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MESSENGER

The ice
(and nice) is
stronger here

page 6

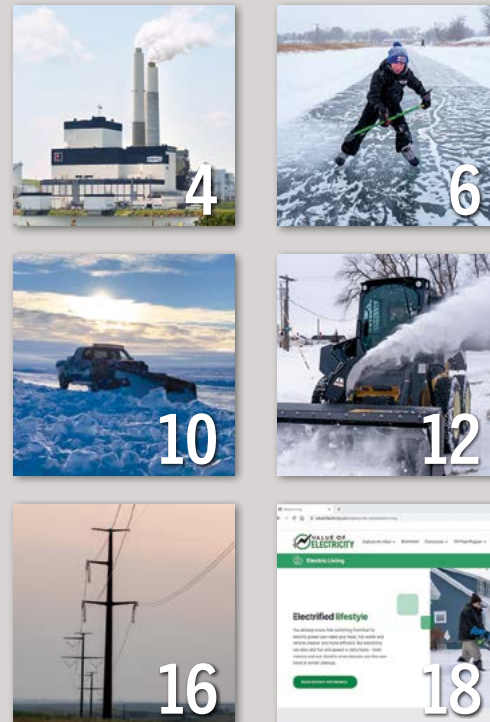


This issue is dedicated to the Hagerott family.

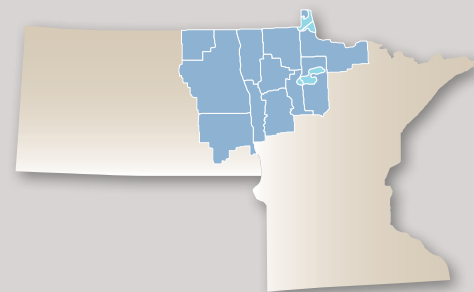
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On the cover: Stephan Eastvold, age 11 (left), and Anderson Myers, age 10 (right), stop a quick game of pick-up hockey to pose for a photo during FriluftFest on Feb. 5. The Warroad, Minn., event showcased the community's Riverbend Skate Path, the longest such path in the nation.



Minnkota Power Cooperative is a generation and transmission cooperative headquartered in Grand Forks, N.D. It supplies wholesale electricity to 11 member-owner distribution cooperatives, three in eastern North Dakota and eight in northwestern Minnesota. Minnkota also serves as operating agent for the Northern Municipal Power Agency, an association of 12 municipal utilities in the same service region. Together, the Joint System serves more than 159,000 customers.

Minnkota Messenger is published six times a year by Minnkota Power Cooperative. Its mission is to communicate Minnkota's perspectives and concerns to its members, elected officials, employees and other business audiences. For editorial inquiries, call (701) 795-4282 or email bfladhammer@minnkota.com.

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Minnkota members extend wholesale power contracts

Minnkota Power Cooperative and its 11 Class A member cooperatives reached agreements in January to extend their wholesale power contracts by three years to 2058. The contracts are foundational documents that establish Minnkota as the all-requirements wholesale power provider for the entities who also collectively own Minnkota.

"It is encouraging to see us work together as Minnkota members toward a common goal," said Les

Windjue, Minnkota board chair. "While each member is unique, there is a recognition that we are all best served when Minnkota is strong."

The new contract length provides flexibility for Minnkota to secure optimal financing for the projects in its current and future Construction Work Plans. In addition, the contracts help demonstrate financial health and stability to potential lenders and rating agencies.

Wholesale power contracts have a long history with electric cooperatives dating back to their formation. Minnkota's original contracts were signed in 1956 and have been renewed several times throughout the years.

Minnkota and its members have an initiative in 2022 to develop a process for future wholesale power contract discussions and potential renewals. Input from the distribution cooperative boards and management will be gathered in the coming year to determine the best path forward.

"Our goal is to have the membership engaged in the process," Windjue said. "We know the energy industry is changing, but we believe the cooperative business model is well-equipped to meet this change – just as it has for the last 80 years."

By Ben Fladhammer



Annual meetings set for April 1

Minnkota Power Cooperative and Square Butte Electric Cooperative will host their annual meetings on Friday, April 1, at the Minnkota Power Cooperative Corporate Campus in Grand Forks.

While Minnkota hosts its 82nd annual meeting, Square Butte will host its 48th annual meeting. At the meetings this year, reports on operations and year-end results will be presented, along with planned generation and transmission projects.

The two meetings will begin at 8:30 a.m., with Minnkota Chair Les Windjue, Devils Lake, N.D., and Square Butte President Paul Aakre, Angus, Minn., presiding. Other business will include the election of directors and adoption of policy resolutions on issues of importance to the Minnkota and Square Butte cooperatives.

A Class A membership meeting will be held on Thursday, March 31, and will be followed by a member

social. More details on those events are forthcoming.

Minnkota's 11 member distribution cooperatives supply electricity to more than 143,000 consumers in a 35,000-square-mile area. Square Butte owns Unit 2 at the Milton R. Young Station and is governed by the cooperatives associated with Minnkota.

By Ben Fladhammer

Minnkota receives CO₂ storage permit

APPROVAL WILL HELP ADVANCE COOPERATIVE'S
PROJECT TUNDRA CARBON CAPTURE INITIATIVE



Minnkota's Stacey Dahl (fifth from left), Shannon Mikula (sixth from left) and Craig Bleth (far right) stand with representatives from the Energy and Environmental Research Center and North Dakota Industrial Commission members following approval of Project Tundra's Class VI injection well permit, which will allow for the safe, permanent storage of carbon dioxide near Center, N.D.

The North Dakota Industrial Commission (NDIC) approved a permit on Jan. 21 allowing Minnkota Power Cooperative to safely and permanently store carbon dioxide (CO₂) deep underground near Center, N.D.

Approval of the Class VI injection well permit is an important step forward in the development of Project Tundra, which aims to install CO₂ capture technology at the Minnkota-operated Milton R. Young Station. About 4 million metric tons of CO₂ are planned to be captured annually from the coal-based power plant and stored in geologic formations approximately one mile underground near the plant site. If Project Tundra moves forward into construction, it will be the largest post-combustion CO₂ capture project in the world.

North Dakota is one of only two states that has received approval from the U.S. Environmental Protection Agency to regulate

geologic storage of CO₂ (also known as primary). This is the second Class VI injection well permit that has been issued in the state.

"North Dakota is positioned to be a global leader in finding solutions to reduce CO₂ emissions," said Mac McLennan, Minnkota president and CEO. "Not only do we have ideal geology for CO₂ storage, we also have a state that promotes innovation and provides leadership in the development of cutting-edge energy technologies."

Minnkota developed the Class VI permit in partnership with the Energy & Environmental Research Center (EERC) at the University of North Dakota and Oxy Low Carbon Ventures. The permit builds on more than two decades of research conducted by the EERC on geologic storage of CO₂ in North Dakota.

"The EERC is one of the world's foremost experts in geologic CO₂ storage," McLennan said. "Working with their scien-

tists, geologists and other energy experts in our home state has been vitally important to ensuring the safety and sustainability of Project Tundra's CO₂ storage facility."

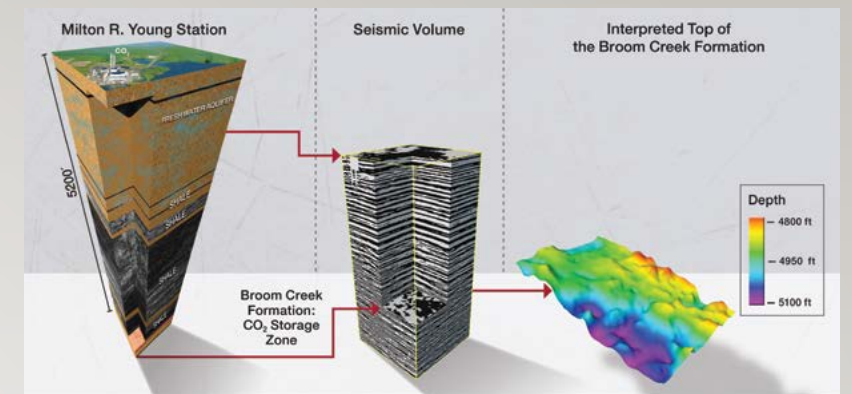
The process for receiving the Class VI permit required significant data collection, analysis and documentation to ensure safe, permanent storage. Two stratigraphic test wells were drilled more than 10,000 feet underground to retrieve core samples in 2020, while a series of seismic and geophysical surveys were also conducted in the area. The permit requires the installation of a wide array of monitoring technologies to track CO₂ movement in the subsurface, including down-hole and surface CO₂ sensors.

"We are grateful to have worked with Minnkota to help advance Project Tundra," said Charlie Gorecki, CEO of the EERC. "This project brings together energy and environmental science and technology to use North Dakota resources in a safe, clean and sustainable manner. By applying carbon capture and storage at a coal-based power plant, we don't have to choose between reliability, affordability and environmentally sound energy sources – we can have all three!"

Oxy Low Carbon Ventures, with 50 years of experience in the multi-disciplinary execution of carbon management, is advising Minnkota on the safe design and overall requirements of Project Tundra's storage facility.

"We congratulate Minnkota on the approval of the Class VI permit and are proud to contribute to this groundbreaking initiative to build a carbon capture facility at their plant," said Dr. Doug Conquest, Vice President, Services, Oxy Low Carbon Ventures. "Geologic sequestration is a safe, permanent solution for industries seeking to reduce their carbon footprint and meet their CO₂ emission reduction objectives."

During the permit development process, Minnkota has worked closely with area landowners and other key stakeholders through various open houses, virtual meetings and other outreach efforts.



(Left) Conceptualized image showing the subsurface geology near the Young Station. (Middle) The 3D seismic volume generated from processing nearly 7 square miles of data. (Right) The interpreted surface for the top of the Broom Creek Formation. The depth scale is exaggerated to highlight structural highs and lows. (Image courtesy of EERC)

"Our people at the Young Station are personally invested in the safety and environmental responsibility of this project because this is their home," McLennan said. "We are thankful for the support we've received from the communities in Oliver County and remain committed to communicating with them as the project continues ahead."

In 2022, Minnkota will work with its partners to further refine Project Tundra's engineering plans and overall project economics. A request has been submitted to the state's Lignite Research Council to provide special grant funding to assist with the final construction-ready engineering plan.

Minnkota anticipates making a decision on whether to move forward with construction of Project Tundra in late 2022. The approximately \$1 billion project would primarily be funded through federal 45Q tax credits. If approved by the cooperative's board of directors, construction could begin near the end of the year with a goal to commence operations in 2026.

To learn more about Project Tundra, visit ProjectTundraND.com.



Test wells were drilled in 2020 to ensure the proposed storage zones were suitable for CO₂ storage.

By Ben Fladhammer / Photography Submitted Photos

The ice (and nice) is stronger here

BRUTAL WINTER CONDITIONS WON'T KEEP WARROAD, MINN., FROM A SECOND YEAR OF RIVERBEND SKATE PATH FAME

Becoming sure on your skates can take some practice. In northern Minnesota, perfecting the skill is a rite of passage.



In any other town, people would just stay indoors during a Winter Weather Advisory. In any other town, a wind chill below zero and snow globe-like elements would call for jammies and slippers over jerseys and skates.

Of course, other towns don't boast the longest ice path in the country. Other towns aren't Warroad, Minn.

Any day is a good day to pass the puck in Warroad – especially when you have a 5-mile stretch to do so.



"We're in a storm warning, it's blowing like crazy, snow falling, we had two ice brooms and another two Rangers going continuously. But people were still showing up to skate," said Jared Olafson, one of the hockey dads behind year two of the Riverbend Skate Path. "Just seeing all of the people huddled around fires, they're relaxing, they're skating, going to the vendors and food huts – the people are my favorite part, out enjoying it."

This was FriluftFest, a Feb. 5 event organized by Warroad Community Partners to celebrate the record-setting 5.2-mile river path and the spirit of the region's people. The all-day Scandinavian-themed party drew dozens of hardy skaters from Iowa,

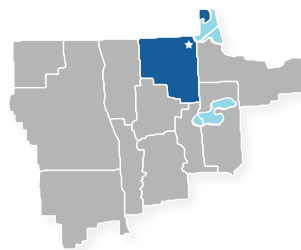


the Dakotas and all corners of Minnesota to the frozen stretch of Warroad River that winds through town. Guests were treated to a smorgasbord of activities along the path including coffee and Nordic goodies, open hockey, skating races, snowshoeing, fire-pit socials and an evening candlelight skate.

FriluftFest attendees gather around a riverside fire pit for a warm-up.

The Riverbend Skate Path is free and open to everyone on skates, skis, snowshoes – or paws.





Served by
**Roseau Electric
Cooperative**

Roseau, Minn.

and
**Warroad Municipal
Utilities**

Warroad, Minn.

A volunteer helps clear the ice during the endless snow on Feb. 5.



If you were enjoying the skate path during FriluftFest, the plows and brooms were never far behind to keep the route safe and visible.



“We came across the term ‘friluftsliv.’ It’s Norwegian for ‘open-air life,’ which means to really embrace the outdoors. The idea lines up perfectly with the path,” said event organizer Sarah Homme of Warroad Community Partners. “Last year I said, man, we have to have something on the ice. How cool would it be to call it FriluftFest – Open-Air Fest? Minnesota is 32% Scandinavian!”

The event displayed the fruits of the work ethic and competitiveness that flows through the Olafson veins of Jared and his brother, Travis. The Olafsons and their Riverbend neighbor, Craig Kennedy, first created the skate path in 2020 when the pandemic closed indoor rinks and brought the town’s hockey lifestyle to a halt. The community support was overwhelming that first winter, so they knew they wanted to make it happen again. But the original 2.5 miles wouldn’t do.

“My brother was doing some online research and found out Vermont held the record at 4 ½,” Jared said. “He called Craig and me and said, ‘Boys, we’re Hockeytown USA. Vermont doesn’t deserve it.’ So we went 5.2.”

Going the extra mile(s)

The path to 5.2 miles wasn’t free of obstacles. Although the original maintenance crew was now supported by additional volunteers, the weather refused to be a team player. When they started plowing the path in 2020, a lack of snow made for easy work – not the case the following winter.

“This year, we’ve had a lot of snow,” Jared said. “It took longer for the ice to freeze to support vehicles, then once it did freeze, there was a good six inches worth of snow already on the ice to try to move.”

The slower start and bigger challenges never stopped the “Riverbender Crew.” They successfully expanded the trail to include the neighborhoods south of the namesake Riverbend region where the path was first contrived.

“It goes way back into the woods where the river meanders through, and it’s all big trees. At any time, you can skate and there are deer walking along the path,” Jared explained. “We were excited to offer that new, fresh look. And then the community jumped on board as well.”

Help came in all forms from organizations around the region. Students from the high school’s Construction I class designed and built new warming huts for the path. The Team FRED Robotics group donated a large fire pit, and the local company Heatmor kicked in two more to warm the route every weekend. The crew was flooded with monetary donations for the materials and fuels needed to keep the path in tip-top shape.

Roseau Electric Cooperative (REC), which distributes electricity to the Warroad area, also found a way to assist. Through its member-supported Operation Round Up program, a grant selection board awarded Riverbend Skate Path \$1,500 to help purchase two battery-powered augers.

“This type of project matches some of the most important things the board looks for in a project: local community input (volunteer labor invested in the project) and local community impact (hours of free use by all),” said Tracey Stoll, REC general manager. “The process used to maintain the path – using pumps to bring up river water to be applied to the surface of the path – made the request for augers to drill the holes that the pump hoses occupy an exciting opportunity for the designation of the funds.”

“It’s been a phenomenal outpouring of support again this year. As the Riverbend crew, we’re thankful for it,” Jared said.

A new campaign this year not only helped offset maintenance costs, but also brought the heart of the community to the riverside. For a fee, any person could sponsor a lighted Christmas tree along the route in memory of a loved one. Lake of the Woods Coffee Company laser-etched a sign for each tree, which were illuminated with solar lights.

“The path just exemplifies what Warroad is about,” Homme said as snow battered her parka hood and people skated through FriluftFest behind her. “That’s just the way our community is. The selflessness of the people who put it together –

they didn’t do it for attention, they didn’t do it to get paid, they didn’t do it for anything other than they thought it was cool and it would make Warroad cool.”

“As a group, we are absolutely ecstatic. We love that it brings everybody in. We love watching people skate by and visiting with them to see where they’re from,” Jared said. “The town of Warroad is definitely still in support of the path. They love the path and I think it’s going to be there for the long haul.”

If you would like to donate to the Riverbend Skate Path project, visit **RiverbendSkatePath.com** for more information.

By Kaylee Cusack / Photography Michael Hoeft



Mark Watson gets ready to hit the ice with other event attendees.



Josh Emerson of St. Paul traveled north to Warroad with his pal Gunner to check the Riverbend Skate Path off his bucket list. He said it was “an experience I’ll never forget.”

A new angle to the north

MILES-LONG ICE ROAD BLAZES A TRAIL
ACROSS LAKE OF THE WOODS FOR SECOND
YEAR OF PANDEMIC CHALLENGES

A standard stretch of Minnesota highway will take a driver through patches of forest or along the curves of a lake or two. On the state's most recent transportation infrastructure, you couldn't spot a tree for miles and the lake was ALWAYS beneath you. It was Lake of the Woods ice – from mile one to mile 37.

"It's an adventure, no doubt," said Joe Henry, executive director of Lake of the Woods Tourism. "You might have to cross an ice bridge or two. For people who aren't used to it, that's a part of the adventure. The snow and the white and the silence of it all ... the whole thing is cool."

The Northwest Angle Guest Road is a 37-mile-long ice highway constructed by clearing a drivable path from Springsteel Resort near Warroad, Minn., up to the Northwest Angle. 2022 was the second year the road was carved as an answer to the travel challenges brought on by COVID-19 and restrictions to crossing the Canadian border.

The Northwest Angle is the northernmost point of the contiguous United States and can only be reached by driving 40 miles through Manitoba or by boating over the Lake of the Woods. When the lake is frozen in the winter, driving through Canada becomes the only option for those unable to fly, snowmobile or use a bombardier service.

For a short time in mid-January 2022, a \$250 roundtrip fee allowed a vehicle to drive the ice road to avoid crossing into Canada. Changing COVID-19 requirements

and border testing protocols provided logistical challenges, especially for larger tourist groups or those who must make last-minute trips to the Angle – like Roseau Electric Cooperative crews responding to member outages.

"Last winter the border was completely closed. This year, the border is open, but with stipulations," explained Brett Alsleben of Points North Services, the company behind the maintenance of the ice road the past two winters. "This year, the road just became a second choice. There were so many people calling us and saying that we needed to do that, so we chose to try it again."



The road less traveled

The spring and summer of 2020 hit the resort and business owners of the Northwest Angle hard. With the Canadian border closed, typical tourist flow to the gorgeous fishing destination reduced to a trickle.

"Oh, it was terrible," recalled Richard Allen McKeever, whose family has owned Young's Bay Resort since 1977. "Usually our summers are so busy we hardly have time to do anything. Suddenly we found ourselves with so much time that we could go boating and fishing."

"Our resorts were dying," Henry added. "We had some resorts that were down as much as 90% in revenue."

McKeever and other Angle business owners knew that once the lake froze and boat access halted, their resort community would be left without a life jacket. They banded together with Points North Services and mapped out a route to take guests over 22 miles of ice and through 8 miles of forest to reach their winter destination.

"It wasn't something we wanted to do. It was something we had to do," McKeever said. "It was the only way we could get anybody here. That was our only viable option."

After weeks of clearing snow from rough, frozen terrain and building bridges for ice heaves, the ice road first opened to guests in mid-January 2021. Although many resort owners remained down in business, the path loosened the spigot of a much-needed revenue stream. A few resort owners even reported record-high February numbers.

"There were quite a few that came up just because they wanted to see the road," said Ronnie Davidson, owner of the popular Sunset Lodge. "We had a group from Ohio that read about it in the Wall Street Journal, and they later brought forty people up here this summer to stay for a week."

The ice highway kept the Northwest Angle afloat in the winter of 2021. By the end of the summer season, the Canadian border had opened up to vaccinated Americans. Although there were still roadblocks, the worst was in the past.

"It shows our resilience, that we'll do whatever it takes to make a living," McKeever said. "You have to be resourceful and little bit tough to survive in this country. It's not for the faint of heart, that's for sure."

The ice road reopened on Jan. 14, 2022, over a new route of 100% ice. The challenging and expensive work of road maintenance was solely delivered by Points North Services, but a quick series of weather events created ice ridges the crew could not overcome. The road was closed indefinitely by the end of January. Alsleben says the cost of keeping the road up will outweigh the benefits once border rules are eased, so this may have been the last year the path was cleared. However, the company saw a need to complete the effort for at least one more season.

"The feedback and public support has been enormous," Alsleben said. "They want their grandkids or kids to get up here and see them, because that's normal life. That's why we chose to do this again, because of the local support from our customers."

By Kaylee Cusack / Photography
Lake of the Woods Tourism &
Brett Alsleben



Ice road organizers build ice bridges for the route in 2021.



Points North Services clears the ice road as dusk sets.



Bright signage serves as a guide to those following the path to the Northwest Angle.

The MUSKOX team shows off their recently developed 22-78 Dually snow removal system. From left to right: Noah Bergman, Ron Bergman and Adam Bergman.



Ahead of the herd

IDEA COMPETITION WINNER MUSKOX TAKES SNOW BLOWER INNOVATION BY THE HORNS IN NORTHWEST MINNESOTA

You could barely make out Ron Bergman's face through the blast of snow in front of him.

On this frigid day in Mentor, Minn., he was in the cab of a machine powering his own snow removal invention, ripping through hard drifts packed two feet deep. With the flip of a switch, the blower flipped its pitch, now back dragging and expelling snow – with all the grit and growl of its beastly namesake.

Ron was demonstrating the power of the MUSKOX snow removal system he developed and now distributes with his

sons, Adam and Noah. The company is still young, with the first MUSKOX units sold in October 2020. However, the business is exploding. Orders for the snow blower have come from 16 northern states and two Canadian provinces.

"It's widespread. It's not just local," Ron said from the MUSKOX production shop on the edge of Mentor. "We knew this thing was going to take off like crazy."

Ron developed the first crude prototype for the MUSKOX snow blower almost five years ago. The former Arctic Cat engineer was tired of switching out his blower and

bucket attachments when he had to back drag snow in front of garage doors and tight spaces. So he combined a blower with a bucket.

"I knew that it could work, blowing snow in reverse. I knew it could work as a scraper, because you just reverse the bucket, by taking a snow bucket and putting it upside down, to pull some snow," he said. Ron built his vision and tested it the next morning. "I back drag, and it blew to beat the band. I told Adam, 'Holy. It works!' So I worked with it for a day or two, and then headed off to the patent office."

Stampede of successes

Ron and Adam introduced the MUSKOX as cofounders and partners at an industry expo in the spring of 2020. The two shared a booth space with the well-known Kubota machinery company, which invited the Bergmans to join them a week beforehand. The buzz was instant.

"We ended up being kind of the talk of the show for the next 2 ½ days. At that point, we weren't really selling the product," Adam recalled. "I said, let's embrace this – let's try to sell this on the internet. Let's go direct-to-consumer, and let's build out the model that way. I'm confident we can do that together."



Ron Bergman explains how the MUSKOX Dually's serrated and paddled augers work together to tear through any snow pack.



Noah Bergman connects the MUSKOX's hydraulics system to maximize the blower's power.



Ron Bergman makes quick work of a patch of test snow near his shop in Mentor, Minn.

“It’s something you just dream of happening. I don’t know if that was the main driver, having a family business, or just that we knew this was a great opportunity. It takes a lot of commitment and a lot of time. It takes a family.”

—Ron Bergman, Co-founder
MUSKOX

As a real estate investor, Adam used his knowledge of business and marketing to build out the branding of his father’s creation. He joined with his brother Noah to make a YouTube demonstration video that went viral almost immediately, scooping up nearly 200,000 views. It took one week as internet darlings for RDO Equipment to call the MUSKOX founders.

“They picked it up and started selling it in 36 of their locations, and we became

a direct-to-consumer brand along with our partnership with RDO,” Adam said. “It gave us instant credibility, having a partner like RDO. It showed that they had faith in what we were doing, and gave us confidence in the direction we were going.”

Ron and Adam continued to work together rack up successes and improve their product. Ron won the 2020 IDEA Competition organized by the Northwest Minnesota Foundation and sponsored in part by Minnkota Power Cooperative. Minnkota has been a proud supporter of the competition for years, which gives budding entrepreneurs across the Minnesota territory a chance to turn great ideas into viable businesses. The process helped MUSKOX refine its business plan, and the honor equipped the Bergmans with valuable startup funding.

In the two years that followed, the MUSKOX evolved into an unstoppable machine – the current model 22-78 Dually. Ron and Adam chased snowfall around the country to assess and refine the product, adding an upper auger for better cleaning on the back drag, side fins to prevent snow from drifting out the ends, and a rubber bottom edge to glide over driveways without leaving damage.

“That was all through testing and realizing that if it doesn’t work for us, it’s not going to work for the customer,” Ron said. “We’re proactive. We do our own engineering and our own development, so we’re able to move pretty fast.”

Farm-grown ingenuity

Imagination and critical thinking are entwined in the Bergmans’ history. Adam’s youth was spent on the family dairy farm, and he believes that rural Minnesota experience had a little something to do with the situation they find themselves in now.

“Everybody was an engineer, and everybody was innovative, and everybody was a hard worker. That developed into the culture that’s still here,” Adam said. “If you ran a dairy farm, you needed to figure out how to fix problems on your own constantly, so that breeds that engineer ability.”

As Ron reflects on the business that he’s grown with his sons, with Adam leading marketing and business planning and Noah now managing purchasing and assembly, he can’t believe how well a tool made to blow things apart could bring them so close.

“It’s something you just dream of happening. I don’t know if that was the main driver, having a family business, or just that we knew this was a great opportunity,” Ron said. “It takes a lot of commitment and a lot of time. It takes a family.”

The trio is already planning for the future, with a philosophy of “digging deep before digging wide.” The third iteration of the MUSKOX blower will be released this spring with new models and sizes to follow, allowing the Bergmans to start digging wide.

“It’s super rewarding to see the successes that we achieve out of this shop, but it’s

probably more rewarding when somebody calls and is using the machine and they’re more efficient in their business,” Adam said. “We’re helping them grow. If you make them more efficient with their time, they have a choice – do I take that time and spend more time at home, or do I take that time to grow my business even larger. We get to be a part of that for other people.”

Check out what MUSKOX has to offer at its website (muskoxmn.com) or follow the team on Facebook (@MuskoxSnowblowers) for live virtual demos every Wednesday.

By Kaylee Cusack / Photography Michael Hoeft



Grid operators, regulators forecast reliability risks

ENERGY TRANSITION REPRESENTS CHALLENGES, OPPORTUNITIES

The energy industry is in the midst of one of the most challenging and disruptive periods in its history. As the pace of change continues to accelerate, grid regulators and operators are beginning to identify elevated electric reliability risks.

Rapidly changing energy mixes and extreme weather are among the biggest challenges to reliability according to the 2021 Long-Term Reliability Assessment released by the North American Electric Reliability

“Without a collective focus, system reliability faces risk that is inconsistent with electric power’s essentiality to the continent’s economy as well as the health and safety of its population.”

Corporation (NERC) in December. NERC identified significant reliability

risks associated with more intermittent and distributed energy resources and inverter-based resources (IBR) such as wind, solar and battery storage systems.

“The shift to more and more IBR brings unique opportunities but also integration challenges that can and must be addressed to assure continued reliability,” the report concludes. “This is not an argument against the transition but a recognition that, without

a collective focus, system reliability faces risk that is inconsistent with electric power’s essentiality to the continent’s economy as well as the health and safety of its population.”

The report finds most regions are projected to have sufficient capacity to meet annual peak demand under normal weather conditions, but extreme events, like a polar vortex or summer heat wave, can create shortfalls, which occurred in Texas in February 2021 and California in summer 2020.

NERC is charged with the security of the bulk power system and sets and enforces reliability standards for utilities. The organization also assesses trends, needs and remedies for grid reliability. It operates under the supervision of the Federal Energy Regulatory Commission.

Minnkota will undergo a NERC audit in the spring to ensure it is meeting cyber and physical security standards that aim to protect the reliability of the grid. These standards are enforced nationwide through recurring audits conducted by eight regional entities. Noncompliance subjects utilities to potential million-dollar fines per day, per violation.

MISO resource mix on the verge of change

From an energy mix standpoint, potential near-term capacity shortfalls may be caused by the retirement of coal-based generation facilities. The Midcontinent Independent System Operator (MISO) region – the energy market where Minnkota operates – could lose 13 gigawatts (GW) of resource capacity from power plant retirements between 2021 and 2024. That’s enough electricity to power about 9.5 million homes.

“The retirement of these traditional resources also accelerates the change in resource mix and punctuates the urgency for implementing resource adequacy and energy sufficiency initiatives in the (MISO) area,” the report said.

MISO released its own Renewable Integration Impact Assessment in February 2021 and highlighted its preparation for an “unprecedented pace of change.” The report concludes that “significant challenges arise” as renewable penetration exceeds 30%.

“We begin to see at above about 30% renewable energy penetration significant stability issues in the grid and significant changes that need to be managed somehow,” said Brian Tulloh, MISO’s Executive

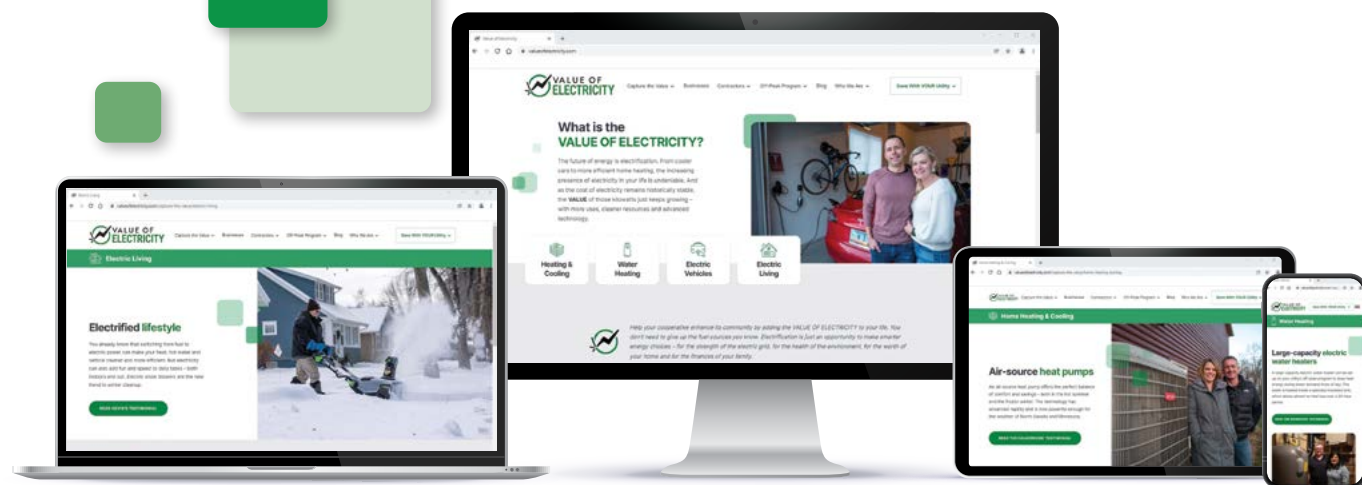
Director of External Affairs during the Midwest Energy Summit last summer in Fargo.

“As you get up into the 50% range, those challenges become increasingly more expensive,” he added, emphasizing the importance of time and planning to reach these ambitious goals. North Dakota Public Service Commission Chair Julie Fedorchak estimated the cost of this transition to be \$500 billion or more.

While there are challenges on the horizon, it shouldn’t discourage efforts to make our nation’s electric grid as environmentally responsible as possible. But there needs to be recognition that the energy transition must be approached with caution and common sense. Electricity remains essential to our everyday lives – powering homes, hospitals, schools and businesses. If mistakes are made during this transition, they can be extraordinarily difficult to reverse.

Minnkota embraces an all-of-the-above energy strategy that includes coal, wind and hydro. Working together with a robust demand response system, these resources are essential to ensuring electric reliability and resiliency.

By Ben Fladhammer / Photography Michael Hoeft



Minnkota relaunches Value of Electricity website

Minnkota's Value of Electricity campaign has a fresh look, and it comes with a brand new website for member-consumers across the region. **ValueofElectricity.com** relaunched at the end of 2021 after a full design and content overhaul from the cooperative's Communications department.

The new website features a bold and modern logo, refreshed focuses on technology and electrification, utility-specific rebate pages and new testimonials from business and residential members in the cooperative system. The site relaunch also includes a

partnering Facebook page, which will distribute new content to followers' newsfeeds.

Minnkota created the Value of Electricity program in 2015, offering rebate incentives to consumers to install electric technologies in their homes and businesses (primarily on the off-peak load control system). The program has since grown and evolved – the relaunch reflects that progression.

The following is a sampling of the spotlight technology testimonials currently featured at **ValueofElectricity.com**, gathered from friends and neighbors in your region.

By Kaylee Cusack / Photography Michael Hoeft



Website



Facebook



Cold-climate heat pumps – a northerner's best friend

RED RIVER VALLEY COOPERATIVE POWER MEMBERS
HARNESS THE SAVINGS OF A COLD-CLIMATE HEAT PUMP

At a cozy rural home just west of Glyndon, Minn., Mike and Mindy Jo Halvorson were settling into another chilly winter season. The Red River Valley Cooperative Power members have never been worried about high heating bills or cold toes – their cold-climate heat pump (CCHP) has ensured that.

"It's always the temperature we set it at. It doesn't fluctuate much," Mindy Jo said, glancing to the living room's digital thermostat. "I really don't think about it at all, because it's always consistent."

The Halvorsons' CCHP is an advanced style of air-source heat pump, which efficiently transfers heat instead of generating it. In the winter, it absorbs and transfers heat inside, and in the summer the unit works in reverse, removing heat from your home. Heat pump technology has come a long way since its introduction to the public in the 1970s.

"This isn't your grandparent's heat pump," Mike said. "With the

newer cold-climate technology, the compressors – as it gets colder outside – can ramp up and absorb more heat from the outside air and do it at lower temperatures."

Mike is a Territory Manager for Auer Steel & Heating Supply Company, an Upper Midwest heating, ventilation and air conditioning (HVAC) distributor. Educating contractors about the best heating and cooling choices for consumers is a large part of his job, and air-source heat pumps dominate the conversation.

"Homeowners are starting to step up and ask for this now. Heat pumps are getting to be the big buzzword, and that's why companies are putting a lot of their investment into engineering the technology," he said. "The future of our industry is air-source heat pumps."

With the improved engineering of CCHPs, the systems have become popular even in the coldest parts of Minnesota and North Dakota. The units are designed to transfer heat at as low as 20 degrees below zero,

but the most efficient heating can be experienced at a balance point around 10 degrees – far lower than a standard heat pump. At that point, the system can switch to a backup heating source, like propane or hydronic.

As cooperative members, the Halvorsons take advantage of the off-peak program, through which they receive a reduced electricity rate (nearly 50%) to allow the co-op to control the CCHP if regional electric demand is too high. The switch to backup happens seamlessly with no interruption in comfort.

Mike explained that their CCHP efficiently covers 80% of the seasonal heating hours of their home. He adds that between the low off-peak rate, the large cooperative rebates available, and the current volatility of the fossil fuel market, installing an electric CCHP is an easy choice for homeowners.

"They all want to be comfortable, they want to lower their energy bills, and they want to do their part," he said.



Save on EV charging with off-peak

A CASS COUNTY ELECTRIC COOPERATIVE FAMILY KNOWS THE BENEFITS OF CHARGING AT HOME FIRSTHAND

When Adam and Britani DeFoe moved their family from Nebraska to West Fargo, N.D., more than three years ago, they had a lot to figure out. Adam was starting a new physician interventional radiologist job at Essentia Health, their four kids would be experiencing a new community and they were building a new house from afar.

But one thing was easy to figure out. Adam had a Tesla Model 3 on preorder, and he wanted a way to charge it quickly at home.

“Our builder just asked me about it. He gave me the option of the off-peak meter for the charger, and he said, ‘You’ll save a lot.’ Right away I said yes – put that in!” Adam said with a laugh.

The DeFoes, Cass County Electric Cooperative members, have racked up the savings by charging their electric vehicle (EV) on the off-peak program, which offers them

a reduced electric rate for charging the car during low-demand times of day – often overnight. Additionally, a charger rebate is offered to members who enroll in the off-peak program. Adam simply plugs into the 240-volt system when he gets home, and the car is programmed to begin the charging process at the set off-peak time. Even if the battery is nearly depleted, he has a full charge by the time he needs to leave for the hospital.

“Especially compared to paying for gasoline, charging the car is pennies. It takes very little electricity to make this car get to work and back,” Adam said. “You definitely see the cost savings in the long run. Electric vehicles are great, especially if you are doing a lot of around-the-town commuting.”

Inexpensive “fuel ups” are just a small reason Adam loves his EV. He hasn’t had to bring the car in for maintenance the entire three years

he’s had it (no oil, no belts, no problems), he likes that it is American made and environmentally friendly, and he can’t get enough of the high-tech features and app capabilities.

He’s most charged up about one detail in particular.

“They are super fun to drive. The acceleration...” he said with a pause. “You can’t beat it.”

The DeFoes have become fast advocates of EVs and are thrilled to see fast charging stations and Tesla Superchargers pop up in their neighborhood and towns around the region. Britani drives the EV whenever she has the chance, and the couple certainly envisions plug-in fandom continuing through their next generation.

“My oldest will be 11 soon, so I’m thinking it might be passed on to her, because the safety ratings on this thing are amazing,” Adam said.



Hot water for a warm home

THE SEVERSONS’ LARGE-CAPACITY ELECTRIC WATER HEATER ENSURES FAMILY AND FRIENDS ARE ALWAYS COZY IN THEIR NORTHERN MINNESOTA HOME

When Ryan and Lisa Severson built their Roseau, Minn., home in 2015, two priorities rose above the rest – efficiency and family. The couple needed a house that reflected their careers as energy experts (Ryan as an assistant manager at Roseau Electric Cooperative and Lisa as an energy conservation coordinator for Minnkota Power Cooperative), but they also wanted a space to comfortably host their growing family.

“Right now we only have one son at home, but when we have the whole crew here – which is six kids and their families – we’ve never run out of hot water,” Ryan said.

That’s because the Seversons installed a large-capacity, 105-gallon Marathon electric water heater. The highly efficient equipment stores enough hot water to meet the needs of any holiday, birthday or “just because” family gathering.

“We’ll be running the dish-

washer, and laundry for the towels, and everyone will be showering and getting ready,” Lisa said. “Enough hot water is something we’ve never really had to worry about.”

The Seversons’ electric water heater is set up on Roseau Municipal Utilities’ off-peak program, which allows the equipment to be turned off during high-demand times of day. The water is heated when electricity demand is low, often overnight, and remains warm until it’s needed.

“I’ve seen a couple water heaters in my day,” Ryan said, joking about his 30 years in the electricity business. “The bottom line is the efficiency has improved, because of how well they’re insulated. It’s not only when you’re at home utilizing it. If you’re not pulling any water out of it, it hardly has to run. It can go a couple days and not lose 10 degrees if you shut it off. That’s one of the things that sold us on it.”

On top of the reliability and efficiency of the large-capacity water heater, the Seversons enjoy the additional benefit of the off-peak electric rate, which is nearly half of the standard rate. They also utilize the off-peak program for their cold-climate heat pump and other electric heat circuits in their home and shop.

Cooperatives and utilities across Minnesota and North Dakota also offer large rebates to cover the cost of a new electric water heater, so it’s important to reach out to your power provider to see how they can help you get started. If you ask Ryan how the off-peak incentives add up, he will smile knowingly and give you the simple answer. “It’s huge savings,” he said.

“Now, with all of the rebates available, it’s kind of an easy choice,” Lisa added. “Our water heater was a no-brainer based on our experience working in the industry.”

Beltrami Electric employee receives LIFEguard on Duty Award

Beltrami Electric Cooperative Employee Trevor Gwiazdon received the LIFEguard on Duty Award from the Minnesota Rural Electric Association (MREA) on Dec. 14 for helping prevent a severe accident.

While checking on the construction of a new service, Gwiazdon, a staking engineer at the Minnkota member cooperative, recognized a dangerous situation with an energized primary underground cable. A construction crew had excavated around the cable, poured footings, elevated the energized cable and ran it across the cinder block into the building, mistakenly thinking it was a lower voltage cable. For context,

the wall outlets in most residential homes receive 120/240-volt service while the primary underground cable carries 7,200 volts.

Gwiazdon immediately stopped work, explained to the construction crew the dangers of handling a cable at that voltage and contacted the cooperative who safely took the line out of service.

"Trevor's actions and willingness to speak up when he recognized a life-threatening situation saved lives," said Jared Echternach, Beltrami Electric Cooperative CEO. "His actions are a testament to our culture of safety, and we are a better cooperative for it."



Employee Jeans Day sponsors first-aid kits

The Grand Forks employee Jeans Day committee is helping prioritize safety in our community by funding first-aid kits for the teams of the Grand Forks Girls Fastpitch Association. The \$500 donation will assist in the purchase of 12 kits containing the basics needed for a youth sports team – a first-aid bag, CPR mask, ice packs, splints, gauze, athletic tape, scissors, Band-Aids, square gauze pads, etc.

The fastpitch program is a private, nonprofit organization that relies on volunteers, players' fees, grants, tournament profits and concession sales to keep the pitches flying for girls aged 8-19.

"There were a few instances this past summer where a first-aid



Minnkota's Travis Jacobson presents a \$500 Jeans Day donation to John McQuillan, president of the Grand Forks Girls Fastpitch Association.

kit was needed and there wasn't one available at the venue," said Minnkota Physical Security Administrator Travis Jacobson, who also

serves on the fastpitch program's board. Jacobson reached out to the Jeans Day committee to request the funding for the organization.

Minnkota honored twice for safety achievements



Young Station Safety and Physical Security Specialist Tim Krous (left) accepts the EPIC Excellence in Safety Award.

Minnkota's employees have twice again been recognized by the industry for their commitment to safety in the workplace. At the annual Energy Progress and Innovation Conference (EPIC) in Bismarck in January, Minnkota's Milton R. Young Station was presented with the EPIC Excellence in Safety Award. This award honors organizations that have maintained impressive safety records; actively launched materials, programs and trainings that have significantly reduced employee safety challenges; and have made process changes that have improved general health, safety and environmental stewardship. Minnkota has excelled in these areas for years, as safety is a top priority in the cooperative's mission statement.

In addition to the EPIC award, Minnkota also recently accepted a Rural Electric Safety Achievement Program (RESAP) certificate from the National Rural Electric Cooperative Association (NRECA). This Certificate of Safety Achievement was awarded following 2021 on-site safety assessments that were conducted at the Young Station, Grand Forks headquarters and in the field. RESAP is a voluntary safety program that utilizes a framework for continuous improvement regarding safety performance and culture.



Field Safety Specialist Brandon Allen (middle) accepts Minnkota's RESAP certificate at the 58th Annual NDAREC Apprenticeship, Training and Safety Conference.

Minnkota board approves Load Forecast Study

At its January meeting, the Minnkota board of directors approved its Load Forecast Study for 2021 to 2050. The forecast shows a growth rate of 0.7% annually within the Minnkota-Northern Municipal Power Agency (NMPA) Joint System.

While many utilities across the country are experiencing flat or declining energy sales, the economy in Minnkota's service area remains steady as major population areas are growing, businesses are expanding and the agricultural sector is healthy.

A Load Forecast Study is completed every two years as required by the Rural Utility Service (RUS). It is a key tool used for power supply planning, financial forecasting and rate planning. The study is also included in Minnkota's Integrated Resource Plan (IRP), which ensures the cooperative's resources are adequate in meeting its forecasted energy requirements.



Giving Hearts Day

Minnkota and Jeans Day Fund give big on Giving Hearts Day

Minnkota took advantage of Giving Hearts Day (Feb. 10) to maximize gifts to two organizations benefiting families in our region. Through this annual charitable giving event, Minnkota's \$2,500 donation to Make-a-Wish North Dakota and \$1,000 donation to the Community Violence Intervention Center (CVIC) were matched by participating sponsors.

The Minnkota employee Jeans Day Fund also showed its love to two important organizations in our region this Giving Hearts Day. The committee chose to donate \$500 each to ShareHouse and Junior

Achievement North, and those donations were matched to \$1,000.

- ShareHouse offers chemical dependency services to those struggling with addiction in our region. A new Grand Forks location opened just this January, which provides chemical dependency assessments and treatments as well as residential services.
- Junior Achievement North is a nonprofit that travels to schools around the region to equip students with the skills needed to succeed in school and in life.

Volunteers teach K-12 students to manage money, how to prepare for a successful career and how to start businesses that create jobs. The program empowers students to make a connection between what they learn in school and how it can be applied in the real world.

Giving Hearts Day began in 2008 as a program of the Dakota Medical Foundation. The event has become one of the most successful giving days in the country, raising more than \$112 million for North Dakota and northwest Minnesota charities since its start.