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Minnkota

MESSENGER

The Digi-Key difference

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Minnkota MESSENGER November-December 2021

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In memory of
Andy Goetz
Jan. 28, 1989 – Oct. 10, 2021

On the cover: Digi-Key Vice President of Order Fulfillment Chris Lauer stands on the second floor of the company's new four-floor Product Distribution Center expansion in Thief River Falls, Minn. The building utilizes smart automation, LED lighting and more to achieve high levels of energy efficiency.

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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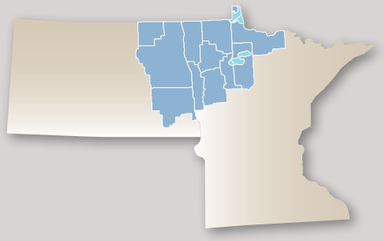


Minnkota Power Cooperative is a generation and transmission cooperative headquartered in Grand Forks, N.D. It supplies wholesale electricity to 11 member-owner distribution cooperatives, three in eastern North Dakota and eight in northwestern Minnesota. Minnkota also serves as operating agent for the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

Rate stability highlights 2022 budget

Minnkota Power Cooperative plans to keep its average wholesale electricity rates flat for the fifth straight year. The cooperative's board of directors approved the 2022 capital and operating budgets, which anticipate no rate adjustment for the Class A member cooperatives.

"Our financial performance in 2021 provides a stable foundation for us to meet the needs of our members while not increasing our rates," said Mac McLennan, Minnkota president and CEO. "As prices are rising on many products and services, we know how important stable electricity prices are for our local communities."

Quality performance from the generation and power delivery fleets has strengthened Minnkota's balance sheet in 2021. The cooperative has received a boost to its financials through a stronger market for its surplus power. Average prices in the MISO market have more than doubled compared to 2020 totals.

"The wholesale markets have rebounded from historic lows in 2020," McLennan said. "We're seeing higher prices, but also increasing volatility. Effectively managing the market is a key to our success."

The economy in Minnkota's service area remains strong with consistent growth coming from the major population centers and the agricultural industry. In 2022, the cooperative is anticipating that new data centers and data processing facilities will begin operation and provide significant load growth and additional revenue.

Total revenues in 2022 are projected to be $410.1 million. Along with the potential use of deferred revenue funds, the year-end margin is targeted at $12.4 million.

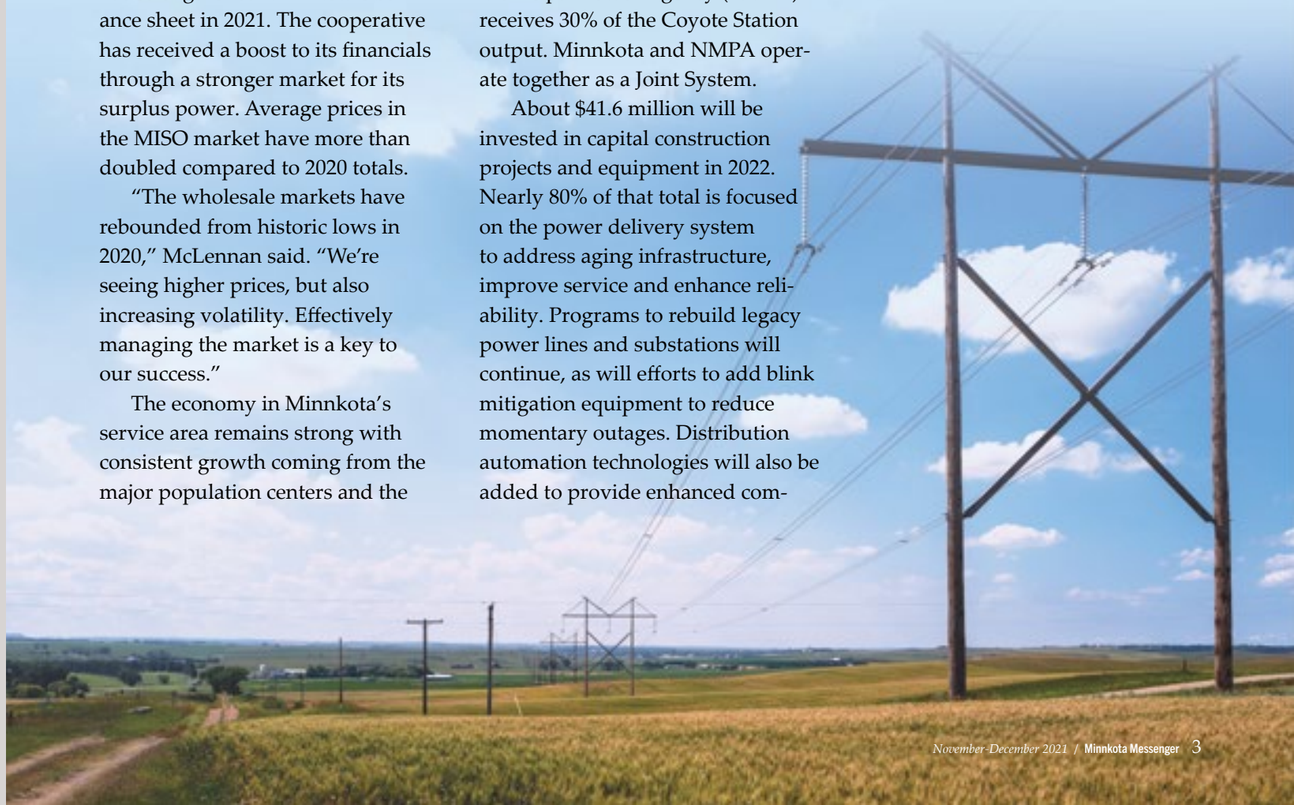
From an expense standpoint, Minnkota will see higher power supply costs in 2022 due primarily to major scheduled outages on Unit 2 at the Milton R. Young Station and at the Coyote Station. Large capital projects and routine maintenance are planned at these facilities every three years. Minnkota receives 82% of the Unit 2 output and Northern Municipal Power Agency (NMPA) receives 30% of the Coyote Station output. Minnkota and NMPA operate together as a Joint System.

About $41.6 million will be invested in capital construction projects and equipment in 2022. Nearly 80% of that total is focused on the power delivery system to address aging infrastructure, improve service and enhance reliability. Programs to rebuild legacy power lines and substations will continue, as will efforts to add blink mitigation equipment to reduce momentary outages. Distribution automation technologies will also be added to provide enhanced communication and greater visibility over the system. Power production and security/reliability projects will make up the remaining 20% of this budget.

Minnkota has maintained investment-grade financial ratings through 2021. The cooperative currently has an A- rating from Standard and Poor's and a Baa2 rating from Moody's.

"There is a tremendous amount of change on the horizon for our industry," McLennan said. "We look forward to working with our members to navigate these changes in a way that preserves reliable, affordable and environmentally responsible electricity."

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



The Digi-Key difference

MAJOR FACILITY EXPANSION ALLOWS DISTRIBUTION COMPANY TO THRIVE WITHIN ITS RURAL MINNESOTA COMMUNITY

Mark Schmitke, Digi-Key manager of community relations, describes one of the several picking and packing processes that will take place in the facility expansion.

Digi-Key's manager of community relations, Mark Schmitke, hasn't yet had many opportunities to show the public the inside of the company's new Product Distribution Center expansion (PDCe) in Thief River Falls, Minn. The four-story, 2.2 million-square-foot facility is still going through some final system checks before full operation. However, the site's earliest visitors can see the tour guide's pride over the intricate system of electronics picking, packing and shipping.

"If there are four parts in an order, they can be picked from different places. One part will go into here," he said, referencing a black plastic tray before turning to point to a 70-foot-tall system of automated racking. "Then this tray will go into that 'fastbox' so that the order will get consolidated – all four parts of the order will end up in the same fastbox. When a packager is ready, those four trays will release and go straight to the packager."

Digi-Key has distribution down to a science, and the new PDCe will streamline its mission of the same-day shipping of batteries, computer parts and other electronics components to homes and businesses around the world.

"We're making a better experience for our team," Digi-Key Vice President of Order Fulfillment Chris Lauer said of the PDCe. "We're also enhancing our ability to send our customers accurate orders on time at the capacity we need."

The new 2.2 million-square-foot Digi-Key expansion has a base floor large enough to fit 22 football fields.

It's been a long journey since ground was broken on the expansion in 2017, but Digi-Key Vice President of Order Fulfillment Chris Lauer is giddy to finally see packages rolling down the line in the near future.

"Feeling kind of like a kid at Christmas," Lauer laughed. "We very much love our old system. We know its capabilities – and it's very capable – and we've taken it well past its design capabilities. But the new system, just from a user experience for our team, is going to be much better."

Digi-Key's expansion houses a new best-in-class warehouse management system and OSR (order storage and retrieval system). The systems will work together to process and ship the company's 27,000 orders a day – up from 11,000 when Lauer was hired 16 years ago. Digi-Key is nearly finished with the software-testing phase of the enterprise, and will then start to migrate 1.7 million parts from the original building to the new space. The transition will take about nine months, at which time employees will reap the full gifts of a more efficient, more ergonomic, smarter Product Distribution Center.

But this path to "Christmas morning" didn't come without its challenges. The project team had to navigate both a polar vortex weather event and the COVID pandemic during construction. Lauer is grateful that a reliable flow of electricity will not be an additional worry.

"Power is the key," he said. "We have to have continuous, steady power."

A pallet of Digi-Key boxes waits to test the new distribution center's processing system.

The Anderson substation expansion in Thief River Falls is similar to recent substation upgrades in Fargo and Grand Forks – all supporting communities on the grow.

Stepping up for power

The Joint System of Minnkota Power Cooperative and Northern Municipal Power Agency (NMPA) worked with Thief River Falls Municipal Utilities to ensure Digi-Key and its neighbors have the level of power required to keep operations moving. They determined the Anderson substation, originally completed in 2000, needed a second 115/15-kV transformer to create the needed capacity of the Digi-Key expansion. The substation expansion project wrapped up in June 2020, in plenty of time for the final phases of PDCe construction.

"Digi-Key and Thief River Falls have become synonymous. It's very much a hand-in-hand partnership between Digi-Key's expansion and growth and the electric utility," explained NMPA General Manager Jasper Schneider. "If we experience an outage, even of just a few minutes, it causes extreme disruptions for Digi-Key, and that has a monetary component to it. The city works very closely with Digi-Key to make sure that they have electric redundancy in place, that the power keeps flowing, that their rates stay competitive and that they're well positioned for future growth."

Much of the PDCe's automated racking, 22 miles of conveyors, product lifts, etc., are powered by electricity. Digi-Key takes pride in using that energy wisely. The company prioritized efficiency and sustainability in the building's design, including elements like a sun-reflecting white roof membrane and facility-wide LED lighting. In the construction process, Digi-Key also took on aggressive retrofit projects at the existing facility, such as sensor-activated LED lights, high-efficiency water heaters and more.

Just like Digi-Key's power partners stepped up to support this economic development, other Thief River Falls entities are also adjusting for the company's continued growth. For example, Digi-Key collaborated with the local airport to extend their cargo capabilities and include more direct flights to key shipping areas. Ultimately, the entire region benefits from Digi-Key's continued success.

"When you have an employer of that size, it creates all sorts of other micro-economies within the community," Schneider said. "It supports the hospitals, the clinics, the coffee shops and the restaurants. Every community wishes they had a Digi-Key, especially an entity that large that's headed in the right direction."

The right place

Other regions of the country have attempted to woo Digi-Key to move its facility out of rural Minnesota and into other states. But nothing was enough to pull the company away from its roots.

"Anybody can do what we can do. All you need is inventory, a system and logistics," Lauer said. "We asked ourselves, what makes us unique? And I absolutely believe it's our people that make us unique."

Lauer spoke of the grit and ingenuity of the Digi-Key workforce, drawn largely from a 75-mile radius around Thief River Falls. He experienced a clear illustration of that can-do attitude during the February 2019 polar vortex event. Most employees were able to make it to work and keep orders shipping, but some left their shifts to find vehicles that wouldn't start in 75-below-zero wind chills. The Digi-Key maintenance team designed a solution.

"They put multiple big batteries on the top of this little Bobcat Toolcat we have. It had a Honda generator strapped to it, and it started cars no matter how cold it was," Lauer recalled. "That's the solution it takes to keep things going, and that resourcefulness is what I see in the folks around here."

The Digi-Key team is eager to get to work in the expanded distribution center and will soon be bustling through the currently quiet building. But Digi-Key's community partners are also eager – eager to see what new heights the company will reach in their small-town corner of the world.

"When you tie it all together, it goes back to the culture of the people and their passion for ensuring that every order is important, whether it's a big order worth a lot of dollars or a really small order worth 50 cents," Lauer said. "It's not any one of us. It's all of us that carry that torch. That's the magic of northwest Minnesota and North Dakota."

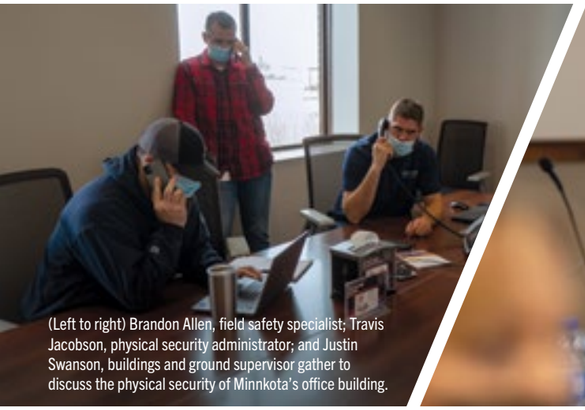
By **Kaylee Cusack** / Photography **Michael Hoeft**

Digi-Key PDC Expansion by the Numbers

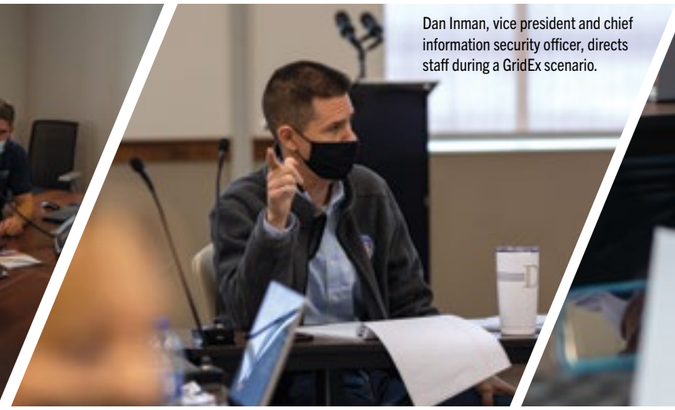
- 1,045,600-square-foot footprint
- 2.2 million total square footage
- 66,000 cubic yards of poured concrete
- 17,600 tons of steel
- 22+ miles of conveyor
- 58,000 sprinkler heads
- 328-foot skybridge to original 600,000-square-foot building

Minnkota shows grit and growth during GridEx

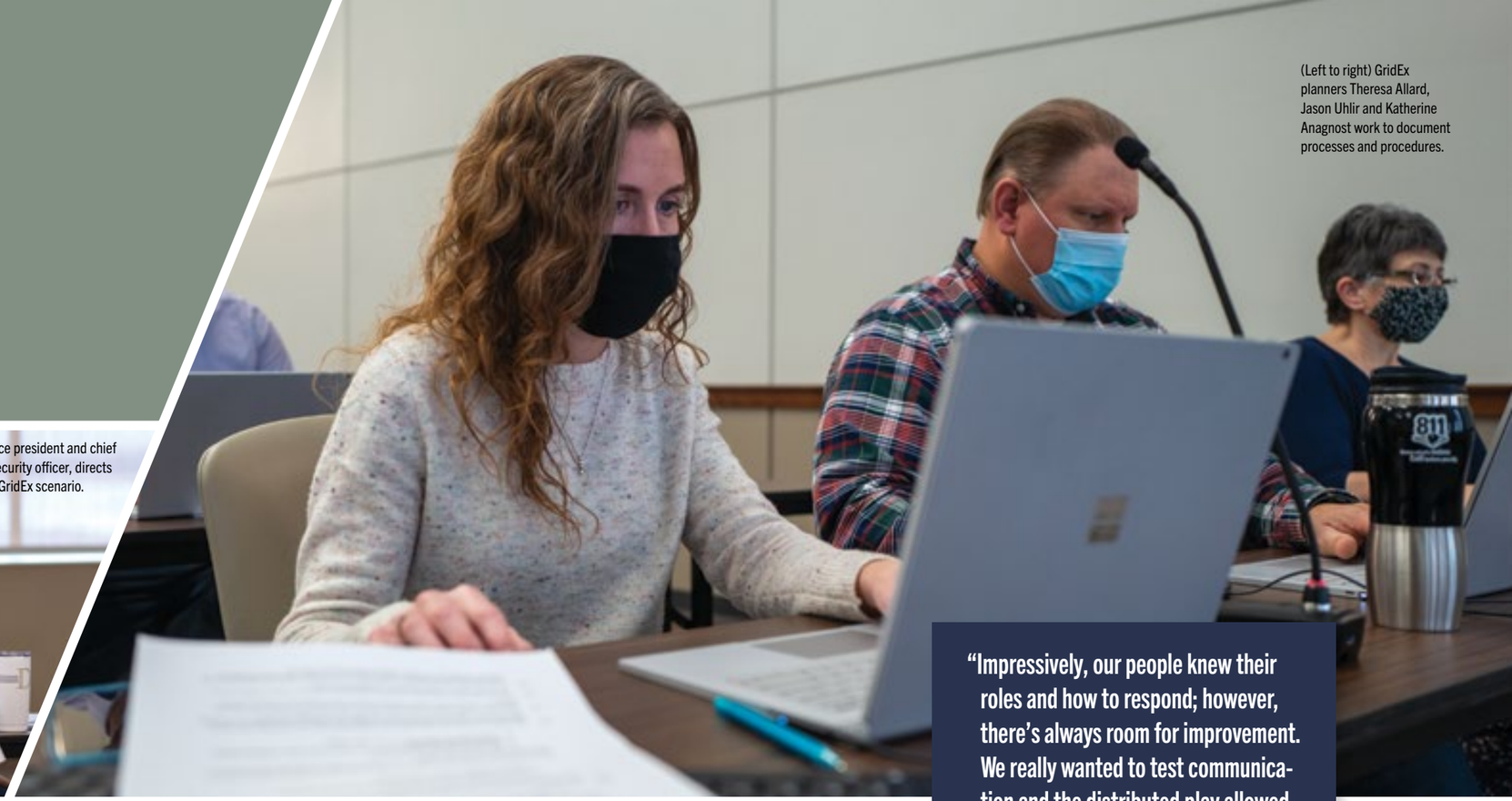
NATIONWIDE EXERCISE HELPS EMPLOYEES PREPARE FOR THE WORST



(Left to right) Brandon Allen, field safety specialist; Travis Jacobson, physical security administrator; and Justin Swanson, buildings and ground supervisor gather to discuss the physical security of Minnkota's office building.



Dan Inman, vice president and chief information security officer, directs staff during a GridEx scenario.



(Left to right) GridEx planners Theresa Allard, Jason Uhlir and Katherine Anagnost work to document processes and procedures.

Explosions occur at major power facilities. System failures begin to spread. Rolling blackouts are followed by cyberattacks, security breaches and social media upheaval.

If something could go wrong, it almost certainly did during GridEx VI – a nationwide training exercise held Nov. 16-17 to prepare utilities for cyber and physical security threats. About 50 Minnkota employees participated in the event, which tested their ability to work together and respond to a barrage of nightmare-inducing scenarios.

"GridEx is an excellent opportunity to test the resiliency and reliability of our systems in a worst-case scenario without having to disrupt any of our actual systems," said Justin Haar, Minnkota cybersecurity specialist. "The nature of the exercise is so much bigger and more complex than most organizations would ever test on their own. It forces us to be creative and responsive versus just conducting a basic tabletop exercise."

GridEx is organized every two years by the North American Electric Reliability Corporation's (NERC) Electricity Information Sharing and Analysis Center. As the regulatory watchdog over the nation's grid, NERC developed the framework and overarching narrative for the 700 participating organizations. Minnkota planners, which included a cross-section of employees, customized scenarios specific to the cooperative's infrastructure and systems.

This is Minnkota's second time as an active participant in GridEx. In 2019, cooperative employees gathered in one large room to go through each scenario together. The exercise became more sophisticated in 2021 with most participating employees being distributed into their natural work environments. Exercise updates, called injects, were delivered to predetermined individuals, which tested their ability to not only respond to the issue, but to relay information to others in the organization.

"Impressively, our people knew their roles and how to respond; however, there's always room for improvement. We really wanted to test communication and the distributed play allowed us to make the scenarios much more realistic."

– Theresa Allard, Compliance Manager
Minnkota Power Cooperative

"Impressively, our people knew their roles and how to respond; however, there's always room for improvement," said Theresa Allard, Minnkota compliance manager. "We really wanted to test communication and the distributed play allowed us to make the scenarios much more realistic."

As communication filtered through the organization, war rooms were developed where team members could gather and develop solutions to complex technical problems. All steps taken throughout the exercise were documented so that plans can be improved or resources can be found to address potential risks in a real-life situation.

GridEx planners Justin Haar (left) and Brandon Trontvet help prepare Minnkota's GridEx players during a brief orientation before the exercise began.

Bringing departments together

The stressful nature of GridEx is meant to overwhelm even the most prepared utilities and uncover any deficiencies in processes or procedures. But the high-pressure situations also provided an opportunity for camaraderie to develop between departments that do not routinely work together.

"You can see the respect grow when people understand how complicated emergencies are and how many different people are involved in resolving issues," Allard said.

Problems were not easily solved, as GridEx assumes all utilities are in a state of crisis. That means equipment replacements may not be available, law enforcement may not be immediately responsive and there is likely very little help coming from other organizations.

Minnkota's issues ranged from catastrophic substation and power plant failures to rolling blackouts and ransomware attacks on the cooperative's IT infrastructure. As the exercise evolved, these challenges built on each other and created extreme difficulties for employees to navigate.

"It forces us to confront significant problems because the problems aren't only impacting us, but every other utility in the country," Haar said, adding that in future GridEx events, the cooperative would like to include its members and other emergency entities.

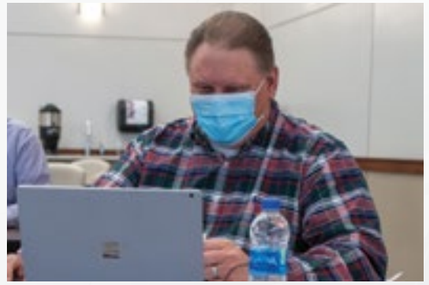
Managing the message

While groups of technical experts mapped out ways to bring power back to communities in need, the Communications staff crafted messages for internal, external and member audiences. GridEx emphasizes social media and provides a simulator, called SimDeck, to practice making and responding to social media and website posts.

Misinformation was spread on the platform during the exercise from malicious actors who were trying to create chaos. Threatening social media posts were also reported back to Minnkota's safety and security personnel.

"Oftentimes companies aren't judged on what happens to them in terms of disasters, but they're judged on public perception, how the media handles it and how people talk about it," said Jason Uhlir, Minnkota safety manager. "So there is a crisis in front of us and we have a whole second crisis of public perception. SimDeck gives us an opportunity to see those dynamics play out and address them."

As one of the planners of the exercise, Uhlir said he's always impressed with the problem-solving ability of staff and the resourcefulness in finding solutions in a way that the planning committee didn't predict. As Minnkota's risks continue to evolve, there is no time for complacency in emergency planning.



Jason Uhlir watches a scenario unfold from his laptop.

"Every time we do GridEx, it's an opportunity for us to grow and to continuously improve so that if we do find ourselves in a crisis situation, our members aren't going to be the ones that suffer," Uhlir said.

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

Young Station staff members had their own separate room for GridEx to simulate their geographic separation from the Grand Forks headquarters.

Reliable power for reliable packages

AMAZON FULFILLMENT CENTER BECOMES LATEST COOPERATIVE MEMBER IN GROWING FARGO COMMUNITY

Life has been moving fast for John Sabo this year. In July, he was brought onto the Amazon team molding the final features of the FAR1 Fulfillment Center under construction on the north side of Fargo, N.D. As the building's new general manager, Sabo wrapped up his life and shipped himself to North Dakota as quickly as an Amazon Prime package.

The speed of light is the typical pace of the multibillion-dollar business, and the design and execution of the massive facility certainly didn't buck the trend.

"If you think about what it takes to build a 1.1 million-square-foot facility seven feet above the floodplain, all in 12 months – it's impressive," Sabo said from his office inside the FAR1 facility. "Amazon has launched a significant number of buildings in the last 15 years, and we've become better at it. I am extremely happy with the way things have turned out."

The massive Amazon Fulfillment Center can be seen from Interstate 29 north of Fargo.

Fargo's Amazon Fulfillment Center is the company's way of providing enhanced service to its customer base in North Dakota, South Dakota and Minnesota. The facility will feed a supporting network of additional buildings in the region that run last-mile delivery to homes and businesses.

"People in Fargo, much like people in Los Angeles, probably want something as fast as they can get it," Sabo said. "So this is how we provide that."

To do big things, Amazon had to build big. FAR1, which began delivering packages in early October, boasts 7.8 million cubic feet of interior space and a 22-football-field-sized footprint. The perimeter of the building contains 132 dock doors for inbound and outbound deliveries. To sustain all of the conveyors and robotics technology that brings shipments to the shelf and back again, 1.4 million feet of wiring winds throughout the facility.

"It's the biggest physical structure in the state right now, so the power demands are not insignificant," Sabo said with a smile.


FAR1 Amazon Fulfillment Center general manager John Sabo explains how hundreds of racks in the facility will soon be filled with inbound and outbound products.


Dozens of hydrogen fuel cell-powered lifts await the facility's ramp up. They are equipped with smart harness technology that allows no movement unless the driver is properly harnessed.

Minnkota crews hang the final panels of fencing around the new Maple River substation.

Minnkota electrician Brandon Greene hangs leads at the Maple River distribution substation in preparation for CCEC's connection.

Cass County Electric Cooperative (CCEC) and Minnkota Power Cooperative were ready for this call for kilowatts. CCEC business accounts executive Chad Brousseau said an incredible amount of work was put in by the cooperative's engineering team and line crews over the past year to prepare for their newest member-consumer.

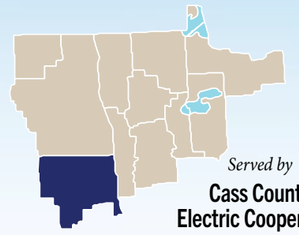
"These infrastructure upgrades will also benefit our existing members in the area, supporting our already strong reliability numbers and offering additional contingency options," Brousseau said.

Delivering power

The Amazon facility is just the start of the industrial development expected north of Fargo and West Fargo. The FAR1 construction announcement served as an ideal launching point for plans to design and build a new distribution substation in the shadow of Minnkota's Maple River transmission substation, along with a new underground distribution feeder. The existing two distribution substations that deliver electricity to the area were becoming overwhelmed with recent growth, and the benefits of the boosted system will be multifold.

"We needed the new Maple River substation for two reasons," explained Minnkota engineering manager Kasey Borboa. "One was we needed to offload the existing substations, and to provide a backup source in case one of those substations ever went down. But it's also for future load growth. The substation we built is plenty big enough for any additional industrial load that would come to that area."

Minnkota's engineering department worked with CCEC on a series of studies to determine the transmission and transformer needs of the expanding north end of the metro. The analysis proved the need for the Maple River substation addition, and the team started design work in January 2021. The project progressed rapidly – it was designed and constructed in approximately 10 months.



Served by

Cass County Electric Cooperative

Fargo, N.D.

- Incorporated – March 27, 1937
- Full-time employees – 92
- Board members – 9
- General manager – Marshal Albright
- Members – 53,421
- Miles of line – 5,748

"It was a quick turnaround. Our people answered the call and they did the work," Borboa said, speaking to the talent and dedication of the engineers and field crews. "For them to put it all together, put it up and complete it is a huge, huge task."

Partnering for development

When the Maple River substation was energized in October, it became the latest of 10 substations electrifying the Fargo community. Many of those have been expanded in the past several years to match the expanding demand of the city – demand that will continue to evolve.

"There's a lot of additional growth expected in that area, beyond Amazon," Borboa said. "We're doing these projects to keep up with the growth rate and make sure that we have adequate capacity to serve our members and the loads they're bringing on. The City of Fargo and Cass County have been doing a fantastic job of getting these companies to commit to come into the area."

"Any time a new business or an existing business expands in the Fargo area, it's a boost to the local economy and benefits the greater Fargo-Moorhead area," CCEC's Brousseau added. "Growth is also a good thing for the cooperative and for our members, helping to keep electric rates stable."

When the FAR1 facility ramps to a full employee headcount of 1,400 over the next few months, it will become the tenth largest employer in the Fargo area. Sabo knows that comes with a responsibility to the community. He has already met with the mayors of Fargo, West Fargo and Moorhead to discuss the beneficial partnerships they can build, and he will soon check in with local university presidents to examine how Amazon can play a role in creating career paths for students.

Although Sabo is thrilled to get Amazon packages to Upper Midwest doorsteps faster, his long-term goal is to deliver the full package of regional development.

"When we think about what being a good community partner looks like, it's not necessarily just absorbing labor from the local market," he said. "It's being able to provide opportunities and, ideally, help Fargo and West Fargo grow."

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

A package rolls through specialized scanning technology at the FAR1 Amazon Fulfillment Center.

‘Keep calm and outage on’

YOUNG STATION EMPLOYEES USE OUTAGE TO KEEP UNIT 1 RELIABLE

As other parts of the country have faced grid challenges this year, Minnkota’s membership has avoided major issues due in large part to the reliable operation of the Milton R. Young Station. Whether temperatures are 100 degrees or 30-below-zero, the coal-based facility has responded with stable and dependable energy to keep communities energized and member-consumers protected from volatile energy market pricing.

Leaders at the Young Station recognize resiliency doesn’t happen by chance. Major maintenance outages are scheduled every three years during the fall (when energy demand is typically lower) to complete important projects, conduct inspections and repair equipment. In 2021, it was Unit 1’s turn to undergo a major scheduled outage. The 250-megawatt generator came offline Sept. 8 and was successfully returned to service on Oct. 26.

The outage was completed on schedule and on budget with no major safety issues. About $6 million in capital projects were completed, along with about $12.3 million in operating and maintenance efforts.

“The units were built with the idea that they could be reliable for a very long time,” said Andy Freidt, plant manager of operations and maintenance. “With the right strategies we can ensure that happens. The major outage is our time to do as much as we can possibly can to achieve our availability goals for the next three years.”

For Unit 1, that goal is 93% availability in non-major outage years. The unit has met this target in each of the last four applicable years – even as it nears its 51st year of operation.

Although the reliability of the unit has been consistent, operating practices have changed in recent years in response to the dramatic price swings experienced in the energy market. More than ever before, both Young Station units are asked to increase or, more typically, decrease their net output based on system demands and economic indicators.

“This will be the first major outage we’ve taken since these alternate operating strategies have been used significantly,” Freidt said. “We’ll take this opportunity to conduct detailed inspections on how these different modes of operation impact our maintenance needs.”

Finding solutions

Minnkota staff spend months preparing for major maintenance outages, each of which presents its own set of unique challenges and opportunities. Hundreds of specialized contractors are onsite, millions of dollars in projects need to be managed and countless hours of work must be completed safely and efficiently.

“Our message was ‘Keep calm and outage on,’” said Tim Hagerott, plant manager of engineering and environmental. “There’s a lot of our staff who hadn’t been through a major outage before, so this was a learning experience for a lot of people at the plant. We know that things will change as we get into projects, and we just have to roll with it, adapt and find solutions.”

Paul Koedam, Minnkota maintenance coordinator, uses a flashlight to inspect the Unit 1 turbine blades.

Adding in a global pandemic and a tightening market for materials put pressure on staff leading up to this year’s outage. COVID safeguards, including mask requirements, socially distanced break areas and other sanitization practices were implemented to help provide a safe and healthy work environment. The days of squeezing large groups into conference center rooms for project briefings were replaced by meetings spread out across large vehicle storage buildings. Scheduling changes were also implemented in an effort to limit the amount of overtime needed for the outage.

Project plans were developed earlier than normal to ensure equipment and material could be obtained. The Young Station expanded its material inventory in anticipation of the outage and the potential for finding “discoverable work” – those unforeseen repairs or projects beyond the original scope of the outage. In most cases, these issues cannot be identified until the unit is fully shut down and inspected.

“You’re seeing it across the board – things are just taking longer,” Hagerott said. “We emphasized that early on, so we could get out ahead of our material needs.”

Looking ahead

When the Unit 1 outage wrapped up this fall, there was no time to rest for the Young Station staff. A three-month major outage is scheduled for Unit 2 in the fall of 2022, which will require planning efforts to ramp up this winter.

Prudent maintenance and project work has helped Unit 2 exceed 93% availability in recent non-major outage years. Through October 2021, the plant currently is at a 92.6% availability rating.

Lessons learned from the Unit 1 outage will play an important role in how the Young Station staff approach future outages. The goal is to make sure both units are ready for the next polar vortex or heat wave – when the demand for energy can skyrocket.

“It’s an evolving process,” Hagerott said. “We’re always completing as much inspection work as we can and determining which projects provide the most overall value to our future operations.”

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

All areas of the Young Station were full of activity during the outage, including the turbine floor.

Koedam searches for turbine blade damage or imperfections during the Unit 1 low pressure rotor steam path audit.

PROJECT TUNDRA

Project Tundra team testifies to strength of storage permit application

Nearly a dozen experts in power production, geology and engineering gathered in Bismarck, N.D., on Nov. 2 to testify on behalf of Minnkota Power Cooperative's permit application for the geologic storage of carbon dioxide (CO_2).

Members of the North Dakota Oil and Gas Division hosted an hours-long hearing to discuss the storage plans of Project Tundra, Minnkota's proposal to capture CO_2 from its coal-based Young Station and store it safely and permanently thousands of feet underground. The permit application, submitted by Minnkota earlier this year, will ultimately require approval from the state Industrial Commission, which oversees the Oil and Gas Division.

"We're going to live in a world where we're going to have to manage the carbon out of our assets or we're going to have to replace those assets," Minnkota CEO Mac McLennan told the regulators. "That's where Tundra originally got its start – the recognition that we would need to manage our CO_2 from those facilities."

McLennan and Minnkota special projects counsel Shannon Mikula (geologic storage lead for Project Tundra) were joined in testimony by project partners from the Energy & Environmental Research Center (EERC) and Oxy Low Carbon Ventures. The team spoke to the components of the application and fielded questions from the panel, spanning landowner approvals to CO_2 plume monitoring.

"We held a number of individual meetings with landowners as well as public meetings and landowner-specific meetings out in Center, [N.D.]," Mikula said of steps taken to communicate the initiative to those who would be touched by the project. Minnkota currently has 84% approval of pore space owners in the planned storage area, surpassing the minimum 60% needed under lease.

EERC representatives guided regulators through a series of technical geologic, seismic and storage reservoir exhibits contained in the permit application, detailing the multiple layers of data gathering and subsurface analysis they performed on the Broom Creek and Deadwood formations targeted for injection.

"Based on the information I've seen, and that I've presented today, the depth is adequate for CO_2 storage," testified Steven Smith, EERC principal geologist for Integrated Analytical Solutions. He added that the sought depth is important, because it helps to keep CO_2 in a state which allows for more efficient injection and plume footprint throughout the project lifespan. "The thickness is adequate to handle the proposed 4 million tons per year of injection. The salinity is high enough where you are not concerned about any of the sources of fresh drinking water. And the porosity and permeability are excellent in the formation."

Project Tundra's storage permit application displayed solid planning in terms of geology and engineering, but also in terms of proactive risk mitigation, consistent monitoring and emergency response planning for any unlikely issues. Testimony made it evident that project planners were keeping the protection of people, the environment and water as their highest priority.

If all permits can be secured, Minnkota estimates engineering of Project Tundra to be completed by mid-2022, with a final decision on moving forward with the project to made by the end of 2022. Learn more at **ProjectTundraND.com**.

Story and photo by **Kaylee Cusack**

Representatives from Minnkota and the EERC testify before the North Dakota Oil and Gas Division.

Minnkota, partners win economic development award

A digital gold rush has arrived in Minnkota's backyard.

Fueled by algorithms and ambition, Core Scientific is developing a state-of-the-art data center in Grand Forks to provide blockchain infrastructure and software solutions for data mining, artificial intelligence and innovative financial products. The project, which will be completed early in 2022, was recognized by North Dakota Gov. Doug Burgum as the state's Economic Development Project of the Year in the urban community division. The award was accepted by Minnkota, Core Scientific and the Grand Forks Regional Economic Development Corporation (EDC) on Oct. 13.

Leadership at both the local and state level has played a key role in project success. Minnkota worked closely with member Nodak Electric Cooperative to develop the infrastructure to meet the significant power needs of the facility, which includes two buildings on a 20-acre parcel with a total of 100,000 square feet.

"We are excited to help bring a technology-focused company into our community," said Matt Marshall, Minnkota economic development administrator. "As our world becomes more data-driven, Grand Forks has positioned itself to be at the forefront of new business opportunities in this space."

Core Scientific identified Grand Forks as a prospect, called, and had a meeting with the mayor of Grand Forks, Bank of North Dakota and a development team from Minnkota, Nodak Electric Cooperative and the EDC all within a week. The entire $114 million project was negotiated and developed over the next four months – all possible due to key leadership.

Matt Marshall, Minnkota economic development administrator (far left), accepts the award from Gov. Doug Burgum (third from right) along with representatives from the Grand Forks EDC and Core Scientific.

"Projects of this size and scope require collaboration across many different organizations," Marshall said. "We have great resources in Grand Forks and across the state that helps create an environment where we can be successful in attracting these types of companies."

The power consumption of this project is estimated to generate more than $350,000 annually to the city in franchise fees alone, with the power load expected to be five times larger than any other single user in Grand Forks.

"It's been a pleasure for the EDC to work with the Core Scientific team in the development of this exciting project," said Keith Lund, President & CEO of the Grand Forks EDC. "Nodak Electric Cooperative and Minnkota Power played a key role as well, highlighting our region's robust electric infrastructure, high service standards and affordable utility rates."

The Governor's Choice Economic Development Awards are given annually through a collaboration between the North Dakota Governor's Office, the North Dakota Department of Commerce and the Economic Development Association of North Dakota (EDND).

"Diversifying North Dakota's economy is one of the EDND's top goals and the Core Scientific project is a great example of what is possible," EDND Executive Director Jennifer Greuel said.

By **Ben Fladhammer** / Submitted photo

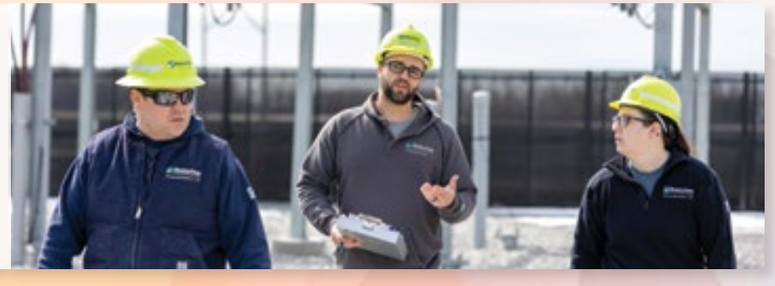
Through the Lens of 2021

As Minnkota rounds out another year of generating and transmitting power to all of our member communities, it's a great time to reflect on 2021's biggest milestones, most impactful projects and best member stories. Instead of telling our readers all about our last 365 days, we want to show you – with images from Minnkota digital media specialist Michael Hoeft.

The start of 2021 pitched several challenges at the energy industry, including an ongoing pandemic and a brutal February polar vortex event. But our energy marketing team masked up and powered on, helping guide Minnkota through the weather crisis.

We are proud of the foresight and hard work our member cooperatives put into innovation in their communities. This year, Roseau Electric Cooperative continued its NorthStream Fiber initiative, bringing high-speed fiber internet service to hundreds of folks in the region.

2021 saw the completion of Berg substation in Grand Forks. The substation – which will help maintain reliable power in the growing south end – was a product of many Minnkota team members, including technical maintenance technicians Jared Thompson (left) and Andrew Klinger (middle) and engineer Kara Laframboise (right).



Minnkota electrician Tom Beckstead helps put the final touches on the reconstruction of Rindal substation, part of Minnkota's plan to enhance the grid by rebuilding approximately two distribution substations every year.

Minnkota's power delivery crews used an early spring season to get ahead on several projects around the service territory. That proactive work was done safely – with no lost-time accidents reported through the entire year, cooperative-wide. Here, lineworkers Zach Omdahl (left) and Hunter Gray place a new transmission pole in Norman County.

Minnkota heavy crew foreman Butch Tester assists with the rebuild of nearly six miles of Mandt-Park River 69-kV transmission line, part of a five-year goal to rebuild nearly 100 miles of aging line around the region.

Minnkota maintenance coordinator Paul Koedam inspects a turbine rotor during a major maintenance outage of Young Station's Unit 1 this fall. The generator was offline for seven weeks as crews and contractors completed several projects to maintain the plant's high performance.

Kya Evenson (daughter of Minnkota plant technician Clint Evenson) enjoys a summer day on Nelson Lake at the foot of the Milton R. Young Station. The plant may become the future site of Project Tundra, an initiative to capture and safely store carbon dioxide emissions that, if constructed, would position the plant for a carbon-managed future.

This fall, Minnkota member Clearwater-Polk Electric Cooperative created a dream experience for 6-year-old Lakai Rivera, who was diagnosed with leukemia in 2021. Lakai is fascinated by power poles, and he was invited to spend the afternoon with CPEC's line crew in the pole yard. The little lineworker is in remission and thriving.

Minnkota construction and maintenance foreman Rory Grenier flips eggs and sausage for the power delivery team's annual fundraiser breakfast. Every year, their efforts help local organizations that support children during the holidays. Thank you to our generous employees!

Active off-peak load control season expected

Last winter, a polar vortex event sent energy market prices soaring. Fewer resources across the country were able to generate electricity in the historic cold, and demand was high for the few resources that that were generating enough to sell into the electric grid.

Utilities are experiencing those high market prices again – but it's not because of a single major weather event this time. It's the climbing cost of natural gas.

"Natural gas is one of those resources that typically help manage the variability in electricity generation, and we're seeing prices that are significantly higher than what we've seen in the past 10-15 years," explained Todd Sailer, senior manager of power supply & resource planning for Minnkota. "We're seeing prices double and triple what they were last year, or even over the last couple of years."

While the energy markets soared for only 7-10 days in February 2021's polar vortex, Sailer says this volatility could last throughout the winter season, or longer. That's good insight for cooperative members on the demand response – or off-peak – program, which allows the co-op to temporarily interrupt service to a participant's off-peak loads (electric heating, large-capacity water heaters, electric vehicle chargers, etc.) in exchange for a lower electric rate.

Todd Sailer, Minnkota senior manager of power supply and resource planning, presents to the membership on the grid challenges experienced in February 2021.

Minnkota's energy marketers are preparing for 200 hours of off-peak electric heating load control this winter, but Sailer says that could rise if natural gas prices continue to climb. He also notes that load control could be spread out over more days and not always coincide with major weather events.

"If we have days of low intermittent resources in the region, like wind power, the expectation is that the markets will respond and you'll see higher markets, which will result in more off-peak control," he said.

Ultimately, the cooperative will deploy off-peak load control when it needs to protect itself from buying high-price energy from the market. This system was established years ago to avoid building more generation facilities for peak need that only arises a few days out of the year. That, in turn, keeps rates low for consumers. By being a part of the off-peak load control program, consumers can also take advantage of an even lower electric rate without any disruption in comfort.

Dahl speaks to Bank of America CEO on Tundra

Stacey Dahl, Minnkota's senior manager of external affairs, participated in a town-hall-style discussion with Bank of America CEO Brian Moynihan on Nov. 23 at North Dakota State University. The event was hosted by Sen. Kevin Cramer as part of his Bully Pulpit speaker series, where he invites a variety of influential public and business leaders to North Dakota to hear from constituents and share their expertise in a format designed for constructive discussions.

Dahl focused on Project Tundra, a carbon capture and storage project being evaluated at the coal-based Milton R. Young Station near Center, N.D. Dahl emphasized the need for financial partners to help advance the project and other carbon capture technology efforts in the state. Through the Bully Pulpit series, she also presented to Goldman Sachs CEO David Solomon in September.

Electrical contractor continuing education sessions scheduled for January, February

Minnkota, its members and partners will again provide an opportunity for area electricians to obtain credits for license renewal by attending one of the seven continuing education classes being offered throughout eastern North Dakota and northwest Minnesota. This marks the 34th year of the successful program, which is aimed at providing area trade allies with the latest information on electrical code and practices.

The classes will be held in Fargo (Jan. 4 and 5), Fergus Falls (Jan. 11), Bemidji (Jan. 18) and Grand Forks (Feb. 1, 2 and 3). The registration fee is $75 for eight code credits. For more information, visit **Minnkota.com**, call (701) 795-4292 or email questions to **contractortraining@minnkota.com**.

Employees donate $3,507 to holiday causes

Minnkota's Grand Forks employees opened their hearts and wallets this season to ensure the community's families in need have a wonderful Christmas, raising $3,507 for local causes.

On Nov. 24, Grand Forks' power delivery crews held a free-will offering breakfast to gather funds for Santa Claus Girls – a nonprofit organization that provides Christmas gifts for less fortunate children in Greater Grand Forks. The breakfast raised an incredible $2,007, which was boosted with $500 more from the employee Jeans Day fund.

The Jeans Day committee also held its special annual fundraiser, asking employees to pay $10 or more for the privilege of wearing jeans for extra days surrounding the holidays. Employees gave $650 to the effort, which the Jeans Day committee helped bring to a solid $1,000 to donate to St. Joseph's Food Pantry. The donation will be enough to fill four entire pantry shelves for Christmas.

Thank you to everyone who participated in these seasonal acts of giving!

Jeans Day committee member Jill Michalski (right) presents a $1,000 donation to St. Joseph's case manager Deidra Rodriguez (left) and executive director Mickey Munson.

Minnkota employees present Santa Claus Girls board members with a donation of $2,507. Left to right: Karen Bjornseth, Allison Peterson and Carol Schneweis of the Santa Claus Girls board, and Kathy Dietz, Nate Benke and Rory Grenier of Minnkota.

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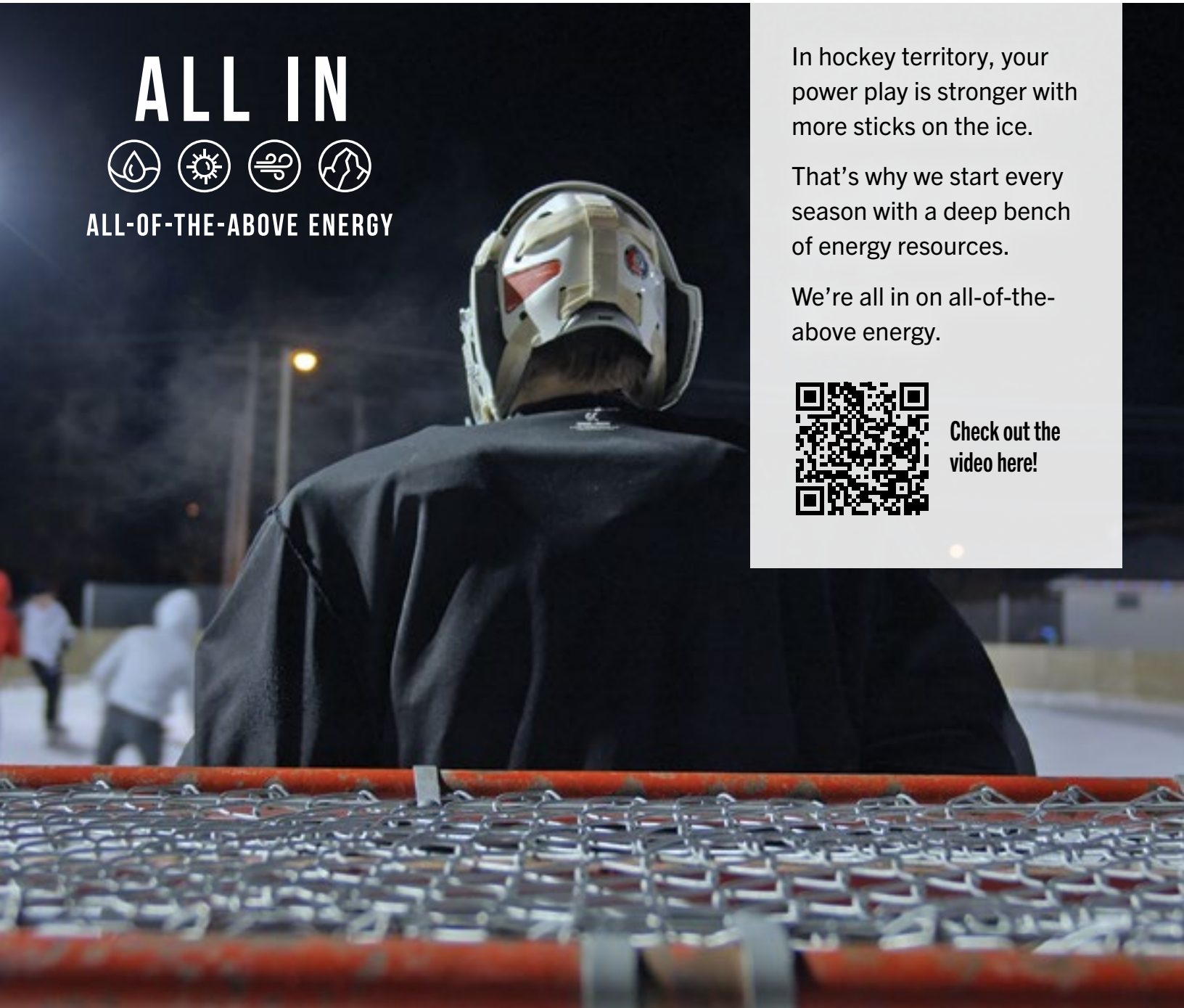

In hockey territory, your power play is stronger with more sticks on the ice.

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We're all in on all-of-the-above energy.

Check out the video here!