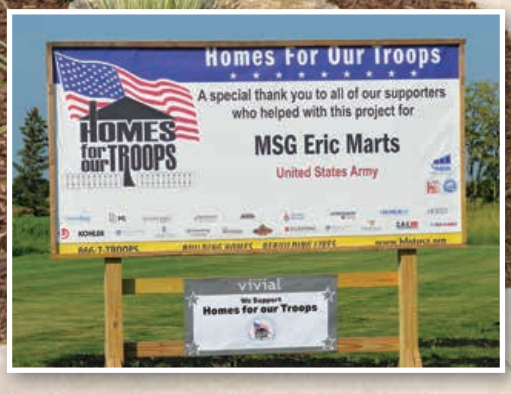
Minnkota Messenger

July-August 2017



Home fit for a hero

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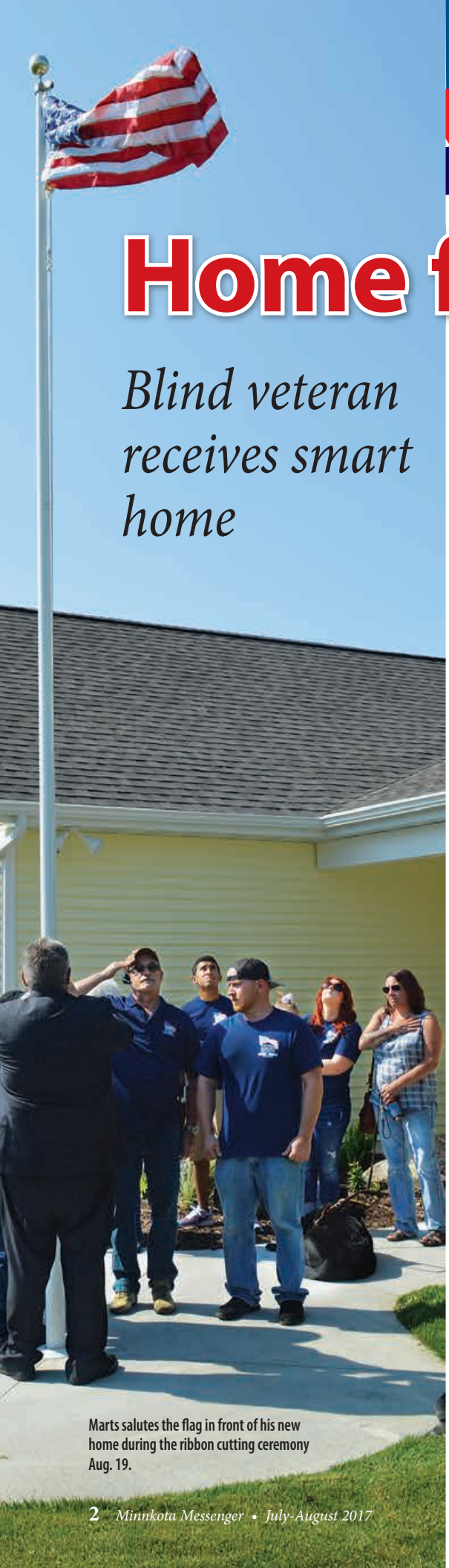
Home fit for a hero

Blind veteran receives smart home



Marts salutes the flag in front of his new home during the ribbon cutting ceremony Aug. 19.

In 2006, Eric Marts did not want to go home. Even after multiple roadside blasts in Iraq were robbing him of his eyesight, the Army Master Sergeant wasn't done serving his country.

"I'm a soldier," Eric said. "I didn't want to leave without my guys."

After a decade of healing inside and out, coming home has a new meaning for Eric, his wife, Bobbie, and his service dog, Deacon. The family received a mortgage-free house courtesy of Homes for Our Troops (HFOT), a nonprofit organization dedicated to building specially adapted homes for severely injured post-9/11 veterans.

Nearly 100 gathered Aug. 19 to welcome the Marts family to the new home. Cheers echoed down a normally quiet country road outside of Moorhead, Minn., as Eric raised the American flag. Although he can no longer see the stars and stripes, there was no doubt that they were flying high over his front yard.

"It's like hitting the lottery," Eric said. "What a difference it's going to make in our lives."

The Martses previously lived in a trailer park in Moorhead. The 20-year-old home presented challenges for a man who depends on sound and touch to get around safely. Narrow hallways, a small bathroom and limited kitchen space added obstacles to each daily task.

"There just wasn't enough room to set up all the equipment that he uses and all the organization that keeps his things where they need to be," Bobbie said.

Meeting Sally

The new home will help give Eric back some of his independence. The open floor plan allows for him to navigate around easily with Deacon at his side. A spacious walk-in shower and therapeutic tub will help deal with aches and pains in his neck, back and legs. Inside the kitchen, the large cabinetry provides room to organize food items so he can cook alongside his wife again – a hobby that had been lost with his eyesight.

Most importantly, the home will be a place for the family to gather during the holidays. The couple has five grown children and six grandchildren ranging in age from 2 to 9.

Many believe the home is among the region's most advanced in terms of technology and automation. In fact, it is so smart it has a name: Sally.

"Hello, Sally," Eric says to prompt the system before issuing a command. Through voice automation, Marts can open doors, control the room temperature, lights, TV and most other appliances. If he is working out in the yard and needs help finding the house, he can simply ask Sally and she will respond through a built-in outdoor speaker system. There are even cameras outside with facial recognition technology to let Eric know if a friend or stranger is knocking on the door.

The home depends on reliable electricity from Red River Valley Cooperative Power Association, one of the 11 Minnkota Power Cooperative members.

"I've been so blessed with the pure luck of being born here in America. I owe a debt to all who came before me that made this country happen. I've not finished my job."

– Army Master Sergeant Eric Marts

Forever home

HFOT has built 240 specially adapted homes through private funding since its inception in 2004. The Marts home is the first specifically designed for a blind veteran.

Chris Mitchell, HFOT director of development, said his organization hopes to use this home as a template for future homes for veterans with vision impairments.

"We always want to stay on the cutting edge to make our veterans more comfortable," Mitchell said. "When you go through this home, it's total quality. Everything is above and beyond what we expect."

The project was coordinated through Home Builders Care, the charitable arm of the Fargo-Moorhead Home Builders Association. Dan Parrow volunteered his company, ISR Homes, to lead construction. Many local companies donated products, labor and volunteers that helped HFOT save more than $150,000, which will be paid forward to the next veteran.

For Parrow, the project had a lot of personal meaning. His wife is a military widow.

"Instantly when it came across, I knew I wanted to be involved," Parrow said. "This wasn't about making money. It was about Eric. He served us, and now we as a community of builders and contractors get to serve him."

Not done serving

To say military service is a family tradition for Eric is an understatement. Every generation of his family has served dating back to the Revolutionary War.

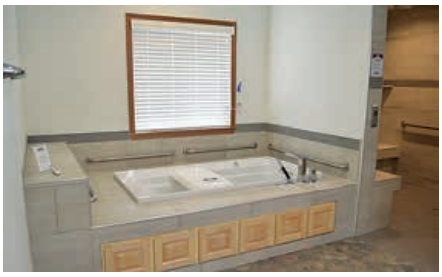
Eric originally enlisted in the Army in 1985 and, after a break in service, joined again following 9/11.

Despite losing his sight, Eric is adamant that he hasn't lost his vision. Each week he talks about veterans' issues on his popular Saturday morning radio show on 970 WDAY called "Heroes of the Heartland." There is a special spot in the new home for his radio equipment.

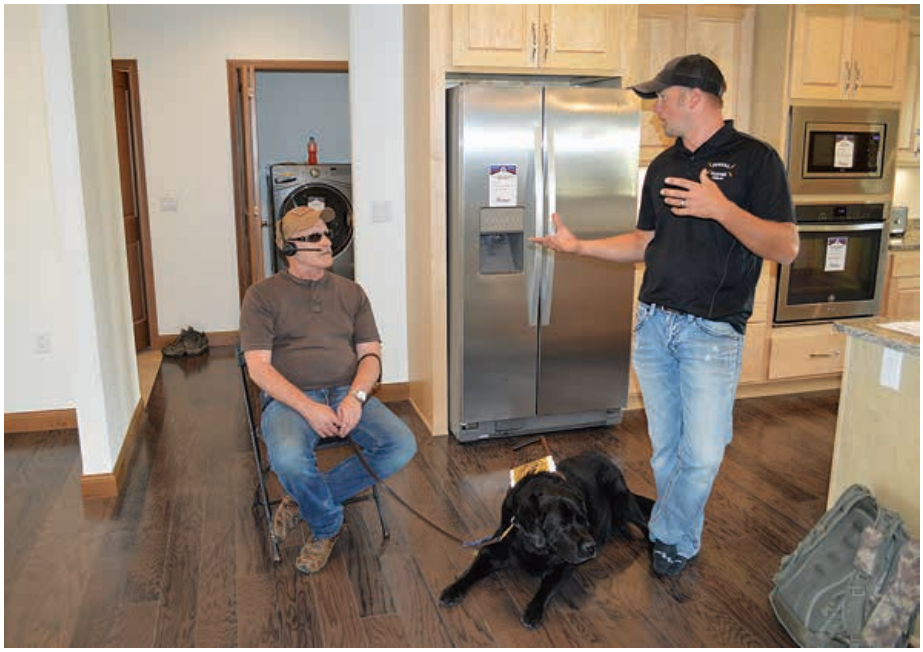
"Knowing there isn't much room for a blind infantryman, I decided to start the radio show advocating for soldiers and their families," Eric said. "This is my way to be able to take care of troops like I had before."

Eric speaks to groups across the country about his experiences and issues important to veterans. His advocacy led him all the way to the U.S. Capitol in 2014, as he and Deacon attended the State of the Union Address as special guests of U.S. Sen. Heidi Heitkamp. He also met with numerous lawmakers during the visit about specially adapted housing for vets.

"I've been so blessed with the pure luck of being born here in America," Eric said. "I owe a debt to all who came before me that made this country happen. I've not finished my job."



A therapeutic bathtub and large walk-in shower will provide Marts with both safety and comfort.



Marts learns how to use the home's voice automation system from Pat Block, electrician at Houska Electric, which installed the system.

Live wire

Minnkota line worker Jordan Klein works to remove an old hanging lightning arrester on an energized 69-kilovolt (kV) line.

Minnkota crews making progress on blink outage projects

Looking up, the two line workers see wires carrying thousands of volts of electricity. Looking down, they see 45 feet between their boots and the grass.

This is not a job for the faint of heart, but for Minnkota Power Cooperative line workers, it has been a routine part of the summer construction season.

An insulated fiberglass hot stick is used to safely install blink outage mitigation equipment on energized lines.

Crews have been working safely and efficiently as they move from pole to pole along the cooperative's power delivery system installing equipment to reduce the impact of blink outages – those 1-3 second losses of power caused by a lightning strike or other power line contact. Stretching from the North Dakota prairies to the northwoods of Minnesota, this 2,100-mile network of 69-kilovolt (kV) lines is the focus of an accelerated effort to improve system reliability. From 2015 to 2018, blink outage mitigation equipment will be installed on about 770 miles of this system, specifically focused on the most vulnerable sections as identified by a comprehensive 2015 study.

"It's not that the frequency of blink outages have necessarily been increasing in recent years, but rather that member standards for reliability continue to rise," said Skylar Ertman, civil engineer on the project.

Ertman said studies are under way on some of the completed line sections to determine the effectiveness of the installed equipment.

On the job

While it is possible to de-energize a line to complete the work, there are instances when taking that line out of service would cause a widespread power outage. The alternative? Leave those transmission lines active while the necessary work is performed.

Some call it live-line maintenance. Others refer to it as hot-sticking or barehanding. No matter the name, it's challenging work that requires specialized training and equipment.

"Working the wires live is kind of a fun, interesting job," said Kelly Hebl, heavy crew foreman on one of the live-line crews. "That way we don't disrupt service to the co-ops."

On a typical job, one line worker will ride up in a bucket truck with the necessary tools and equipment, while another line worker will climb the wooden pole. Other crew members stay at ground level to serve as spotters, operating equipment and ensuring the work is being done safely.

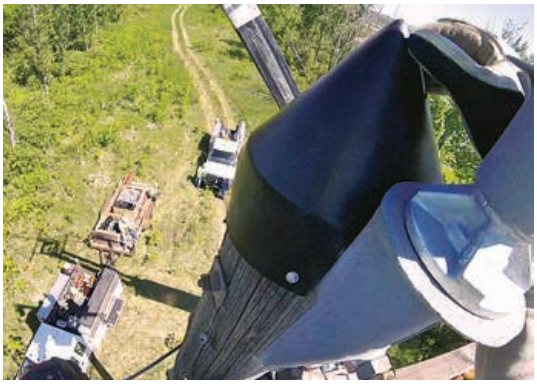
"We have guys on the ground making sure everyone is keeping their required clearances from the energized line," Hebl said.

The line work is completed with insulated fiberglass "hot sticks" with various attachments, including wrenches, clamps and ratchets. To create enough space to safely work on the energized line, line workers use their hot sticks to detach the line from the structure. A bucket truck with an insulated attachment atop the boom lifts the wires above the structure.

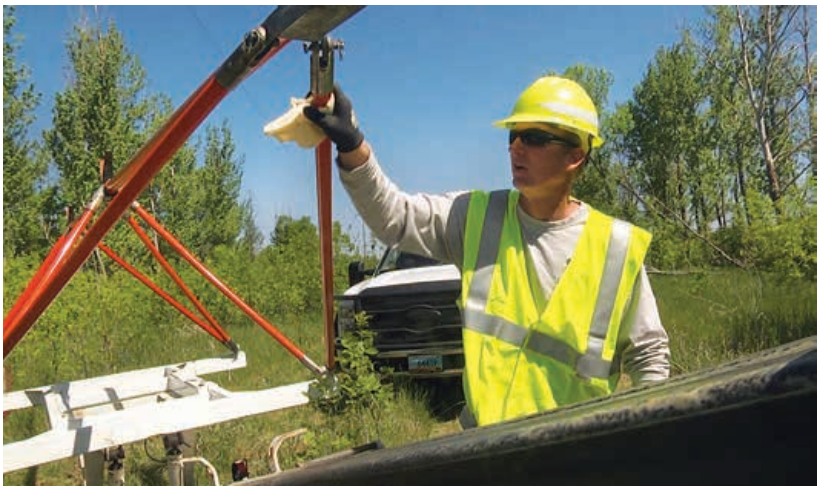
Communication is constant on-site. As equipment is removed and lowered to the ground, the line worker on top of the structure yells, "Headache," to gain the attention of the crew members at ground level. They repeat the call to ensure everyone heard it.

The crew can complete about one pole per hour when the line is live, compared to about 30 minutes when it is taken out of service. Still, the extra time is worth it when de-energizing the line would impact a large number of homes, farms, schools and businesses.

"We always want to keep the substation going and the power on," Hebl said. "When we're hot-sticking, we're able to do that."



A poletop helmet is installed on top of the structure to prevent birds from nesting and perching on the structure.



Kelly Hebl, heavy crew foreman, cleans the insulated jib that raises the energized wires overhead so work can be completed safely.

The basics of blink outage mitigation

To help reduce the frequency of blink outages, crews are installing four pieces of equipment:

A. New post-top insulators

Polymer post-top insulators are installed to replace the aging porcelain insulators. The post-top insulator is attached to the top phase wire at each structure, helping prevent the undesired flow of electricity to the ground.

B. Hanging lightning arresters

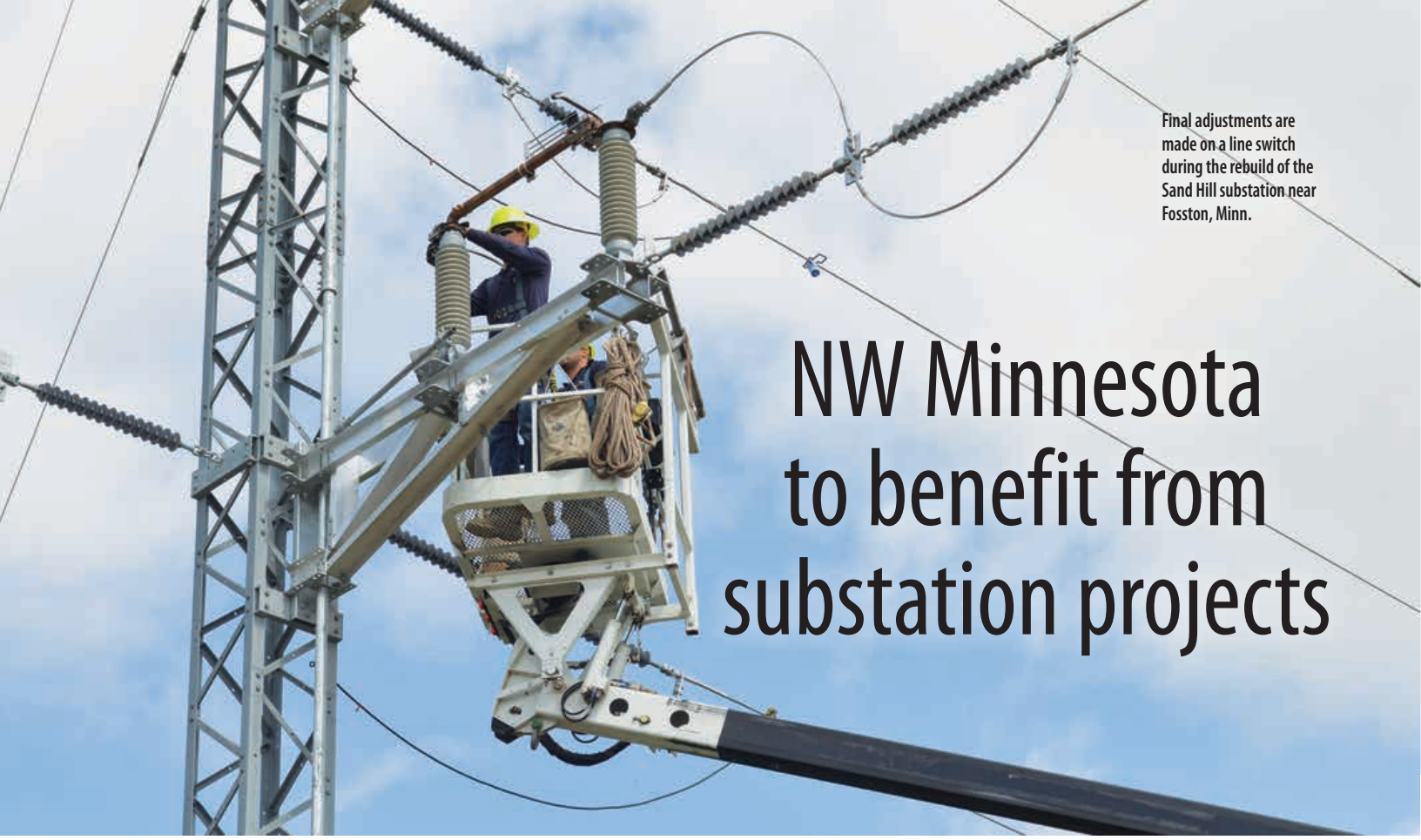
Hanging lightning arresters attach to the top phase wire and connect to the structure ground. This device routes a lightning strike around the electrical system and safely sends the current to ground.

C. Poletop helmet

A poletop helmet is a plastic cone-shaped device that deters birds and other animals from sitting on the structure, protecting them from the energized line.

D. Pole wrap

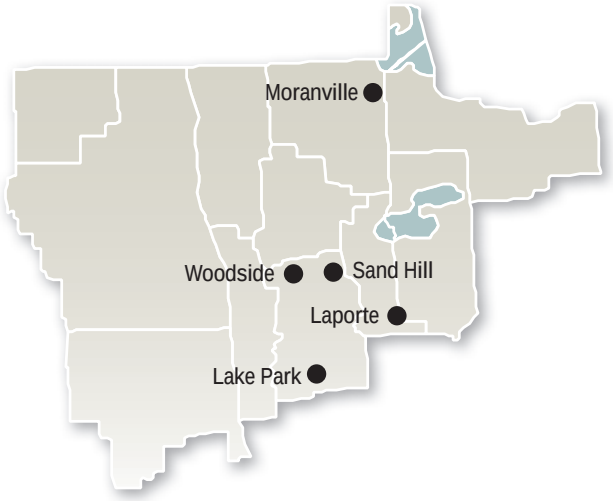
A pole wrap is a sheet of plastic that attaches around the base of the pole creating a slippery surface that deters wildlife from attempting to climb the pole.



Final adjustments are made on a line switch during the rebuild of the Sand Hill substation near Fosston, Minn.

NW Minnesota to benefit from substation projects

By the end of 2017, Minnkota Power Cooperative plans to have constructed or rebuilt five substations in its northwest Minnesota service area. The projects aim to improve reliability and support load growth in areas served by the Minnkota member cooperatives and the associated municipals.



Lake Park substation

The Lake Park substation will tap into an existing 230-kilovolt (kV) transmission line and help improve service in the areas surrounding the towns of Lake Park and Hawley. The project will reduce outage times for planned maintenance and emergency repairs, reduce blink outages and reduce loading on its existing infrastructure, which is nearing its maximum capacity.

Woodside substation

The Woodside substation is needed to support load growth in the lakes area surrounding the towns of Mentor and Erskine.

Laporte substation

The construction of this substation and about 9.5 miles of 115-kV transmission line is primarily needed to support a large industrial load.

Sand Hill substation

The Sand Hill substation was nearing the end of its useful life and was in need of major improvements. The rebuild of this substation includes a 69-kV line sectionalizing circuit breaker and associated protection equipment to improve power quality for areas surrounding the town of Fosston.

Moranville substation

Two aging transformers at the Moranville substation will be replaced due to maintenance and reliability concerns. A new 93 MVA top-rating transformer with a load tap changer will be installed. This project also includes installation of one new 230-kV circuit breaker.

CoBank, Minnkota partner to help nonprofits, city of Center

Minnkota Power Cooperative and Square Butte Electric Cooperative, which is owned and governed by the same cooperatives that own Minnkota, partnered with CoBank to support various organizations this summer.

The CoBank Sharing Success program features an annual fund designed to match the contributions of CoBank customers to charitable groups it supports.

Altru Health Foundation received one of the largest donations. CoBank matched a $2,500 Minnkota donation to the organization, which is focusing on suicide prevention and education.

Every 30 seconds someone attempts a suicide and every 12.3 minutes one is completed. Suicide prevention and education were identified as one of the top health needs in the recent community needs assessment, and suicide is the second-leading cause of death for young adults between the ages of 14 and 25.

Karen Thingelstad, Minnkota vice president and CFO, presented the check to Randy Schoenborn, Altru Health Foundation client development director, at Minnkota's Grand Forks offices this summer. Thingelstad is on the Altru Health Foundation board of directors.

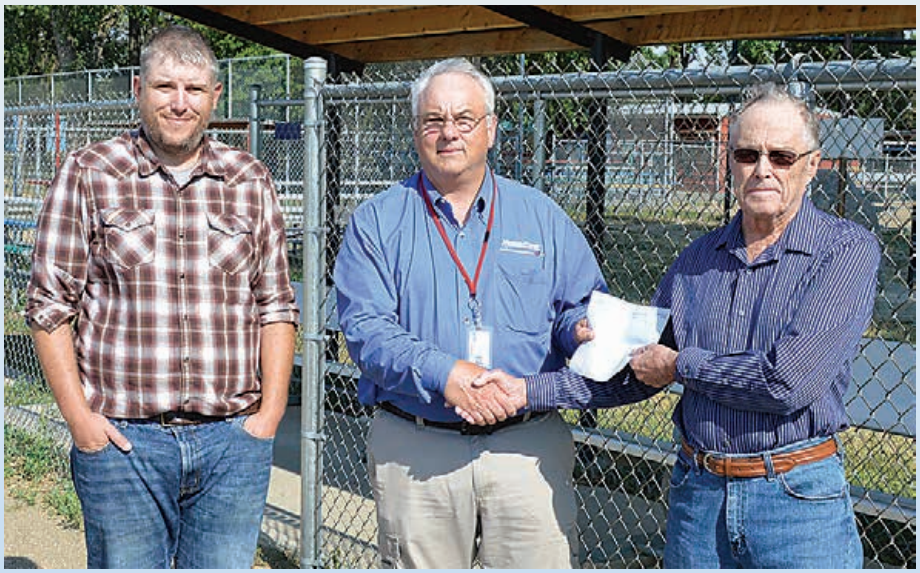
A capsule look at the other donations Minnkota and Square Butte partnered with CoBank to give to nonprofits and community projects:

$2,500 to Farm Rescue: The money was used to help farmers with haying operations because of the drought in the state. Farm Rescue helps farmers who suffer an illness, injury or have been impacted by a natural disaster. The organization relies on volunteers and sponsors to support its mission.

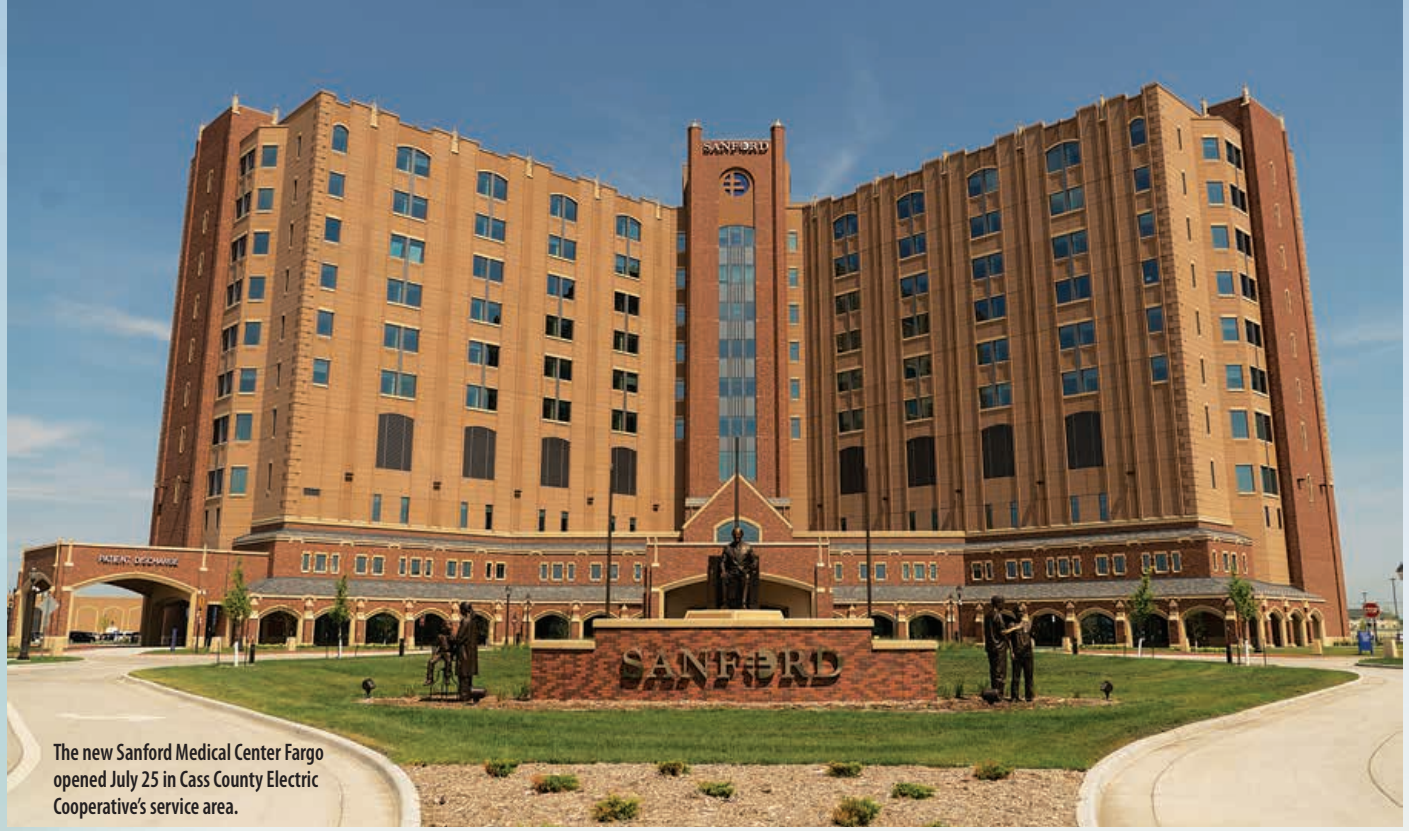
$1,500 to city of Center, N.D., Park Board: The donation is being used to fund improvements to the softball and baseball diamond complex in Center. New dugouts are being built. In addition to youth baseball program games, the diamond plays host to two large adult softball tournaments during the summer. "We have a reputation of having nice fields and a good event," said JD Hanson, who coordinates the softball tournaments.

$1,000 to St. Joseph's Social Care and Thrift Store: The nonprofit bought food to restock its food pantry shelves with the donation. "We serve 400 families every month and the food is getting really low," said JoAnn Brundin, executive director. St. Joseph's will celebrate its 20th anniversary with an open house and celebration on Sept. 14 at its thrift store.

$1,000 to Marketplace for Kids: The donation will go to Marketplace for Kids' Education Days around the state. Marketplace for Kids introduces students in grades 3-8 to the importance of business and entrepreneurship. Lessons, based on standards and benchmarks, help students develop the skills needed for recognizing possible entrepreneurship opportunities and then show them how to organize their ideas for development and growth of actual products. Outreach and technical assistance is provided to school districts, consortiums of schools, organizations and associations interested in youth entrepreneurship. One of Marketplace for Kids' activities is called "Power Plant Puzzle." Students assemble their puzzle's nuts, bolts and linkage to look like the original puzzle before the other groups do.



Minnkota partnered with CoBank to present a check to the Center Park Board for upgrades to its baseball-softball complex. Minnkota Environmental Superintendent Kevin Thomas gives the $1,500 check to Center Mayor Harold Wilkens. JD Hanson, who coordinates softball tournaments for the city, looks on.



The new Sanford Medical Center Fargo opened July 25 in Cass County Electric Cooperative's service area.

Meeting a growing demand

Largest medical center in N.D. depends on co-op power

The big building is getting all of the attention, all the fuss.

The 11-story edifice towers over the adjacent 1-story central energy plant at the new Sanford Medical Center Fargo with gothic style architecture, after all.

The central energy plant is about one-tenth of the total size of a much-anticipated new $494 million medical center complex, which opened July 25.


The new facility has 284 patient beds.

Yet nothing is more important to the operation of the hospital than the 90,000-plus-square-foot power plant. Everything starts in this building. All the electrical, cooling and heating, water treatment, med gas and med air and water softening is shipped through a 250-foot underground tunnel over to the hospital next door.

What James Durben, Sanford Health director of building services, likes most about the new central energy plant is the integrity of the electrical system from Cass County Electric Cooperative (CCEC), one of the 11 distribution cooperatives in the Minnkota system.

"Cass County Electric worked with us to provide the two separate feeds coming into the plant. That probably wouldn't have had to happen but working together with CCEC and the architects, engineers and our group, it was provided," Durben said. "We don't have that type of redundancy anywhere else. We are typically provided one electrical feed originating directly from one substation. At our new campus we have two feeds coming


James Durben, Sanford Health director of building services, shows the inside of the facility's central energy plant.

in from two separate substations; that to me is impressive. On the power side our focus was on a reliable, redundant power source with a secondary focus on cost."

Reliable electricity is important considering the advanced technology incorporated throughout the 1-million-square-foot facility. The laboratory, operating rooms and procedure rooms include state-of-the-art digital communication systems. The 284-bed facility includes an emergency department, family birth center, children's hospital, brain and spine surgery, heart surgery and cardiology and trauma surgery.

Needed infrastructure

The newly constructed Veterans substation will be the primary power source for the new Sanford facility. If that substation has an outage, Sanford has redundant service from the Grager substation. The switch from one substation to the other occurs in less than one second and is automatic upon an outage.

With electricity demand in the Fargo and West Fargo region increasing by almost 50 percent in the last decade, other major electric system upgrades have been necessary. CCEC has added about 16,000 members during that time – the largest of which is the Sanford facility.

Minnkota and Cass responded, building the Veterans substation and upgrading many of the other substations in the Fargo area. Additionally, the majority of Minnkota's 69-kilovolt (kV) transmission system is being upgraded to 115-kV. All told, it will be a $30 million investment to improve electric reliability and help meet the growing demand for electricity in the region.

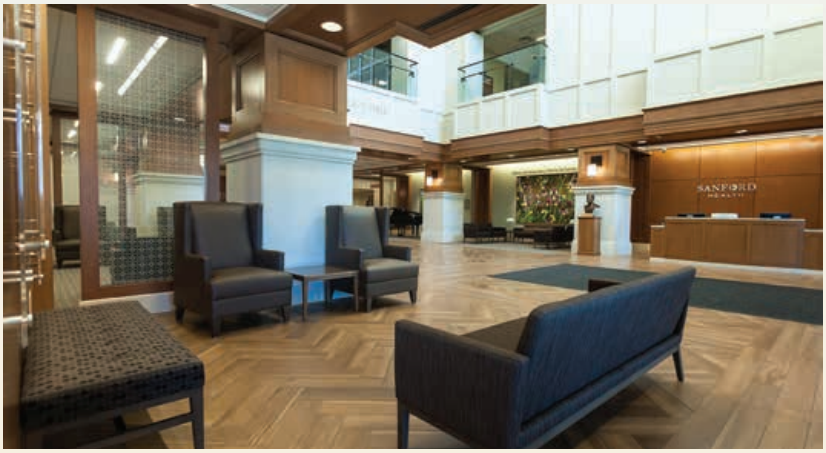
As a medical facility, Sanford is required to have emergency power restored within 10 seconds upon a power outage. With three backup generators, it can produce full power generation for use during storm avoidance and off-peak control as well as during an outage.

Sanford's generators are each 2.5 megawatts (MW). As a result, the hospital can generate 7.5 MW of emergency power. Sanford participates in CCEC's demand response program, so it can take advantage of lower rates from CCEC during times of peak demand.

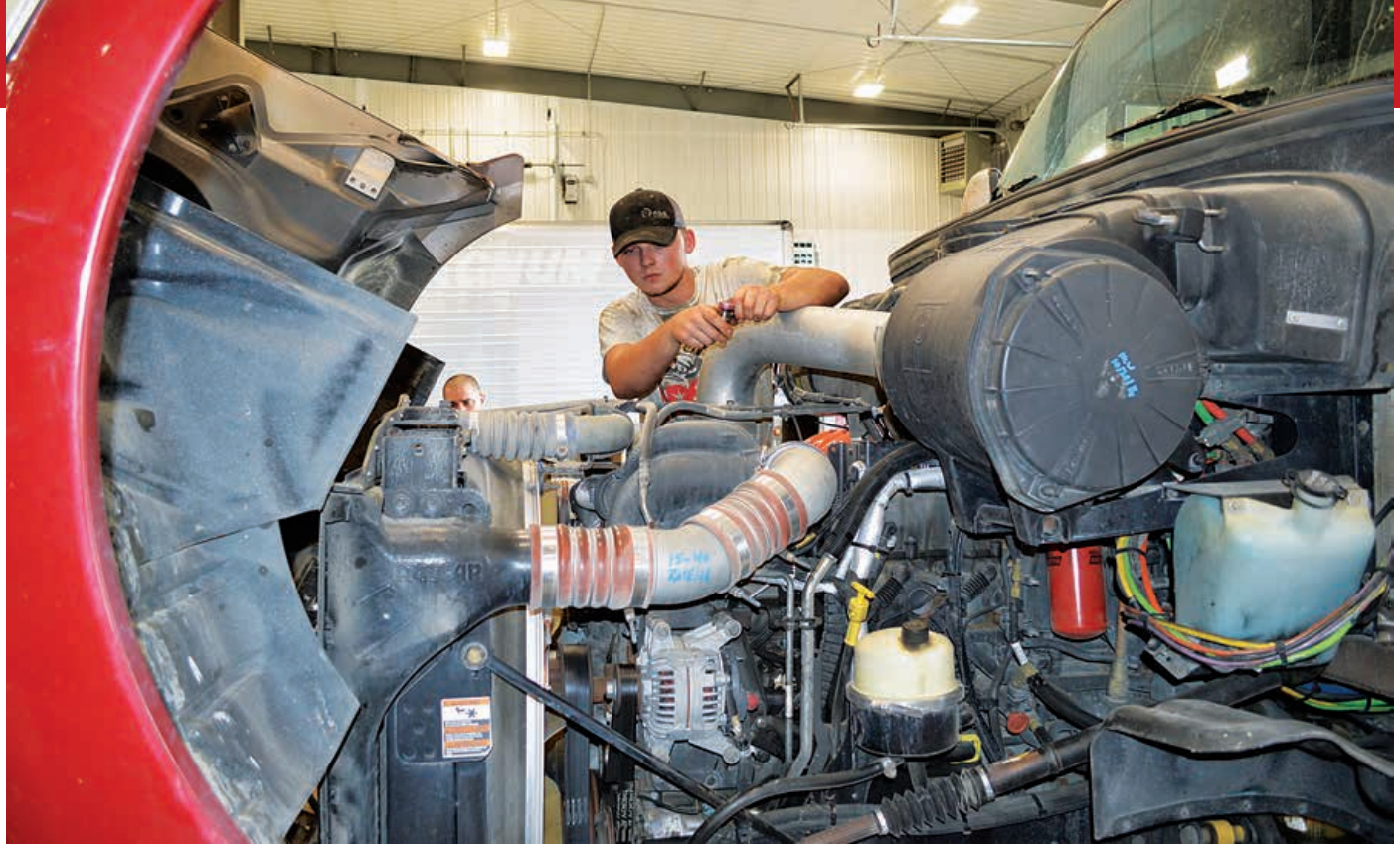
"I've been involved with a facility that did not have full backup and lost power creating a situation where physicians and clinical staff were not able to continue providing non-emergent care and services for patients," Durben said. "It's not an acceptable approach to providing 24/7 health care. An emergency power supply is a minimum requirement but full power backup is our standard."

Durben said the new hospital should be a 5- to 6-MW load. That will put them as the No. 2 load on the CCEC system, behind a pipeline pumping station near Fort Ransom, N.D.

"It is definitely a big deal for us, a nice load, a nice facility," said Chad Brousseau, CCEC manager for energy management. "Seeing all this growth out here, with all the hotels and restaurants and housing, one would have to wonder if this didn't happen if all of the growth would be going on or as much of it."



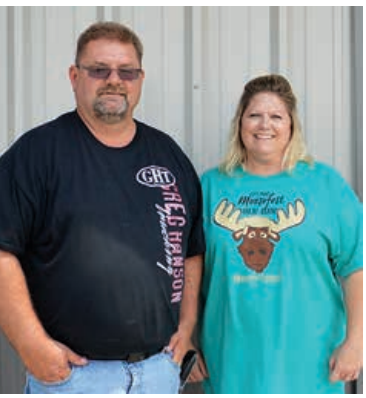
The 1-million-square-foot facility includes open space and modern architecture, as seen in the main lobby and one of the dining areas.



A Hanson Trucking mechanic works on a diesel truck engine inside the company's new repair shop near Karlstad, Minn.

Pedal to the metal

Fast growth drives new, energy-efficient trucking facility



Greg and Lorna Hanson stand in front of their new 20,000-square-foot facility.

When Greg Hanson started his trucking company in 2009, he only had one truck, an old farm shop and a vision to fill a small niche in northwest Minnesota.

It didn't take long for the business to shift into overdrive. In under a decade, Hanson and his wife, Lorna, have added about 40 trucks, 50 employees and a new 20,000-square-foot facility west of Karlstad, Minn.

"Everybody's got dreams," Hanson said. "But this is beyond what we could have ever imagined."

The Hansons run both a freight hauling business and heavy-duty truck and trailer repair shop from their location along Minnesota State Highway 11. Since opening in 2016, the spot has quickly become a hub for 18-wheelers. A crew of mechanics work Monday through Saturday on the company's vehicles and a growing number of external projects.

Trucks, payloaders and other large vehicles move seamlessly through the seven bay doors. Inside, the sounds of engines revving, drills buzzing and wrenches turning are music to Hanson's ears.

"We'll do anything from airing up your tires to overhauling your engine," Hanson said. "Back at the old shop about 90 percent of our work was on our own trucks. Now it's 60 to 70 percent outside work."

Included in the facility's new equipment is a state-of-the-art laser alignment system, a wide range of computer diagnostic programs and specialized area for working on motors. Hanson said his workforce includes a good mix of experience and tech-savviness.

"We have guys who have been mechanics for 30 years and understand the old school

ways and we have the younger generation who is really good with computers," he said. "It's kind of cool when they're able to learn from each other."

A connected office space is quiet for dispatchers to make calls and communicate with drivers, who transport a wide variety of freight – from Polaris products to potatoes and turkeys – throughout the contiguous United States and Canada.

Drivers who are having their trucks serviced at the shop also have 24-hour access to a lounge area, which includes two sleeping rooms, bathrooms, cable TV and a kitchenette.

Smart energy user

Reliable power is an essential part of the daily operation. Heavy-duty tools and equipment depend on three-phase power provided by PKM Electric Cooperative, one of the 11 Minnkota member distribution cooperatives.

With a larger facility, the Hansons have made a significant effort to use energy wisely through the installation of highly efficient heating, cooling and lighting systems. As a PKM Electric member, the business was able to access PowerSavers rebates of $23,632 for installing qualifying equipment. It is estimated that the Hansons will save 400,701 kilowatt-hours (kWh) annually.

Perhaps the most efficient energy user is the facility's geothermal heating and cooling system. The 34-ton system consists of 6.5 miles of underground piping that harvests some of the virtually limitless heat constantly available a few feet below the surface of the earth. The reason for a geothermal system's average 330 percent efficiency rating is simple: the system does not consume fuel to produce heat, but instead is constantly transferring heat from the ground to the building or vice versa.

While energy efficiency is important to keeping his bill low, Hanson is also pleased with the performance of the system – especially in the winter. With large bay doors opening and closing during the coldest days of the year, keeping a consistent temperature is important.

"You don't feel the cold zones in here," Hanson said. "The guys are really happy with it. In the old shop, it was cold all day long. Now they're comfortable."

In addition to comfort, the shop areas stay safe and well-lit with help from long rows of LED lights. Nearly 250 fixtures have been installed in the facility.

Hanson gives credit for the project's success to the local contractors, including Todd's Electric, Kaz Brothers Construction, Bradley Glad Heating & AC, Lee Plumbing and Heating and GW & Sons Construction.

"You couldn't ask for a better team," Hanson said.

The seven large bay doors usher in vehicles Monday through Saturday.

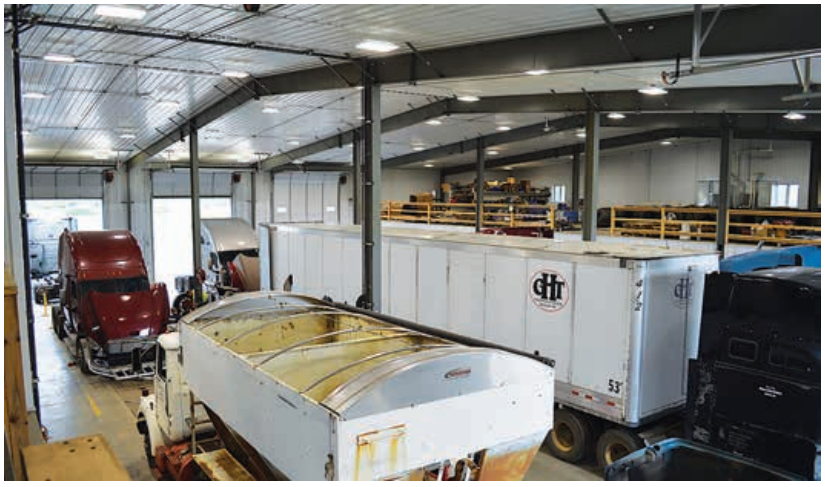
Life on the road

Trucking has been in Hanson's family for more than 50 years. Following in the footsteps of his father and grandfather, Greg started driving at 22 years old with hopes to see the 48 states. He drove through them all in his first year, but, over time, grew tired of life on the road.

"After a while it all looks the same and you just want to come home," said Hanson, who grew up in northwest Minnesota.

Hanson's days are now split between his office and the shop. As for the future, he doesn't see things slowing down anytime soon.

"I'm starting to wish I had a little extra shop space," he said with a smile.



The energy-efficient facility includes all LED lighting and a geothermal heating and cooling system.

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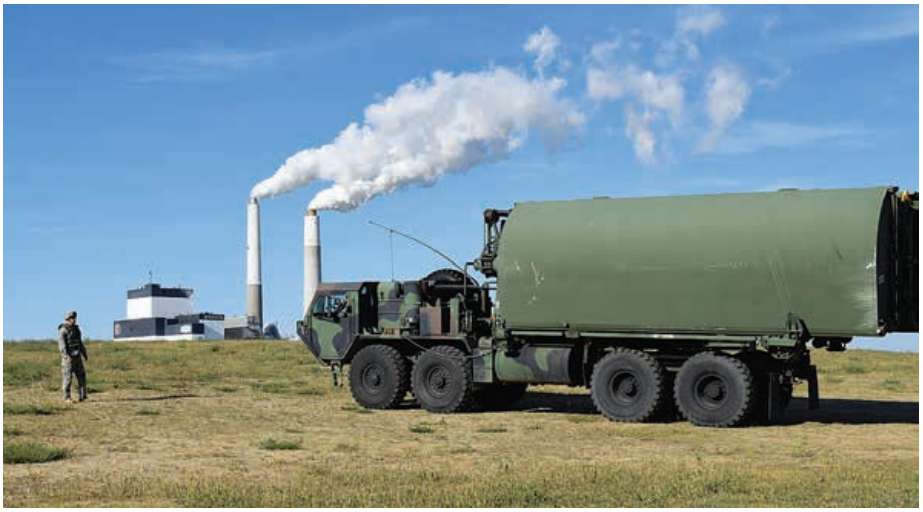


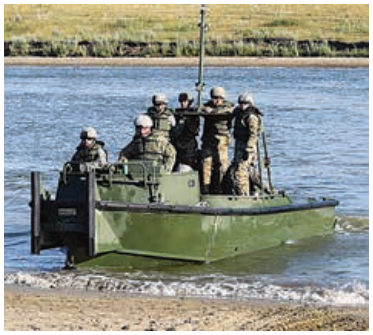
Nelson Lake plays host to National Guard

The North Dakota Army National Guard 957th Engineer Company conducted 10 days of training this summer at Nelson Lake, which is adjacent to the Minnkota-operated Milton R. Young Station in Oliver County.

Different platoons out of the 957th had loaded trucks and convoyed northwest from their home base in Bismarck about 40 miles to the Young Station. The Guard likes the Young Station's launch access for its equipment, the steady lake level and unobstructed waterways.

The Multi-Role Bridging Company constructed a 93-meter, full-closure bridge on the lake earlier this summer.

"That was the first time in five years we've done that," Sgt. 1st Class Tim Simmons said. "We practiced a lot of our different tasks. We have a lot of new soldiers. The training went well. It was a beautiful area for it and a spot where we can camp overnight. We're hoping to train more out there."



Nelson Lake was built in the 1960s to provide cooling water for the Young Station.

The area is home to many hunting, fishing and boating opportunities. The largest largemouth bass in state history came out of Nelson Lake in 1983. It's also known for being one of a few bodies of water in the region that remain open during the winter months. ☐

Minnkota Messenger

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Minnkota is a generation and transmission cooperative supplying 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 150,000 customers.

Visit Minnkota's website at **www.minnkota.com.**

On the cover: Eric and Bobbie Marts, along with service dog Deacon, live in this new, mortgage-free home built through Homes For Our Troops. *Story on pages 2-3.*