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Minnkota MESSENGER

Fast into the field

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Minnkota
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On the cover: Minnkota apprentice lineworker Hunter Gray takes a measurement as a hole is dug for a new transmission pole near Rindal, Minn. The early start to the spring has Minnkota's power delivery crews active in the field to move projects forward.

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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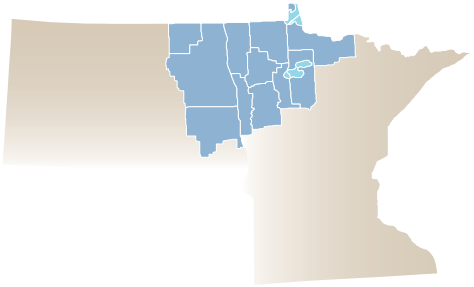

Minnkota Power Cooperative is a generation and transmission cooperative headquartered in Grand Forks, N.D. It supplies wholesale electricity to 11 member-owner distribution cooperatives, three in eastern North Dakota and eight in northwestern Minnesota. Minnkota also serves as operating agent for the 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.

Fast into the field

The early spring has sprung Minnkota's power delivery crews into action. Poles, wire and steel are being raised across the cooperative's service area to help improve service, enhance reliability and support load growth.

In mid-April, crews energized the new Berg distribution substation to help power the growing areas in south Grand Forks. A month later, the rebuilt Rindal substation in Minnesota was brought online. Crews will continue throughout the summer rebuilding, uprating and expanding substations in the region. Advanced communication technologies are also being added at 18 substation sites as part of Minnkota's distribution automation program.

Transmission crews will work to complete two major 69-kilovolt (kV) line rebuild projects near Park River, N.D., and Baudette, Minn., while also rerouting a section of 69-kV line near Harwood, N.D. Blink outage mitigation efforts will continue, which include adding technologies to existing power line structures to reduce momentary outages.

Overall, power delivery crews plan to complete about $24.2 million of capital project work in 2021. About half of the budgeted work will be completed on the 69-kV transmission system, while about 30% will be invested in distribution substations.

Minnkota crew members from a variety of teams assemble to help energize the Berg substation on April 16.

Substation communication revolution

SYSTEM-WIDE DEPLOYMENT OF DISTRIBUTION AUTOMATION TECHNOLOGY RAPIDLY ENHANCES RESPONSE AND RELIABILITY

Electrician Jimmy Snider (left) and engineer Kara Laframboise look over some final figures on Berg substation's energization day.

On April 16, several teams assembled at the Grand Forks site of Berg substation, the newest to be integrated into Minnkota's system of more than 255 transmission and distribution substations across North Dakota and Minnesota. After months of planning and construction, it was time to bring life to the lines and metal.

Energizing day meant lineworkers were removing protective grounds, electrical crews were making sure switches were closing properly and technicians and engineers were double-checking ratings and relays. Power delivery substation engineer Kara Laframboise examined screens alongside technical maintenance pros, completing the long checklist of elements that needed to come together to safely and flawlessly energize the sub.

The anticipation? Electrifying.

"Everybody wants it to be perfect," Laframboise said as the team performed final phasing tests.

When power began to flow at the speed of light through Berg substation that day, it became the next link in a Minnkota grid that rapidly has

"Before distribution automation, a distribution sub was just a triangle on the power system operator's board. Now, with DA installed, those in the control center know what the voltage is at the substation, they know the status of some of the transformers and the regulators – all of the equipment in the substation, they can see it live."

– Dustin Marquis, technical maintenance supervisor
Minnkota Power Cooperative

become more connected, intelligent and reliable – due in large part to the deployment of distribution automation (DA) technologies.

"The sub design has progressed over the years. It used to be very simplified," Laframboise said. "But we've discovered, as time goes on, that it wasn't the best design for Minnkota to potentially expand in the future or for maintenance issues."

Although new subs are now automatically designed with DA equipment, Minnkota is in the midst of a nearly 10-year plan to add the technology to every one of its 215 distribution substations, many of which haven't had intensive upgrades in decades.

"Before distribution automation, a distribution sub was just a triangle on the power system operator's board," explained Dustin Marquis, technical maintenance supervisor and DA program lead. "They didn't have any information coming back at all. They didn't even know if it was energized. Now, with DA installed, those in the control center know what the voltage is at the substation, they know the status of some of the transformers and the regulators – all of the equipment in the substation, they can see it live."

Since the start of the DA initiative in 2018, the technical maintenance crew has partnered with the electrical and telecommunications teams to install the equipment at more than 45 distribution sub sites. They plan to continue retrofitting roughly 15 sites a year for the next few years until all subs are equipped.

A week after Berg substation was energized, a couple of technical maintenance technicians were

Crews prepare the Berg substation for the start of power flow with nearby Coleman and Prairie substations.

Senior technical maintenance technician Jason Bjerke (left) and technical maintenance supervisor Dustin Marquis perform some project-end checks at the Coleman substation.

Updated regulator control panels at distribution substations like Coleman will help Minnkota's control center better monitor and respond to fluctuations in voltage.

a few miles away at the nearby Coleman substation, putting the final touches on new DA-ready meter and regulator control panels. The electricians had already completed the prewiring and cabling, the telecomm group had confirmed the sub and control center were communicating, and now it was time for the "painters and carpet layers" to wrap up the project.

"These regulate the voltage at the customer level, keeping it within a certain bandwidth," Marquis said, pointing to three panels before him. "Before, it regulated the voltage, and that's it. Now, it regulates the voltage, sends in that voltage to our dispatch, and dispatch can raise or lower the voltage from System Operations. Before all they could do was…nothing. They would have to send someone out here."

More control in the control center

Within days, System Operations superintendent Reed Daws had already experienced the benefits of Coleman's DA upgrade from Minnkota's control center. Some Nodak Electric Cooperative member-consumers were noticing voltage irregularities.

"We could see that happening, so we were able to take care of it as soon as possible," he said. "It's just one more tool Minnkota can use in order to give the consumer the best possible service."

Pointing to his energy management screen, Daws laid out all the areas in which DA enhanced visibility for power systems operators, including more than a dozen alarms indicating high or low voltage, blown fuses, overloads, etc. If a problem can't be solved by his team remotely – another critical benefit of the upgrade – the specific knowledge of what is happening allows them to dispatch the correct crews to resolve the issue quickly and efficiently.

"Member-consumers are going to see shorter outage times," Daws said, noting that in the vast majority of fault cases, Minnkota can help get power back to every effected home within minutes. He added that as the DA initiative expands out to the full system, and visibility and remote capability increase, the power systems operators can start to pinpoint problem areas before a consumer knows there's an issue.

"It's going to create a more reliable system and safer environment," he said. "If we deem something is wrong in a sub, we can de-energize it while we wait for someone to get there, and they can go in safely and see what's going on. Instead of losing high-investment equipment like transformers, we

might be able to de-energize them and save them. In the end, it's going to be very valuable, not only on the financial side, but also keeping people with safe, reliable power."

Tech coming together

The distribution automation deployment is not only improving response times, but also enhancing the effectiveness of Minnkota's demand response program. Telecommunications supervisor and planner Wyatt Stramer says the improved data and control has been essential for Minnkota's new load management ripple monitors, 70 of which were deployed in 2020.

"With all the new DA sites, and having that communication back into the energy management system, we've been able to scatter a ton of those ripple monitors throughout our whole footprint. That gives them a better eye on what that load management voltage is," Stramer said. "That's the key to the whole system, having that right voltage in the right place to turn things on and off. That is a huge plus."

The technology came together just in time, as Minnkota relied heavily on the demand response system to reduce overall load when a February polar vortex event strained the regional grid. Marquis heard from Todd Sailer, Minnkota senior manager of power supply and resource planning, that the new system helped them navigate the weather-based challenge seamlessly.

"He said it was the best that he's ever seen," Marquis said. "A lot of that can be attributed to having more information now."

The distribution automation rollout has been effective because of many advanced technologies converging, requiring close collaboration between multiple departments. But it also takes collaboration with Minnkota's member cooperatives, whose substation needs now help determine where the next DA sites are planned. As distribution co-op planners experience more of the member benefits firsthand, more requests for site upgrades are submitted.

The many Minnkota teams behind this substation revolution sometimes get lost in the precise day-to-day work, but they're often reminded by their leaders of the difference their efforts are making in the community.

"Technical maintenance crews know," Marquis said, reflecting on what the team accomplished over the past three years. "Every once in a while we get positive feedback about DA in a substation, and I make sure to tell them, 'This is what happened, and this is what the control center saw. Because of this, you possibly saved customers two hours of an outage.' People got their power back on, or weren't out of power, because we have that visibility and operational awareness."

By **Kaylee Cusack** / Photography **Michael Hoeft**

Technical maintenance technician Perry Flaten checks for proper voltages in the CT/PT box at the Coleman substation.

Roseau Electric Cooperative member services manager Jeremy Lindemann adjusts the controls on the Mach-E's large touch screen before taking off on his first test drive.

From zero to EV

AUTO DEALERS AND CO-OPS MERGE NEW MODELS, MORE CHARGERS AND INCENTIVES TO ACCELERATE ELECTRIC GROWTH

Jeremy Lindemann is a northern Minnesota man through and through. The Roseau Electric Cooperative (REC) member services manager is a former football player and coach, hunts elk and turkey when he has the vacation days, and drives a full-size 4-door pickup that is often towing a boat, fish house or snowmobiles.

But Paul Blomquist, owner of Roseau County Ford, wants to show hardy north-border souls like Lindemann that sometimes a big engine doesn't mean power. So he put the Minnesota man behind the wheel of the new Ford Premium Mustang Mach-E, an all-electric addition to the Mustang lineup that boasts all-wheel drive, an 88-kWh extended range battery and an acceleration speed of 0-60 mph in 4.8 seconds.

Even with the mind-splitting specs, Blomquist knows the electric vehicle (EV) will be a challenging sell to his usual demographic.

"When Ford went to six-cylinder engines, it scared the bejesus out of guys like Jeremy, to go away from that V8, throaty sound," Blomquist said, nodding to Lindemann. "Ten years ago, they came out with V6 in a pickup. Now, that's almost all there is out there."

"I still have the 5.7 Triton in my Ford F-150," Lindemann responded with a sly smile. "Until I drive something and I can see, 'Hey, this can pull my boat' – that will be how it stays."

Lindemann has driven EVs before. In his role at REC, he has helped integrate EV adoption into his cooperative's long-term strategic plan, a goal now prioritized at co-ops and utilities across the state. He's tried the technology, he's enjoyed the performance, but nothing has yet satisfied his outdoorsman need for strength and handling.

He was excited for Ford's addition of the Mach-E. But he had to put it to the test.

Electrified

"The leather seat is unbelievably comfortable," Lindemann said, sliding into the driver's seat. "Plenty of leg and head room. I'm 6-foot-4, 310 pounds – I'm not dainty."

After walking Lindemann through some of the car's features displayed on a 15.5-inch touch screen, Blomquist told him to saddle up.

"So really, Jeremy, everything is like your normal car," Blomquist said from the Mach-E's back seat. "You'll get the extra technology figured out, but to start it, you hit the brake and the button, put it in drive and go."

With a turn of the shifting dial, the EV silently headed out of the lot and toward Roseau's city limits.

"Right now, you would think you're in a normal Mustang, other than the sound," Lindemann said. "My dad actually has the 5.0L convertible Mustang from around

Jeremy Lindemann (left) and C&M Ford/Roseau County Ford owner Paul Blomquist get ready to hit the road in a Ford Premium Mustang Mach-E. Blomquist is urging drivers around the region to call in to schedule a test cruise.

Ford Mustang Mach-E GT

- Starting at $59,900 ($52,400 after tax credit)
- 480 horsepower, 600 lb-ft of torque
- 0-60 in 3.8 seconds (w/extended-range battery)
- All-wheel drive
- 250-mile range
- Delivered to drivers Fall 2021

(Specs and image courtesy of Ford)

2005. It's the same feel, except that one has a shifter. That's why my hand keeps floating over, because I feel like I'm in his car."

As the Mach-E traveled north of Roseau, Blomquist advised the driver to select the "Unbridled" performance setting on the screen. It was time for a full gallop.

"I got goosebumps when you said that. 'Unbridled' – are you kidding me?" Lindemann howled. He began to speed up on the highway.

"Oh, mercy," he said, accelerating again from a full stop, amazed at the torque that caused him to melt into his seat. "It's just hugging the road."

"It feels like a Mustang, doesn't it?" Blomquist asked.

The Mustang Mach-E offers an "Unbridled" mode that enhances acceleration and delivers a sound that emulates the rumble of a gas V8 engine.

"It's so tight, and the power is crazy. There's no way you're driving an electric car – you don't feel that at all." It seemed Lindemann was sold. "People have no clue. Anything that you think an EV is, you're wrong, because this thing is incredible. I mean, this blows ME away, and I've driven electric vehicles before. I'm jacked up!"

Northern adoption

Lindemann's eye-opening test drive experience is one Blomquist hopes to replicate in many others. He's somewhat of a rarity in northern Minnesota – a dealership owner who is fighting to spread awareness of the performance and promise of EVs. He understands it's the future of the industry. He noted that 2-3% of all vehicles sold in the country are now EVs, and that GM has announced that all of its vehicles will be electric within 15 years.

"Within a decade, Ford feels it could be at a tipping point where they're going to sell more electric vehicles than gas. Within just five years, they could surpass 1 million EVs," Blomquist said, adding that many other automakers anticipate similar EV growth. "You can do the math. It's going to come quickly."

Lindemann is especially eager for the arrival of Ford's all-electric F-150 Lightning, expected to be released in 2022. He says it will be critical for showing drivers like him that all-electric benefits can come in a pick-up with a name they recognize and trust.

REC and other Minnkota member cooperatives are helping members prepare for the shift to shiftless by offering rebates on home charging equipment installed on their off-peak programs (giving users a lower rate for charging overnight, when there is lower demand). Roseau Electric will be taking the service a step further by offering installation assistance to make sure everything is connected correctly and safely.

However, some drivers in the area will still have concerns about this new wave of EVs, questioning their ability to handle Minnesota winters, the durability of the batteries

"It's so tight, and the power is crazy. There's no way you're driving an electric car – you don't feel that at all. People have no clue. Anything that you think an EV is, you're wrong, because this thing is incredible. I mean, this blows ME away, and I've driven electric vehicles before. I'm jacked up!"

– Jeremy Lindemann, member services manager
Roseau Electric Cooperative

and the effect all of that additional electricity use is going to have on the electric grid.

"We feel we can rise to that challenge to meet that extra load, and we can do it with a mix of renewables, baseload generation, our off-peak program and energy efficiency," Lindemann said.

Minnkota's member cooperatives are also preparing for the spread of EVs by taking the lead on installing Level 3 fast charging stations on key travel corridors. Just last year, Nodak Electric Cooperative and Cass County Electric Cooperative used grant funding to help energize a fast charger in Grand Forks and three in Fargo/West Fargo, respectively. Fast charging stations have also popped up in Grafton and Hillsboro, N.D., and plans are coming together in 2021 to sprinkle more throughout smaller communities in eastern North Dakota and northern Minnesota.

REC is working with partners like Blomquist to begin discussions with local organizations and companies about the economic development opportunities of installing Level 2 or Level 3 charging technology on their properties, as well as adding EVs to their fleets. Lindemann said those discussions slowed during the pandemic, but he anticipates they'll soon be on the fast track.

He also realizes that, even though he is a burly man, there's a whole lot of legroom and space for others to take the EV expansion journey with him.

"Here's the thing about co-ops. Yes, we're one co-op, but we also have all the co-ops in our northwest Minnesota district, and we're all member-owners in the Minnkota system. We share ideas and collaborate all the time," he said. "We have our own individual challenges regionally, but we're always working together and on the same page about how we move forward."

By **Kaylee Cusack** / Photography **Michael Hoeft**

Jeremy Lindemann takes a look at the extra storage available in the front trunk of the Mach-E.

Compton ready to answer the call

NORTH STAR'S NEW GM COMMITTED TO TRANSPARENCY, ACCESSIBILITY

In his first newsletter column as general manager of North Star Electric Cooperative, Josh Compton printed his personal cell number and gave his members the green light to call when they need something from their cooperative. Rather than a phone buzzing with concerns, the West Virginian quickly received a healthy dose of Minnesota Nice.

"I've received several calls and texts from members welcoming me to the community and to North Star," Compton said. "Cooperative members can expect me to be very transparent, accessible and here to make the best decisions possible for their well-being and the well-being of North Star."

Compton took the reins of North Star Electric in March, after the retirement of Ann Ellis in late 2020. In his first few months on the job, Compton has quickly learned the scenic roadways that weave through the cooperative's service area. Moving from West Virginia to Baudette, Minn., has required countless hours of driving between the closest major airports and the small community along the U.S.-Canadian border. But the windshield time has provided an opportunity to begin thinking about how the co-op will chart its path forward.

"The electric industry is quickly changing and I'm excited to lead such a great organization into the future as we navigate those changes and make decisions that will ultimately benefit our member-owners for years to come," Compton said. "Whether that's strengthening existing things, building upon new ideas or looking at outside-of-

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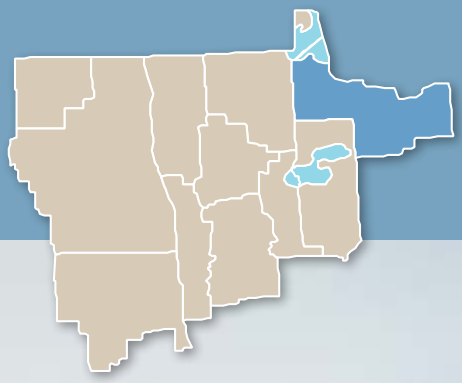

the-box opportunities, we have the ability to shape our future for the better."

Compton said state and federal policy is something he will be watching closely, as changes can have a significant impact on the cooperative's operations. Closer to home, he's hoping to build on the successful completion of North Star's Advanced Metering Infrastructure (AMI) project.

"I think we have some real opportunities to strengthen our utility rates and provide members with more information about how they use electricity and how that affects the cooperative going forward," Compton said about the benefits of AMI.

A Maryland native, Compton graduated from Towson University and later earned his Master of Business Administration (MBA) degree from Shenandoah University in Virginia. He brings proven management skills and national cooperative experience to his new job, having recently served as manager of regulatory affairs at the National Rural Utilities Cooperative Finance Corporation (CFC) and prior to that as a regulatory affairs analyst at Pepco Holdings, both of which are located in the Washington, D.C., area.

Along with his professional career, Compton served as a county commissioner in his rural West Virginia county for five years and was elected commission president twice. He said this experience helped build a strong background in community relations and working with local, state and federal representatives. During his tenure on the commission, he created positive change by leading an effort to strategically consolidate municipal and county sewer utilities in order to realize cost savings and take advantage of better funding options.

Compton is no stranger to electric cooperatives. In his role at CFC, he worked with co-ops across the country to provide numerous financial and utility ratemaking consulting services. This included significant time working in southern Minnesota, where his appreciation of the state began to grow. Compton said the position at North Star Electric felt like the right fit both personally and professionally.

"I'll be honest, I had never been as far north as North Star Electric Cooperative, but I always knew about the incredible fishing and outdoor recreation the area had," Compton said. "My grandparents lived in a small town of 400 in West Virginia and I thought Baudette would be a great place to raise my son versus the hustle and bustle of the big city or even the overpopulated suburbs."

Compton is in the process of relocating his wife Michelle, son Zach and dog Yager to the Baudette area. His hobbies include working on old American muscle cars and being outside. He said it's hard to find a better spot for year-round outdoor activities than Baudette.

"Hopefully I can add ice fishing and snowmobiling to the mix soon," Compton said.

By **Ben Fladhammer** / Photography **Michael Hoeft**

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>
> – Josh Compton
> general manager
> North Star Electric
> Cooperative

Successful sessions

MAJOR ENERGY LEGISLATION PASSES IN ND, MN

Although the North Dakota and Minnesota legislative sessions looked much different in 2021, lawmakers left their respective capitols this spring after passing some of the most impactful energy legislation in years.

Minnkota, its members and partners successfully navigated the sessions, which included many virtual meetings and online advocacy due to COVID-19 restrictions. The pandemic and the related economic impacts were a key focus, but energy issues were also featured prominently.

"We saw strong bipartisan support for our main priorities in both states," said Stacey Dahl, Minnkota senior manager of external affairs. "While the sessions started with many unknowns due to COVID-19, we ended with our industry in a better position to address the challenges on the horizon."

ND legislature helps boost lignite industry

In North Dakota, 18 bills were signed into law that support the state's lignite industry and promote the development of breakthrough energy technologies. Minnkota staff dedicated significant time to advocating for the following priorities, which were passed into law:

- **HB1412: Lignite Tax Relief** – This bill provides temporary and critical tax relief to the lignite industry by reducing the full amount of the general fund portion from coal conversion taxes paid by the lignite power plant and conversion facility operators for a five-year period. The tax relief is valued at approximately $100 million over five years to the industry broadly, and $20 million for Minnkota's Joint System specifically.
- **HB1452: Clean Sustainable Energy Authority** – The legislature created a Clean Sustainable Energy Authority to help position North Dakota as a leader in reducing environmental impacts through a comprehensive research and development authority. The legislation provides $25 million from the state's general fund to the authority to fund qualified projects. Importantly, $250 million in a low-interest loan program was also appropriated, helping to support the commercialization of projects like Tundra.
- **SB2287: Lignite Insurance Study** – Directs the Insurance Commissioner to study and determine whether a program or mechanism could be implemented to provide an alternative for North Dakota's lignite industry to seek insurance rates that are not skewed against the fossil fuel industry.
- **SB2152: 45Q Conformity** – This bill conforms the North Dakota Century Code to comply with federal law regarding 45Q tax policy by providing a sales and tax use exemption for carbon dioxide sales related to geologic storage projects.
- **SB2137: Data Center Tax Incentive** – This bill creates a sales and use tax exemption for data centers. Data centers can require large amounts of electricity and attracting these businesses to the state to grow electric load is beneficial, and a key focus for Minnkota.

"North Dakota is well-positioned to be a world leader in the development of carbon capture, utilization and storage (CCUS) technologies," Dahl said. "With the strong support provided by the legislature this session, we can help ensure the continued strength and long-term viability of our state's energy industry."

ECO Act crosses the finish line in Minnesota

After nearly four years of work, the Energy Conservation and Optimization (ECO) Act, the primary focus for electric cooperatives, was passed into law with strong bipartisan support. The ECO Act reforms and modernizes the existing Conservation Improvement Program (CIP), which did not recognize the benefits of efficient electrification of end-use processes, such as the adoption of electric vehicles and other emerging technologies. Conversely, the ECO Act emphasizes end-use total energy efficiency rather than narrowly focusing on reducing electricity use.

"With more flexibility to recognize and respond to emerging technologies and consumer demands, this is a win-win for our members in Minnesota," Dahl said.

Oliver County residents absorb knowledge on Project Tundra

If Project Tundra moves forward, it would bring transformational energy technologies, jobs and more than $1 billion of investment into Oliver County.

Understandably, residents and landowners are eager to learn more.

Leaders from Minnkota and the Energy and Environmental Research Center (EERC) helped answer questions and discussed details of the proposed carbon capture project at informational sessions held May 5 in Center, N.D. Interactive displays, handouts and other communication materials were made available to help educate about 70 attendees on the technical details and project specifics.

"Project Tundra is a way for us to keep the Young Station viable in a carbon-managed world," said Mac McLennan, Minnkota president and CEO, who led both sessions. "We believe we're going to face a carbon regulation, tax or other measure that is going to require us to look at things differently. Carbon capture is going to be an integral piece of the puzzle if we want to keep our grid reliable."

The first meeting was reserved for impacted landowners in the area to discuss specifics about how carbon dioxide will be safely and permanently stored more than a mile underground. Maps and other graphics were used to show the area in which the CO_2 will travel within its locked geologic formation over a 20-year period. Minnkota right-of-way agents continue to coordinate with landowners on CO_2 storage rights around the plant in advance of submitting permit applications in early summer.

EERC geologist Wes Peck (right) explains to a landowner how CO_2 will be safely and permanently stored in geologic formations more than a mile underground.

Minnkota is still in the evaluation phase of Project Tundra. If the project moves ahead, construction could begin as early as 2022, with commercial operation starting in 2025. To learn more, visit **ProjectTundraND.com**.

NMPA highlights industry change at annual meeting

With gatherings being limited over the last year due to COVID-19, the Northern Municipal Power Agency (NMPA) annual meeting on May 19 felt like a reunion of sorts. It was the first time that many of the Agency's directors, advisors and partners had been in the same room since the pandemic began.

The meeting, which included limited in-person attendance and a virtual option, was held at Minnkota headquarters in Grand Forks. Minnkota and NMPA are longtime partners and operate together as a Joint System.

Despite challenges and obstacles faced in 2020, Jasper Schneider, NMPA general manager, reported that the Agency performed well and met the needs of its member communities. Power generation and delivery remained reliable, which provided needed stability during the pandemic and a foundation to plan for the future.

"Like most industries, the electric utility industry is changing rapidly," Schneider said. "NMPA recognizes this changing landscape and has been proactive in preparing for the future. The change around us generally falls into three categories, which include changes in governmental regulations, consumer expectations and technologies. Each of these is unique, but the common theme is the NMPA/Minnkota Joint System needs to continue to be responsive to this change, while being responsible to our mission."

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Student engineers recognized in annual Freeman Competition

A year of COVID challenges didn't stop the University of North Dakota's (UND) engineering students from using teamwork and innovation to enhance lives, and they were recognized for their perseverance at the 2021 Andrew Freeman Design Innovation Competition awards ceremony.

This spring, several undergraduate teams presented their senior design projects to industry leaders – including representatives from Minnkota, which has sponsored the Freeman Competition for more than 20 years. The winning project was a safety app developed by two engineering students for the Grand Forks County Emergency Management Department.

"It's something we had always talked about doing, with my computer science background," said first-place recipient Gannon Engkvist, who will continue improving the app during his work for Grand Forks County this summer. "We want to gather a lot of user input and feedback and go around to rural fire departments and figure out what they'd like to see in the app. We want to be able to tailor the app directly to the community."

Engkvist and his teammate, Sean Larsen, received a $2,000 award for their work, supported by an endowment established in 1996 to honor Andrew "Andy" Freeman, a UND engineering alumnus and former 42-year Minnkota general manager.

"Andrew Freeman was innovative, creative, a great communicator, and preached teamwork," said Brendan Kennelly, Minnkota senior manager for power delivery engineering, as he spoke at the May 12 awards presentation at UND. "Freeman is very well respected – not only at Minnkota, but industry wide."

Kennelly recounted Freeman's role in expanding rural electrification in the region, taking the reins of Minnkota at just 31 years old. Freeman is also celebrated as the inventor of the electric block heater, an invaluable piece of technology for northern drivers.

The second-place team recognized in the competition developed a process to produce a bio-based substance that can be used in flexible polyether for adhesives and foams. Third place was awarded to a project that revamped an assembly station at the Grand Forks-based manufacturing company Retrax to increase efficiency, savings and safety. The teams received $1,000 and $500 awards, respectively.

By **Kaylee Cusack** / Photography **Michael Hoeft**

(Left to right) Gannon Engkvist, first-place team; Levi Stegner, second-place team; Brendan Kennelly, Minnkota; Akash Gogate, second-place team; Maddisyn Kemmer, second-place team; Emily Myskewitz, second-place team; John Munro, third-place team; Kevin Simon, third-place team. Not pictured: Sean Larsen, first-place team; Pablo Guerrero, third-place team (distance student); Jaxon Kriewald, third-place team; Lucas Strozinsky, third-place team (distance student)