections® Card



Your cooperative membership earns you discounts at local participating businesses.

Simply show your Co-op Connections Discount Card and save.

- 1) **Avera Home Medical Equipment, Mitchell, SD;**
10% off cash items only.
- 2) **BBBB's Distributing, Mitchell, SD;**
\$100 off any vinyl fence or railing purchase of \$1,000 or more, or \$100 off any regular priced stove or fireplace.
- 3) **Blessings Repeated Inc., Plankinton, SD;**
20% off a purchase of \$10 or more.
- 4) **Buckshots, Letcher, SD;**
\$1.00 off all Buckshot Burgers.
- 5) **Casey's General Store, 701 N Main, Mitchell, SD;**
Free 12 oz coffee or 32 oz fountain pop with 8 gallon fuel purchase.
- 6) **County Fair Food & Fuel, Mitchell, SD;**
5 cent discount per gallon of fuel.
- 7) **Dakota Sunset, Mitchell, SD;**
5 cent discount per gallon of fuel.
- 8) **Daylight Donuts & Bake Shoppe, Mitchell, SD;**
Donut and regular coffee for \$1.00.

For a full list of ways to save, visit www.connections.coop.

To request a card or become a participating business, visit www.centraleccoop.org or call 800-477-2892 or 605-996-7516.





Basin Electric Cooperative's Dry Fork Station is home to the Wyoming Integrated Test Center, where conversion methods turning carbon dioxide waste into useful materials are tested. (Photo By: Ryan Hall/Rural Montana)

INNOVATIVE

Carbon Test Center Opens at Basin Electric's Dry Fork Station

Derrill Holly

NRECA

Research getting under way at an electric co-op power plant in Wyoming could lead to game-changing breakthroughs diverting carbon dioxide from the power generation waste stream to manufacturing processes for use in new products.

"This is not a lab; it's a facility where testing will take place in 'real world' conditions," Gov. Matt Mead told an audience of about 150 attendees during a dedication ceremony for the Wyoming Integrated Test Center on May 16.

Mead's comments topped a nearly decade-long quest for creation and development of a facility designed to advance technologies that expand the use of CO₂ as a marketable byproduct with commercial value.

Bulk Waste to Useful Products

The facility, which takes on its first tenants this summer, is located at Basin Electric Power Cooperative's Dry Fork Station. The 385-megawatt power plant commissioned in 2011 is one of the most modern coal-based generation facili-

ties in the electric cooperative fleet.

Bismarck, North Dakota-based Basin Electric is majority owner and operator of the plant, which is co-owned by the Wyoming Municipal Power Agency.

With the encouragement of electric cooperative officials, including representatives of Basin Electric, Tri-State Generation and Transmission Association and NRECA, Wyoming legislators approved \$15 million for the project. The investment is seen as a way to preserve and support coal production as the state's top industry by reducing or eliminating concerns about CO₂ emitted through fossil fuel use.

"This is about saving coal and making coal viable for America," says Paul Sukut, CEO of Basin Electric, adding that even as renewable energy and natural gas use expands, coal remains an abundant and reliable resource. "We need in America an 'all of the above' energy solution."

Emissions from up to 20 MW of energy production will be diverted to a ported vent system feeding five small test bays and one larger working facility at the ITC. Researchers will be able to draw CO₂ from that waste stream for industri-

al-scale production use.

The nonprofit XPRIZE Foundation, headquartered in Culver City, California, is using the Dry Fork Generation Station as one of two test sites for the NRG COSIA Carbon XPRIZE. Participants have been competing for a total of \$20 million in prize money since 2015.

Westminster, Colorado-based Tri-State G&T began developing the concept for a carbon inducement prize and test center eight years ago and has contributed \$5 million to the ITC project.

“Early on, we identified promising activity in the nascent field of carbon utilization and the need to provide venues for innovators to bring new technology forward,” said Ellen Connor, Tri-State senior vice president and chief technology officer.

“The technology acceleration from the XPRIZE and creation of a test center at an operating coal plant will make an impact on both the speed and scale of development and demonstration of these important technologies,” Connor said.

NRECA has also contributed \$1 million to development of the ITC in support of the association’s commitment to a national energy policy recognizing electric generation diversity that includes fossil fuels and renewables.

“If there is a carbon constraint in the future, it’s going to hit natural gas as well,” says Jim Spiers, senior vice president of NRECA’s Business and Technology Services department.

Spiers, formerly Tri-State’s senior vice president of business strategies and chief technology officer, worked to identify institutions, companies and individuals committed to the carbon waste issue and found 135 entities worldwide are studying the issue.

According to the Energy Information Administration, coal-based electricity generation produced more than 1.2 million metric tons of CO₂ in 2016. That number accounts for 68 percent of the total CO₂ emissions from the energy sector.

Forty-one percent of the power used by electric cooperative members is produced through coal-based generation. Co-ops also rely heavily upon natural gas to operate peaking plants, run primarily

This project is poised to crack the carbon code and create a new future for managing carbon dioxide emissions.

during periods of high demand.

“As co-ops across the nation work to meet tomorrow’s energy needs, this project is poised to crack the carbon code and create a new future for managing carbon dioxide emissions,” Spiers added. “The Wyoming ITC is proof that public-private partnerships spur innovation.”

Facilities related to the ITC project now occupy 226,000 square feet of space at the Dry Fork site. While the five test bays used by the Carbon XPRIZE finalists will share access to flue gas produced by 1.5 MW of generation capacity, a separate large test center can use up to 18.5 MW of flue gas flow.

Promising Paths

The 10 teams in the juried research competition designed to advance clean energy technologies are divided equally between the coal-based ITC test site and Canada’s Shepard Energy Centre in Calgary, Alberta, where the Alberta Carbon Conversion Technology Centre is fueled by natural gas.

The five teams conducting research at ITC include:

- **Breathe:** Based in Bangalore, India, they will combine hydrogen compounds, extracted from water, with CO₂ to produce methanol. Researchers will use a variety of catalysts, including copper, nitrogen and iron to gauge the economic viability of commercial scale production.
- **C4X:** The Suzhou, China-based team will use CO₂ extracted from flue gas to develop new foam-based bio composite plastics for potential use as insulating and building materials.
- **Carbon Capture Machine:** The team, headquartered in Aberdeen, Scotland, will dissolve CO₂ in a mixture of brine, calcium and magnesium to produce

carbonate solids as an additive for building materials, replacing other carbon-based feedstocks in the manufacture of concrete.

- **CarbonCure:** The team, led by researchers from Dartmouth, Canada, will use CO₂ to produce materials described as “greener concrete” using current manufacturing processes and modified chemistry to reduce water and CO₂ use in concrete fabrication.
- **Carbon Upcycling UCLA:** The Los Angeles-based team will attempt to scale up production of a concrete material that absorbs CO₂ during the production process, bonding with limestone for use in construction.

Researchers working the natural gas track in Alberta will conduct production scale testing on plastics, concrete alternatives, new building compounds and nanoparticles for use in bioplastics and other products. The 10 semifinalists shared \$5 million awarded in April.

Beyond Research

After 10 months of production, XPRIZE judges will consider factors including operational costs, total production and net reduction of CO₂ waste as factors in awarding \$20 million in prize money. Winners from the two test sites will split the proceeds.

Kawasaki Heavy Industries, working with the Japan Coal Energy Center on a solid sorbent-based carbon capture technology, is the first tenant for the larger space at the ITC. Up to \$9 million will be spent on the project, which will use sorbent as a low-cost carrier to absorb CO₂ for later use as manufacturing feedstocks.

“The work of JCOAL and Kawasaki, along with the other Carbon XPRIZE teams, positions the Wyoming ITC as a world-class facility for testing carbon management technologies,” said Mead.

“We continue to move the needle forward on advanced carbon technologies and find real-world solutions to capturing carbon emissions,” said Jason Begger, executive director of the Wyoming Infrastructure Authority. While Basin continues to operate Dry Fork Station, the authority is serving as the managing entity for the ITC.

Derrill Holly is a staff writer for NRECA.

Your Source of Power and Information:

Electric Vehicles



Patrick Soukup

Manager of Member Services &
Marketing

Energy costs to operate a typical BEV run \$590 a year, and PHEVs cost about \$720 a year.

As your Touchstone Energy cooperative, we want to be your source of power and information. Since electric vehicles (EVs) are rapidly becoming more available, we'd like to help you evaluate if an EV is the right fit for you.

What are your typical daily driving patterns?

The average driver clocks in 40 miles each day commuting to work or running errands. If that aligns with your daily mileage, consider a battery electric vehicle (BEV). Charging overnight should keep it ready for your commute. Ranges vary from 75 to 300+ miles on BEVs.

If you average more miles per day and/or take frequent long trips, a Plug-in Hybrid Electric Vehicle (PHEV) may meet your needs. PHEVs use a combination of an electric motor and gasoline engine to provide good fuel economy, a longer range and the ability to keep driving after the battery is depleted. They do need to be plugged in to recharge, but you can operate in gas-only mode when necessary.

Another option is a hybrid. While hybrids don't offer some of the benefits of a BEV, you'll get better fuel mileage than with a conventional vehicle without plugging in.

How will you charge the vehicle?

A 120-volt outlet in your garage or driveway will handle overnight charging if you are driving only about 40 miles per day and have a full 8 hours overnight to recharge the battery. If you drive more and charge less, you may not be able to get a full charge.

If you want more rapid charging, you will need a 240-volt outlet.

How much do you plan to spend on a vehicle?

Purchase prices for electric vehicles are becoming very competitive with standard vehicles. Base prices for a BEV ranges from \$22,000 at the low end to \$125,000 for a top-end vehicle. The most popular brands ranged from \$26,000 to \$32,000.

With electric vehicles, the premium paid to purchase the vehicle is offset by the lower cost to operate and maintain. You may receive a federal tax credit for BEVs and PHEVs.

How much will you spend on maintenance and operation of an EV vs. a gas-powered vehicle?

Energy costs to operate a typical BEV run \$590 a year, and PHEVs cost about \$720 a year.

Maintenance costs will be far less in a BEV, as there are fewer moving parts and the design is less complex than other vehicles. PHEVs do have both electric and combustion components, but they may still have lower maintenance costs than a conventional vehicle. That's because some components, such as the brakes, get less wear than those on conventional gas-powered vehicles. Hybrids are similar, with both combustion and electric components.

And don't forget a federal tax credit of up to \$7,500 may be available. The amount depends on the battery size installed in the car.

For more information about electric vehicles or other energy information, visit www.centralec.coop or contact me at 800-477-2892 or 605-996-7516.

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June - September Thursdays

Mitchell Farmers Market, 4:30 to 7 p.m., Corn Palace Plaza, Mitchell, SD, Contact Maria Payne at 605-995-8048 or mpayne@cityofmitchell.org (no event Aug. 23)

July 20-21

Senior Games, Brookings, SD, Contact Traci Saugstad at 605-692-4492

July 20-21

Gumbo Ridge Bronc Ride and Ranch Rodeo, Murdo, SD, 605-669-3031

July 20-21

JazzFest, Sioux Falls, SD, 605-335-6101

July 20-21

Storybook Land Festival, Aberdeen, SD, 605-626-7015

July 20-22

Laura Ingalls Wilder Pageant, 8 p.m., Pageant Site, De Smet, SD, 800-880-3383

July 20-22

Annual Gem & Mineral Show, Rushmore Plaza Civic Center, Rapid City, SD, 605-269-2015

July 20-22

Stampede Rodeo, Burke, SD, 605-830-0304

July 21

Annual Heritage Music Fest, Elk Point, SD, 605-366-9466

July 21, Aug. 25, Sept. 8, 22

Lawn Mower Races, Pukwana, SD, 605-680-1718 or 605-682-9781

July 21-22

41st Annual Festival in the Park, Spearfish, SD, 605-642-7973



August 2-5: 33rd Annual Oglala Lakota Nation Wacipi Rodeo Fair, Pow Wow Grounds, Pine Ridge, SD, 605-867-8420

Photo courtesy: travelad.com

July 25

Stockyard Ag Experience - Local Foods Fair, 3 to 8 p.m., Free, Sioux Falls, SD, Contact 701-883-4304

July 28

Growing Ancient Grains and Greenhouse Tomato Tours, Local Foods Potluck, 1 to 5 p.m., Free, Bring a dish to share, Newell, SD, 605-681-6793

July 28

MVP Outdoor Vendor and Craft Show, 9 a.m. to 3 p.m., James Valley Community Center, Mitchell, SD, Contact 605-995-8441

August 3-4

Senior Games, Yankton, SD, Contact Kristi Hauer at 605-665-4685 or Brittany Orr 605-668-5238

August 4

Growing Nuts and Hops Tours, 9 a.m. to 5 p.m., Free, Food truck offering meals for sale, Yankton, SD, 605-681-6793 or SDSPAinfo@gmail.com

August 10-11

Senior Games, Huron, SD, Contact Laron Clock at 605-353-8533

August 18

American Island Days, Inflatables, car show, Ag Olympics, Free Admission, 9 a.m. to 11 p.m., American Creek Campground, Chamberlain, SD, Contact Donna Buche at 605-680-1202

August 18

Melon Festival and Car Show, Free will admission, Pork loin supper, bean bag tournament, silent auction, live music, and kids activities, 3 p.m., Forestburg, SD

August 19

Small-Scale Farming and Honey Extraction Tours, 9 a.m. to 3 p.m., Free, \$12 meal available, must pre-register, Belle Fourche and St. Onge, SD, 605-681-6793 or SDSPAinfo@gmail.com

September 9

Antique Car and Tractor Parade, Registration 10 a.m. to Noon, Parade 1 p.m., Farmer, SD, Contact Vonnie at 605-239-4498

September 21-22

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

October 6

Pumpkin Train, Prairie Village, Madison, SD, 800-693-3644

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.