

THE RESOURCE

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Bright holidays delivered annually by Minnesota's municipal utilities

The holiday season is a special time of year for people around the world.

In Minnesota, as the weather turns colder, our traditions remind us of holidays from years gone by, as we enjoy our current festivities. Many of Minnesota's municipal utilities also help make their hometowns a little more festive. Here are some of their stories.

Alexandria

ALP Utilities has a long-standing tradition of participating with our local museum, Runestone Museum, to coordinate a Downtown Lighting Ceremony along with Christmas at The Fort. The event typically features Santa, carolers, and other festivities in the fort area of our local museum. For the lighting ceremony, the thousands of community members attending cheer a countdown, and Santa

or another chosen individual turns the lights on. ALP staff members know one of their own holds that magic: turning them on with their load management system back at the ALP office.

In 2020, the event was canceled due to COVID-19. This was disappointing, so we got creative. We decided to light up our ALP bucket truck and bring Santa down Broadway to turn on the lights. We live-streamed it on social media and let the public know if they were comfortable and wanted to, they could park their cars along the street and see Santa light up the decorations. Christmas at the Fort is such a long-standing tradition in our town that about 1,000 people came to see Santa light the lights during the lockdown.

This developed into me and other community members starting a volunteer group called the Friends of Christmas. This group now organizes an Annual

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Anoka lights its beautiful Christmas tree with a little help from AMU.

Starting motor failure spurs Marshall's creative solution

Editor's Note: After a starting motor failure on a turbine on January 6, 2023, it took a team effort to get things humming again. MMUA sat down with Curt Anton, lead plant operator, Tony Mead, electrical operations manager and Scott Mellenthin, purchasing and property coordinator, to talk about this daunting project.

MMUA: Tell me about the turbine that needed repair. What are its specs? When was it installed?

Scott: Marshall Municipal Utilities (MMU)'s Frame 5, 16,550-kilowatt (kW) generator was purchased in 1968 and installed at its current site in March of 1969.

MMUA: What broke on the turbine?

Scott: On January 6, 2023, during a routine exercise run, the turbine's diesel starting motor had a catastrophic failure. Engine coolant and motor oil were expelled through all exhaust ports. The unit was shut down,

all spilled substances were cleaned up, and the process of repair began immediately.

MMUA: Was it immediately clear what was wrong? How did you go about the process of determining the best path forward for this older machine?

Scott: The diesel starting motor portion of the turbine was the issue; all other turbine components were still intact and operable. The process of repairing the existing motor or finding a compatible replacement starting motor package began almost immediately. S.T. Cotter Turbine Services of Clearwater, Minnesota, was contacted to become the general contractor in this process.

By January 19th, the entire starting motor was removed and on its way to S.T. Cotter's facilities to begin the tear down and inspection process. Upon opening the engine, the liner, rings, and pistons were all deemed to be damaged or suspect. Repair of the existing unit soon proved to be almost impossible due to

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Preparing for the 2024 legislative session engages members

By Kent Sulem

February 12, 2024, may sound like a distant date, but it will be here sooner than you think.

Why does this matter? Because February 12 will mark the start of the 2024 legislative session. Thus, MMUA's Government Relations Team is knee-deep or more in identifying potential issues that MMUA will either champion during the session or need to monitor to ensure they don't pose a problem for municipal utilities.

To help the process, the GR team hosted a Zoom meeting of the Government Relations Advisory Group (GRAG) on Tuesday, November 28, and hosted a meeting of the Joint Action Agencies on November 29. Both sessions were very helpful in identifying issues and establishing a rough understanding of the impact each may have

on municipal utilities. Please note that the Tuesday morning GRAG meeting was a special, one-time change to the long-established Friday morning calls that will likely restart in late January 2024.

Issues identified and discussed range from seeking minor corrections to the ECO Act of 2021 (such as correcting an oversight creating an unintended impact on municipal gas utilities), to the best way to handle Conservation Improvement Program or "CIP" goals for new uses that impose a significant increase in a utility's load, but which is designed and built to be very efficient from the start. Also discussed were matters stemming from an expected increase in the number of electric vehicle charging stations, as well as the challenges utilities face with supply chain delays that seem to be

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Environmental group shifts PFAS focus to wastewater effluent and biosolids

By Bill Black

After securing victories during this year's legislative session to phase out the use of forever chemicals in several products, the Minnesota Center for Environmental Advocacy (MCEA) has turned its attention to perfluoroalkyl substances (PFAS) in wastewater.

In November, MCEA published findings from river water samples it took in five locations this summer. In three rivers near St. Cloud and in one spot above and one below St. Paul's wastewater treatment plant,

MCEA measured for 19 types of PFAS, including five of the six types for which there is a maximum contaminant level (MCL) proposed by the Environmental Protection Agency. Interestingly, the study found a higher coincidence of PFAS in the Clearwater River where the watershed has a history of biosolids application than at the outlet of the St. Paul plant. The other three locations had lower levels, which the report attributes to histories of fewer area biosolid applications. Still, taken as a whole, the report concludes, "it is clear from the data of this study that

both wastewater treatment plant effluent and biosolids application to soils are significant sources of PFAS to watersheds in Minnesota."

MMUA, along with other advocates for municipalities and their utilities at the State Capitol, will be closely monitoring for any related policy proposals in the coming legislative session to ensure the responsibility for forever chemicals delivered to wastewater plants is not unduly put upon those public facilities that are merely conduits and not sources of PFAS.

Stepping Into Leadership



Stepping Into Leadership graduated another group on November 16.

Pictured in the front row (L-R) is George Pogachnik, Bev Ziemke, April Moran, Deb Anderson, and Katy Olson. Pictured in the back row (L-R) is Gary Beranek, Lora Lee Novotny, Melissa Karpinski, Craig Hansen, Dan Pecoraro, Russell Stuhr, Martin Drouillard, and Dawson McAlpine.

Congratulations to the graduates!

PUC suspends LTD Broadband as an eligible telecommunications carrier

On November 16, the Minnesota Public Utilities Commission (MPUC) suspended LTD Broadband's certification as an eligible telecommunications carrier (ETC) because of MPUC's view the company is unable to deliver on its broadband commitments in the state.

LTD won more than \$1.32 billion nationally through the Rural Digital Opportunity Fund in December 2020. The money was designated to fund the installation of fast internet in rural areas, including more than \$311 million designated for broadband in 100,000 Minnesota locations. In August of 2022,

the Federal Communications Commission revoked the grant because of concerns over LTD's poor performance. The MPUC's decision is only the latest challenge for the embattled company. Several other states, including South Dakota, have taken similar action. Meanwhile, residents of rural areas in Minnesota and elsewhere continue to wait for the high-speed internet services they require.

The matter of whether to entirely revoke the company's ETC status in Minnesota will now be reviewed by an administrative law judge.

Council Bluffs, Iowa's broken sewer line necessitates Missouri River discharge

For several days in November, a broken sewer line in the city of Council Bluffs, Iowa required a discharge of four million gallons a day of untreated wastewater into the Missouri River.

The damaged sewer line was first detected when wet soil was observed in a normally dry area. The discharge of wastewater began on November 14 at 5 a.m. Repairs began immediately to the damaged sewer line.

The Iowa Department of Natural Resources advised residents to avoid contact with the Missouri River downstream from Interstate 80.

Thinking about the unthinkable

Maybe I am just a magnet for bad actors.

For the record, I don't mean Kevin Costner wanted to spend the weekend at my house after his regrettable performance in *The Bodyguard* or that everyone in *Cats* joined us for Thanksgiving.

I mean that I have had too much experience helping organizations recover from crimes and unethical behaviors committed by people close to their missions. These activities wreaked operational havoc, destroyed trust, and sometimes cost millions in financial and reputational damage.



It really didn't matter if it was the cook loading hams into her trunk from the southern Minnesota hospital kitchen where I had my after-school job, the longtime bookkeeper in northern Minnesota who liked to shop with checks that weren't hers, or the computer guy at the homeless shelter in Florida who managed to see that lost files and crashed hard drives happened primarily to people he didn't like. These are just a few situations I've encountered in my professional life.

When the perpetrators of these shenanigans are found out, they nearly all claim remorse. This usually comes out of one side of their mouth while, out of the other, they explain how perceived wrongs done to them

somewhat justified their actions.

Those left behind to pick up the pieces are invariably stunned and hurt. Sometimes, they lose their jobs too. The fact the necessary controls and processes weren't in place on their watch becomes too much to overcome. Invariably, the saddened victims say things like, "I was busy and didn't get around to putting those processes in place," or "I just never thought something like this would happen."

The first mistake in these situations is not thinking about it.

Nobody likes to imagine that someone they know, trust, and work with would do something terribly wrong—especially when the vast majority of our co-workers are wonderful people who give their lives to serving their neighbors. We like to assume everybody rolls that way.

The second mistake is thinking only "others" would do such a thing.

I have had many conversations with Minnesota's utility leaders about measures to prevent some "foreign influence," "meth addict," or "nut job" from disrupting operations. We are willing to think about those kinds of incursions. We are also willing to think about cybercrime when it involves a maleficent tech wizard in another country bringing down the grid or using ransomware to demand ill-gotten gains. We are far less likely to think about risks from a disgruntled employee who knows where valuable parts or keys are stored. We don't ponder our exposure if an employee's resentful family member retaliates through vandalism on utility assets. Certainly, the longtime employee in accounts receivable who enjoys her trips to the casino

can be trusted ... can't she?

I hope so – but that doesn't mean we shouldn't put plans in place to prevent or mitigate the risks. The bookkeeper in the northern Minnesota organization I worked for had been with the facility for more than 15 years. Everyone thought she was absolutely trustworthy until the day her years-long check-writing scam was revealed. The executive director I replaced at my last job was a veteran who touted the Marine honor code. Yet his gambling addiction nearly toppled the association he ran for more than 20 years.

These things happen in utilities, too. Every week, I see information from within Minnesota and around the U.S. reporting incidents like:

- Equipment theft accomplished by first gaining access to a locked internal key storage area.
- Disabling vandalism to a substation by individuals making entry by "unknown means" and leaving no signs of forced entry.
- Theft of copper from a substation protected by cameras that did not capture the suspect(s) activities.
- A utility employee "borrowing" equipment from his employer for many months and ending up with a felony charge when it was found at his home.
- A water utility losing more than \$300,000 when an employee stole money to "pay her bills."

Some of the above incidents are known publicly, and some are not. The point is that none of them could have been accom-

From My Desk to Yours

Karleen Kos
MMUA CEO



plished without inside knowledge, at a minimum. Sometimes, the call really is coming from inside the house.

Strategies to mitigate these risks do not need to be invasive or make employees feel like you do not trust them. In fact, you can engage your team in building the risk management plans that help you address these exposures. Here are some things to think about:

1. Take a look at your existing plans and mitigations. Ideally, these already address common risk exposures such as physical security of utility assets, cyber and network security measures, emergency response plans, physical infrastructure redundancy, supply chain security, regulatory compliance, incident response plans, and the like. Do they address internal risks in each of these areas?
2. Engage key stakeholders (e.g., employees closest to these areas, external experts such as your auditor, and your vendors if relevant) in thinking about risks that exist in how your procedures currently work. For example, when I took a new role in Florida and started looking at our internal financial controls, I learned

from our bank they could offer a new system for handling cash that made it less likely to be "lost."

3. Play devil's advocate. The people closest to the work know where the vulnerabilities are. Make it a challenge to tease out how a mythical "bad guy in a good job" could cause problems. Your employees will undoubtedly have a lot of ideas about ways to protect the utility from all types of risks, including internal ones. At my last job, which I took after the former Marine made off with north of \$1.4 million over about 20 years, I analyzed how he did it – and thought about how I would do it if I wanted to be the "bad guy" too. Then, we implemented countermeasures. It was a very small organization, so we were not able to eliminate all the risks, but I could show the Board how future damage would be confined to a low dollar amount and limited to activities over a one-month time period with these things in place.

4. Begin implementing policy and procedural changes to address the risks. You won't be able to do everything, especially not all at once. However, the activities surrounding the process of discovering vulnerabilities posed by the "bad guy in a good job" can also be revealing. In Florida, when we discussed implementing the new cash procedure I mentioned earlier, one employee seemed to resist the changes rather stridently. That led us to look more closely at his work, and he ultimately went to jail for cash thefts that had been going on for a couple of years.

Good risk management plans that consider the possibility of an "inside job" also include the following components:

- Strict access controls. Only people who genuinely need information and access to facilities and equipment should have it. These should be role-based rather than seniority-based.
- Background checks. Even if someone "grew up around

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Starting motor failure

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the lack of replacement parts and the age of the machine. After two months of exhaustive searching for options and coming up empty, it was suggested we contact a hydraulic/electric service contractor from Tulsa, Oklahoma. Discussion began with Hydra Services regarding the type and size of the starting unit that would be required to effectively replace the failed motor with a new electric-driven hydraulic motor package.

MMUA: Tell me about the unique repair and upgrade you did to the turbine. How did you come up with the plan?

Curt: Once it was determined it was not feasible to repair the current starting diesel, everyone started searching for other answers.

S.T. Cotter got in touch with Hydra Service, and the idea of a hydraulic/electric starter started to form.

Hydra Service came on site and determined the torque/horsepower needed to start the turbine rotating and get to ignition speed. Once that was known, the process of procuring the needed components, manufacturing custom mounts, starting clutch, and assembly began.

MMU crews began installing a dedicated electric service for the new starting system. This occurred in early April, and all components were on site by May 8.

S.T. Cotter, Hydra Service, HPI Controls, and MMU started installation on May 10, with the first rotation occurring on the 11. The turbine had its first ignition with the new system on May 13.

We had some tweaking to do yet, but MMU was able to meet the goal of the system being available for warm weather if needed by June 4.

MMUA: What parts did you need? How was availability for parts that were needed?

Curt: MMU's turbine hydraulic/electric starting package now consists of a three-phase 225KVA 277/480-volt transformer, a 250-horsepower electric motor with soft start, Linde hydraulic pump, and a hydraulic motor that is coupled to the GE turbine with a custom mount and shaft adapted to the GE accessory gear using HPI turbine controls. These have a custom fuel/rpm curve that was designed by a collaborative effort by HPI, Hydra Service, and MMU personnel.

Scott: MMU's contractors pulled together to expedite the process of acquiring needed parts from many different plants throughout the country. The clock was ticking on the rebuild right from the start, and everyone did a fantastic job of reaching out to contacts and acquiring parts in an amazingly short period of time.

It would not have been possible without everyone working together: S.T. Cotter Turbine Service-Clearwater MN, Mag-

nuson Machining- St Louis MO, Hydra Service- Tulsa OK, HPI Energy Service-Houston TX, MMU staff, and tremendous local support also, especially from Heartland Electric, Bend-Rite Fabrication, RDO, Ziegler, and Titan Machinery.

MMUA: Did the upgrade change the output of the turbine?

Scott: The unit has been operated several times since repair was completed. While maximum output has not been requested from the unit at this point, MMU has been very pleased with the results so far. Initial start up time has been slightly reduced, which is a pleasant surprise. Start up is a cleaner, quieter process. MMU, S.T. Cotter, Hydra Services, and MMU's existing controls contractor HPI Energy Services all partnered together in this ground-breaking repair process. No one knew for sure that this would work when it was first proposed. But all parties came together to design, engineer, and incorporate an entirely new system that so far has put MMU back online and prepared to once again provide vital generation to its power suppliers when requested.



The new "skid", the electric pump and starting motor that replaced the 1968 Cummins Diesel.

Tony: Overall, the outcome of this project has been very successful. Right from the beginning our staff dug in and was determined to find a solution by either repairing the existing diesel starting engine or finding one of similar displacement to take its place. This exact engine was widely used in the 60s and early 70s in Steiger tractors and military equipment, and we quickly

found that all the overhaul kits had been used. Additional kits basically no longer existed. Many phone calls were made around the United States and even to other countries in an attempt to procure the same diesel engine. We quickly found that basically everyone else with this same unit was in the same predicament. S.T. Cotter, as our general contractor on the

project, started pulling in information on utilizing an electric motor incorporated with hydraulics to crank the turbine. Once we chose to change course and incorporate the electric motor, the process moved along rather quickly considering the scope of work involved. The team from Hydra Service designed the "skid" that housed the new starting equipment to be placed next to

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Marshall Municipal Utilities

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the turbine rather than in the original engine compartment, which now basically only contains the small hydraulic motor that interconnects to the turbine shaft. Once incorporated, there was some trial and error with hydraulic flow and controls to create the perfect starting curve. Now that it is dialed in, it's amazing to see how smooth and quick the startup process is.

MMUA: The news came out yesterday that Marshall will be getting a 500,000 square foot chemical facility. What are the possible impacts on Marshall's electric use or the utility writ large?

Tony: Our community received confirmation recently that Solugen will be building their new Bioforge 2 facility in Marshall adjacent to ADM, a corn processing plant. Solugen has a process that converts plant-derived substances, such as dextrose from corn, into essential materials that have traditionally been made from fossil fuels. Starting out Solugen's load will be approximately 3 MW at 85 percent or greater load factor, and they already have visions of expansion in the future, calling this the "initial phase." They are planning offsite construction in late 2023 and plan to be operational in early 2025.

Postscript: The final piece of the project came together on November 10, when local contractor Bladholm Construction of Marshall finished it off with a permanent shelter that now houses the electric motor/hydraulic pump skid.



An overall view of Marshall's turbine.



A view of the permanent shelter.

Thinking about the unthinkable

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here" or you "know a guy" who knows the candidate's family, do a background check. That will reveal anything that somehow slipped through the cracks of the community's awareness. You should also have a policy that states what sorts of legal history would preclude employment or limit access.

- Clear, open channels of communication that foster honesty and airing of grievances will help prevent the grudges and entitled feelings that sometimes set the stage for bad behavior. It also makes it more likely others won't keep secrets or just fail to bring something up they might have noticed. Mitigating risk exposure is yet one more reason to promote a positive work environment.
- Train employees, making them aware of security issues, utility policies, and ethical decision-making. Sometimes, "borrowing" and "stealing" look very much alike. That's why it makes sense to have a good whistleblower procedure and a code of conduct everyone has signed.
- Monitoring and auditing. Implement systems that track who has had access to equipment, facilities, and information. You should also implement technology safeguards to protect sensitive information and equipment from unauthorized access.

- Rotation of duties is a good idea if you have enough staff to do it. It can minimize the potential for an individual to develop a sense of entitlement.
- Conduct exit interviews. Sometimes, people will leave a job rather than deal with the questionable behavior of a co-worker. You can learn things in an exit interview that would not come out in another setting.

In the end, there is no silver bullet for any of this. What matters is doing the best you can with the resources and people available. Utilities staffers, in general, are dedicated, ethical, amazing people. Yet, sooner or later, some bad actor—internal or external—will threaten your utility, and it won't be Robert De Niro in his cringe-worthy turn as *Bad Grandpa*. Thinking about the unthinkable, and adding risk mitigation strategies that consider *all* types of threats, will help you prevent crises and keep things running as they should in your community.

The Resource, December 2023 5



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Doug Carnival says goodbye

By Kent Sulem



After nearly 40 years as MMUA's contract lobbyist, Doug Carnival has informed the Association he has decided to begin the road to retirement.

During the upcoming legislative session, Doug will no longer be at the Capitol on a daily basis, and he is also leaving the McGrann Shea Carnival Strawn and Lamb law firm with which he has practiced for the past 38 years. Doug's plan is to provide more advisory and supportive efforts to a smaller number of clients. He will also be helping with transitions to new representation for those parties he will no longer represent.

Doug began his career in law in Washington, D.C., where he practiced for nine years following his graduation from Georgetown University. During his time in D.C., Doug met a young woman from Minnesota. Luckily for MMUA, he followed her back here in 1981. Doug began representing MMUA in 1985 while at the O'Connor & Hannan firm. Doug was first retained by MMUA's Executive Director Dick Kirkham, Jack Kegel's predecessor. Doug reports that in addition to Dick and Jack, he has enjoyed working on legislative issues over the years with Greg Oxley, Steve Downer, Bob Jagusch, Bill Black, and Kent Sulem. Kent notes that when he first began lobbying during the 1998 legislative session, Doug was one of the first lobbyists to introduce himself and to offer assistance to a rookie.

Doug worked on many issues on behalf of MMUA, but he particularly recalls the battles to protect a municipal utility's right to grow with its city, and the last night of session negotiations that resulted in a renewable energy standard that utilities felt they could meet while also satisfying the environmentalists.

Doug admits he will miss working directly with MMUA, and MMUA thanks Doug for his many years of service to the Association and its members. We wish him the best as he moves down the road to this next phase of his life, which undoubtedly will include more time with his grandchild.

German think tank finds Asia must reach 50 percent renewable energy by 2030 to achieve global warming goal

On November 15, the German think tank Agora Energiewende released a new report that noted Asia, (even without China and India,) would need to reach 50 percent renewable energy by 2030 in order to meet the climate goal of limiting global warming to 1.5 degrees Celsius (2.7 degrees Fahrenheit) above pre-industrial levels.

The nine Asian countries included were Bangladesh, Indonesia, Japan, Pakistan, the Philippines, South Korea,

Thailand, and Vietnam.

All of the countries in the study need to make significant additions to their wind, solar, and storage capabilities in order to reach the climate goal. To achieve it by 2030, each nation would have to install 45 to 55 gigawatts (GW) of solar and 20 GW of wind per year.

Many of the countries have significant hydropower, but only Japan and Vietnam receive more than 10 percent of their power from solar and wind.



Xcel to expand the use of AI to watch for wildfires



On November 7, Xcel Energy Colorado announced that it would be expanding its partnership with Pano AI, a company that specializes in using artificial intelligence (AI) in combination with camera systems to detect and report on smoke and fire events.

Xcel had previously worked with Pano AI on a pilot project in Boulder, Colorado.

Now, Xcel will install 21 camera systems across 1.5 million acres to detect fires. The technology

uses AI to quickly analyze images that are picked up by cameras. The images, together with other data, like weather reports or drought conditions, will be able to tip the company off to fires faster than was previously possible. The cameras are installed 10 miles apart and placed at high points to watch for fires.

Xcel's infrastructure has been blamed by litigants for playing a part in destructive fires in Colorado in 2021.



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Willmar's generation and transmission plans stay on track

At a November 13 meeting of the Willmar Municipal Utilities Commission, General Manager John Harren said that the utility's plans to install new generation capacity in the city are on track.

What will determine the extent of the generation installed will be the costs that are bid on the generators and the cost of air permitting as the project proceeds.

In 2023, the Commission approved the installation of four 2,725-kilowatt diesel generators. The generation will help cover Willmar's goal of reaching 25 percent local generation, as well as providing a generation resource to Missouri River Energy Services. This project would be

Willmar Municipal Utilities

complete by 2027 and cost about \$14 million.

Willmar is also staying on track with its planned transmission project. That work will include the construction of a new transformer, the addition of two breaker stations, and the reconstruction of transmission lines. This set of projects will cost Willmar about \$18 million and be completed by the end of 2028.

Texas voters approve creation of Texas Water Fund

On November 7, Texas voters were asked to consider Proposition 6, a ballot question and constitutional amendment related to the state's water supply.

The measure asked voters if they supported amending the state constitution to create a Texas Water Fund that would be administered by the Texas Water Development Board for

financing water projects in Texas.

The question emerged because of an acknowledgement that Texas will have to repair and replace billions of dollars of water infrastructure in the coming years, as well as provide funding for possible future water shortages.

Texas voters overwhelmingly approved the ballot question,

with more than 77 percent in favor and a little over 22 percent opposed. With passage of the question, the Texas Water Fund is established and will start building its reserves through funding from the state legislature as well as through gifts and grants to the fund from outside entities.





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Second commercial-grade direct air capture plant opens in U.S.

On October 9, a direct air capture (DAC) plant built by the company Heirloom Carbon Technologies opened in Tracy, California in the state's Central Valley.

The plant is the second DAC facility built in the United States that can remove carbon at levels beyond those achieved in the laboratory. The first was opened by the company Global Thermostat in Adams, Colorado, near Denver, in April of 2023.

DAC is the process of absorbing carbon dioxide directly from the atmosphere and storing it so that it cannot drive climate change. The Tracy plant uses limestone that is heated to 1,650 degrees Fahrenheit. During this process, carbon dioxide is released and moved to a storage tank.

What is left is calcium oxide. When exposed to air, the calcium oxide absorbs carbon dioxide and



turns back into limestone. Then the limestone is heated and the process can be repeated.

Heirloom mixes the carbon dioxide into concrete, which traps it for a long period of time. They are also looking at underground storage.

The facility can remove 1,000 tons of carbon dioxide from the air

annually, and Heirloom is looking to scale up quickly. Even though DAC is an expensive way to mitigate carbon emissions, companies and governments are presently willing to pay a premium for pollution credits they can use as part of a zero-emissions or low-emissions target or pledge.

Wastewater's troublesome urea can be converted into helpful ammonia with new technology

Urea, a major waste product of our bodies breaking down food, is a common component of wastewater.

Now, research in Spain has found a way to take this waste product and change it into useful ammonia.

This discovery was made possible by a particle called a micromotor. Micromotors are usually only microns long and can move themselves when they are involved in a chemical reaction.

In this case, a micromotor is a particle tube made of silicon and manganese dioxide, and it is coated with the chemical laccase. As the tube touches the urea, it creates a chemical reaction that turns the urea into ammonia. The bubbles released by the reaction spin the micromotor, helping it to travel throughout the wastewater and continue to reach urea that needs to be



converted.

Artificial intelligence is now being used to "tune" the micromotors so their performance in the wastewater can be optimized. The ammonia can be used for many common products and can

also be made into hydrogen for clean energy production.

The scientists plan to optimize the performance of the micromotors before expanding the use of this new technology more widely.

For the first time, satellite used to monitor CO2 emissions from specific energy facilities

On November 11, the Canadian firm GHGSat launched a satellite into Earth's orbit called "Vanguard" from the Vandenberg Space Force Base in Santa Barbara County, California.

The satellite is remarkable because it will be able to detect carbon dioxide readings from specific industrial sites, such as steel mills.

This information is collected

by GHGSat, and then is available for sale to companies and public entities that are looking to understand the emissions of different sites. The satellite will take an image of every location on earth every two weeks.

Beltrami County boom cause still unknown; power infrastructure checked

On the evening of November 13, a large explosion was felt and a blue and white flash was seen in the sky in southern Beltrami County near Bemidji.

The flash and boom were observed in nearby areas as well; both were observed within a 50-mile radius.

Officials first examined local substations and power infrastructure as the possible cause of the boom but came up empty. The next hypothesis was that the boom and flash might have

been caused by a meteor or some other kind of extraterrestrial phenomenon. However, an examination of the video by NASA said that the object was unlikely to be a meteor.

At this time, there will be no further investigation by law enforcement unless other information comes to light.



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Arkansas lineworker's life-changing accident yields medical first

In 2021, a lapse in safety caused former Arkansas lineworker Aaron James to suffer a near-fatal electric shock and electrical burns that destroyed much of his face and his left eye.

After surviving this terrible incident, James has now been part of medical history by receiving one of the world's few face transplants, as well as the world's first eye transplant.

An eye transplant has never occurred before because of the multiple challenges that must be overcome. Many blood vessels must be reattached, and the eye can be rejected. In James' case, the eye has not been rejected by the body. James cannot see with his new eye; doctors say that millions of nerve fibers would have to be correctly reattached, which is beyond the purview of science at the moment.

James received his face and eye transplants from a single donor. The eye was kept in the donor's socket to keep it intact for the transplant.

The surgery was performed in May of 2023 by a team at NYU-Langone Health in New York City led by Dr. Eduardo Rodriguez. Doctors plan to continue monitoring James for



signs of rejection, as well as to see how the eye responds and interacts with the body after the transplant. For instance, James' transplanted eye now has healthy blood flow to the retina.

Life-changing accidents like the one suffered by James illustrate the importance of the safety mindset in everything we do.

China to use tariffs to ensure coal plants can backstop grid

On November 10, China National Development and Reform Commission (NDRC) announced that coal plants across most of the country would be able to take advantage of a new tariff that will help them cover around 30 percent of their capital costs in the years 2024 and 2025.

The tariff will be assessed on the grid companies, who will collect the tariff from industrial customers.

The move will help coal plants stay financially healthy as other forms of renewable energy gain more prominence in China's energy mix.

Connexus redesigns substation in Vadnais Heights to include battery storage

Connexus Energy, a member-owned electric utility headquartered in Ramsey, Minnesota, broke ground on a substation plus battery project in the St. Paul suburb of Vadnais Heights in October.



The system is designed to provide backup power to customers when the grid is reaching peak demand. Connexus said that the battery backup system will save the company money by helping the local system not require further expansion.

The redesigned substation is expected to come online in the summer of 2024.

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Bright Holidays

Continued from page 1

Lighted Holiday Parade that follows our Christmas at The Fort and Downtown Lighting Ceremony events. This year, we had 65 lighted floats participate. On top of that, in coordination with our local museum, Chamber of Commerce, and other organizations, we have a Parade of Trees, Garden of Lights (walk-through light display) and Saturday Christmas Markets. Black Friday has become the kickoff to the Holidays in Alexandria. It truly takes many organizations, donations, and volunteers to pull everything together. Alexandria as a community continues to be incredibly supportive.

ALP Utilities, along with our City Street Department, hangs the overhead Christmas tree lights and street pole decorations the week of Thanksgiving. We test them so we know they are ready for the event. ALP gives in-kind donation hours and services and has staff representation in the Friends of Christmas group.

thousands of people that gather. Everyone is in a cheery, festive, and excited mood, proud of our little town. It is a tradition that will continue for many young kids and it is truly beautiful to watch and be a part of it.

We have introduced a slogan: ALP Utilities... Powering Your Holiday. This is at home and within our community. The team bonding that comes from building our float, putting up the lights, and just seeing the community is felt by every employee of ALP. We are grateful to be a part of it.

Megan Chisholm, Marketing and Communications Specialist

Anoka

The City of Anoka hosts an Annual Anoka Christmas Tree Lighting Event.

This year the tree lighting will happen on Saturday, Dec. 2, at 6 p.m. in front of City Hall. With the program starting at 5:55

Area restaurants will be filled to capacity, and other food options supported by the Anoka Area Chamber of Commerce will be available on site. The Event is capped off with a countdown to light the tree, and fireworks are deployed from the City Hall roof.

The Event is also covered by our area television stations, and many people who are unable to make the event in person still have the option of seeing the official lighting over the airwaves.

Del Vancura, Electric Utility Director

Grand Rapids

Our city public works department installs street light pole snowflakes, hangs lights on the large pine trees at the Central Square property downtown, and hangs lighted wreaths at City Hall.

At the utility, we decorate the office a little bit, and prior

In alignment with HPU's Restorative Development Plan, HPU staff have been pursuing innovative and sustainable ways to eliminate waste and best utilize existing assets. An opportunity quickly identified was the recycling of yard waste and Christmas trees that are disposed of at the City of Hibbing's Recycling Center. In partnership with the city and the community, 400 tons of biomass waste wood was collected, chipped, and then processed into electricity and steam heat in November of 2023. Of that an estimated 35 tons of Christmas trees were collected and processed into the electricity that will be lighting this year's tree across the community.

As this holiday season approaches, HPU is looking to increase community awareness to increase engagement with this program. With a Christmas tree drive, HPU hopes to increase the amount of Christmas trees and other wood waste the recycling center receives and,

costumes and/or will have SPU equipment onsite, such as a bucket truck or our electric vehicle.

For the Christmas season, SPU hangs the streetlamp snowflakes and also sets and decorates the Christmas tree in the center of our historic downtown River Centre. The tree-lighting ceremony happens the first Saturday of December each year.

Shakopee has a long-standing tradition of celebrating the holiday season. HolidayFest was originally a parade filled with local businesses' floats and representatives. In recent years, it has become more of an afternoon event filled with activities, food and drink at a variety of stationary booths where local businesses offer treats and giveaways as individuals move from station to station. It all culminates with tree-lighting at dusk followed by fireworks. Several thousand people attend this event. This is special to SPU and our community because it brings such



HPU's mascot "Sparky the Squirrel" celebrates the Spirit of Unity Parade.



Shakopee's 16-foot high inflatable igloo.

The Holidays in Alexandria are incredibly special and unique. For years, we have used the word nostalgic throughout our marketing, and from the beloved reindeer heads on streetlights to the tinsel of our big trees, there is magical energy and a Hallmark movie vibe. We have bystanders watch our line crew put up the lights. Treats are brought to our office as thank yous, while videos and photos flood social media. Our community has grown to love the tradition. This became apparent when the event had to be canceled, and now as it continues to develop and grow each year, more and more people are attending the festivities.

This year thousands of dollars were raised to support our Garden of Lights. One thing I personally love about our Downtown Lighting Ceremony and the events that take place that day is the genuine happiness from the

PM and emceed by our mayor, we will have 10,000 plus people around the tree depending on weather for the official lighting.

This year's tree was donated by Doc Evans, our Electric Utility Board President.

Anoka Municipal Utility (AMU) crews haul and decorate the tree before the Thanksgiving Day holiday. City Hall is decorated with LED lights and garland. The courtyard streetlights are also decorated to look like Christmas candles. The plaza lights are all controlled and turned off before the start of the lighting ceremony by AMU.

The Public Works Department sets up burning pits for bonfires in the parking lot and a Santa Shack in the plaza. Horse drawn wagon rides are a big draw for many of the younger visitors. Photo opportunities abound with Santa, during the horse wagon rides, and near the newly-lit tree.

to COVID -19 we hosted a soup luncheon for donations for the local Toys for Tots program.

Julie Kennedy, General Manager

Hibbing

Hibbing Public Utilities (HPU) has been a proud participant in Hibbing's annual Spirit of Unity Parade. This year, HPU decorated a line truck with Christmas lights. Approximately 20 volunteers from HPU employees and their families walked in the parade to distribute granola bars and holiday coloring books. Along with our volunteers, a special appearance was made by HPU's mascot "Sparky the Squirrel," who drew laughs and selfie requests from parade goers throughout the night. Opportunities like these support HPU's efforts to interact positively with our ratepayers and foster better customer relations.

conversely, reduce the amount that ends up in landfills.

Eliot Dixon, Customer Communications and Program Specialist

Shakopee

Most of our community events are either City-sponsored or Chamber-sponsored, and we work very closely with both entities. They will reach out to us (me) for specific events looking for either sponsorship or participation by SPU, and in most cases, we are repeat sponsors/participants, so they are just looking for confirmation that we will be participating again. Over time we have become one of their larger participants/sponsors. We work hard to make a bit of a splash with our appearances. From a two-story gingerbread house to a 16-foot high inflatable igloo, we will include decorations,

a large number of residents/customers together. It is not often we get to interact with our customers beyond payments, outages or service needs. To have the community see us volunteering and supporting our community puts a face to the utilities – we are actual people who live and work in this community and care deeply about it. Our commitment goes beyond the services we provide.

Sharon Walsh, Marketing Director

Willmar

Willmar Municipal Utilities (WMU) assists with setting up the display in Robin's Island Park for the Celebrate the Light of the World. The city takes care of all street decorations. The kickoff to the holiday season is highlighted with the Holiday Parade that WMU takes part in.

Continued on page 11

Bright Holidays

Continued from page 10

What is Celebrate the Light of the World? What began as a grand light display at the home of Chad Koosman in 2008 as a fundraising effort for the local Salvation Army has now grown to an even larger display at Robbins Island Regional Park. This drive-thru light display boasts more than 800,000 lights and draws visitors from far and wide. Music choreographed lights don the hillsides of the park with festive light pieces, including a giant 50-foot tree

with a digital display, nativity scene, a 36-foot-wide American flag display, a forest of Christmas trees throughout the rolling hills and so much more. The entire display can be enjoyed right from the comfort of your vehicle by following the park's drive-thru road with stopping points along the way to enjoy various musically enhanced light shows.

John Harren, General Manager



Willmar's Celebrate the Light of the World light display features more than 800,000 lights.

Maine rejects statewide public utility

On Election Day 2023, Maine voters were asked to consider a ballot question that would have seen the dismantling of the two major investor-owned utilities (IOUs) that provide power to 97 percent of the state.

Central Maine Power and Versant Power would have been acquired and replaced with a nonprofit utility called Pine Tree Power.

With 93 percent of the vote in, voters rejected the move, with 30.5 percent of voters in support, and 69.5 percent of voters opposed.

As in many cases where a move to public power is being considered, the poor performance of the IOUs, high costs, and a slow transition to renewable energy all played a role in the ballot question being put forward.

Supporters of the move to public power noted that IOUs spent \$40 million to convince voters to stick with them.

The IOUs also won with a



question about voter approval for public utility debt. This question was designed to make it harder for Pine Tree Power to borrow the money needed to acquire Central Maine Power and Versant Power if the state's IOUs had been acquired. With 93 percent of the vote in, voters approved the question, with 65 percent in support and 35 percent in opposition. With passage of the question, all

consumer-owned electricity providers seeking to borrow more than \$1 billion will need approval by a majority of Mainers in a statewide referendum.

With the failure of the statewide public utility, it is unlikely that a consumer-owned utility will need to borrow \$1 billion, but the move still puts further restrictions on public-power electricity providers in the state.

Minnesota Power submits proposed 2024 rates

On November 1, Minnesota Power put forward its rate proposal for 2024.

The company's proposal to the Minnesota Public Utilities Commission was for \$89 million, which would result in a 12 percent increase in the average customer's bill. For the average electric customer, this would

equal an \$11 per month increase over 2023 rates.

Minnesota Power also submitted a requested interim rate increase of 8.6 percent, equal to an \$8 increase to the average customer's electric bill.

New Xcel EV plan released

In early November, Xcel Energy released a new \$44.5 million program that will provide funds for home wiring for electric vehicle (EV) chargers and public charging for EVs.

This program is much smaller than the original project proposed by Xcel, which would have cost \$330 million and involved a large-scale build-out of 730 charging stations as well as home charging infrastructure.

The size and scope of the original plan was hard to swallow for the Minnesota Public Utilities Commission (MPUC), which was asked by Xcel to levy significant rate hikes on Xcel's customers. Other members of the public, ranging from gas station owners to cooperative and municipal utilities, worried about the plan and the effect it would have on



their competitive advantage vis-à-vis public EV charging. Xcel dropped the plan after the

MPUC failed to grant Xcel the rate hikes it was looking for to make the project possible.

Texas Energy Fund for electricity reliability voted into law

On Election Day in November, Texas voters were asked a ballot question that would amend the state constitution to create a special Texas Energy Fund in the state treasury to be used by the Public Utility Commission of Texas.

The fund would support the construction, maintenance, and modernization of electric

generating facilities.

With 97 percent of the vote in, approximately 65 percent of Texas voters approved of the question, with approximately 35 percent opposed.

With passage, an advisory committee will be formed to manage the fund and the projects it undertakes. As much as \$5 billion will also be added to the fund from the General Fund.

Texas' move to a dedicated energy fund comes after years of generation and transmission problems in the state during extreme weather and storms. The hope is that freeing more funds and analyzing what critical infrastructure needs to be improved will help prevent many of these problems in the future.

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Equipment problem shuts down Prairie Island Nuclear Plant until '24

Xcel Energy has shut down the Prairie Island Nuclear Power Plant in Red Wing until January of 2024 to complete a planned refueling and maintenance on the plant's second unit, as well as replacing cabling between a unit and a substation at the plant.

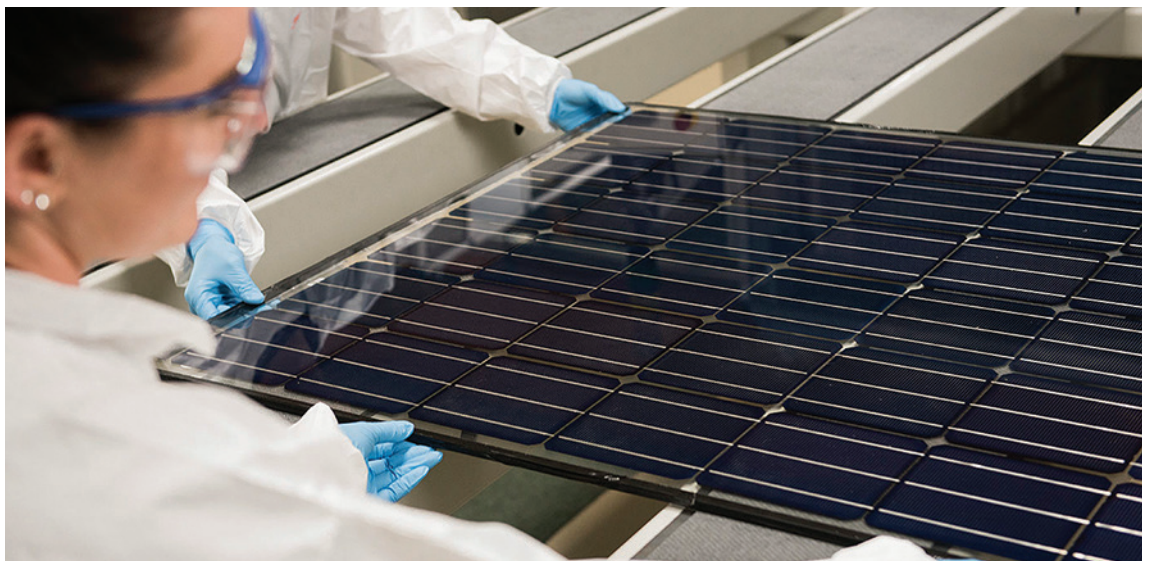
The unit affected by the cabling problem shut itself down on October 19 after the cable issue

was detected. The company will use the extra time to do other maintenance work and inspections to make sure the facility is ready to return to service.

Prairie Island and the smaller Monticello Nuclear Power Plant provide about 25 percent of the state's electricity. While Prairie Island is offline, electricity will be provided by other Xcel plants and purchased on the market.



Ultra-efficient solar panel sets record



On November 3, the Chinese solar technology firm Longi announced that it had set a new world record of 33.9 percent for the efficiency of a solar cell.

The panel cell type used was a silicon-perovskite tandem solar cell. The previous record, set in May 2023, had been 33.7 percent and was achieved by scientists

at the King Abdullah University of Science & Technology in Saudi Arabia.

The latest accomplishment was particularly notable because the new record breaks the theoretical limit of 33.7 percent efficiency for standard solar panels. The theoretical limit of silicon-perovskite tandem solar cells is 43 percent.

Longi noted that this data shows silicon-perovskite tandem solar cells have material advantages over crystalline silicon single-junction cells, which make up most solar panels produced today. The new milestone points towards lowered costs and higher efficiencies from the same size solar panel.

Utah small modular reactor project cancelled due to economic headwinds

On November 8, NuScale Power Corporation, the planned developer of the Carbon Free Power Project (CFPP), a six-reactor, 462-megawatt small modular reactor (SMR) nuclear project in Utah, announced that the project would be cancelled.

The cancellation occurred after several towns that were associated with partner Utah Associated Municipal Power Systems (UAMPS) pulled out of the project. UAMPS provides wholesale electricity to community-owned power systems in seven states.

Even with \$1.4 billion in government subsidies, the project was unable to hold down its levelized cost of energy. The price of power from the project was estimated at \$89 per megawatt-hour, which NuScale said was largely due to increased construction and material costs. That price was simply not competitive enough for several members of UAMPS to stay committed to the project.

The project had been slated to come online in 2030.

Turkey's energy minister shares country's renewable goals

On November 6, Turkey's Energy and Natural Resources Minister Alparslan Bayraktar put forward the country's renewable energy goals for the next five years.

The minister said Turkey's goal is to generate 50 percent of its electricity from renewables by the end of that period.

Accomplishing this will mean increasing renewable capacity from Turkey's current 106,000

megawatts (MW) to 136,000 MW in the next five years. Solar capacity will increase to 30,000 MW from 9,425 MW in 2022, and wind power capacity will increase from 2022's 11,396 MW to 18,000 MW in the next five years.

Turkey also plans to save 4.5 million tons of oil equivalent by 2028, as part of the nation's plan to be more efficient in all sectors of its economy.

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Grand Forks begins multi-year expansion of wastewater treatment plant

By Matthew Voigt

Construction will last until 2026 and allow the facility to meet the expected 60% growth in wastewater collection over the next 20 years.

From: *The Grand Forks Herald*

GRAND FORKS — Construction has begun on the expansion and upgrades to the Grand Forks Wastewater Treatment Plant.

The plant was placed online in June 2003. The facility needs more capacity to meet Grand Forks' needs over the next 25 years of population and industrial growth. In 2022, the facility processed an average of 8.4 million gallons a day of wastewater, which means the facility is at about 80% capacity.

According to the future flow projections, by the year 2040, the average daily flow is expected to be 13.8 million gallons a day;

life and are in need of repair or replacement.

In phase two, the construction of a parallel facility expansion will take place. The parallel facility will use a membrane bioreactor system to increase the capacity of the city's treatment plant. The new facility will be located east of the main building. Like with the city's new water treatment plant, the facility is easily expandable in the future when the need arises.

The new expansion will also help create cleaner water that leaves the system. Most of that water will get returned to the Red River, but some of that can be used by Grand Forks' industry, like the new Epitome Energy Soybean Crushing Plant, saving the amount of water that the city uses.

"Having different options for effluent makes it very accommo-

on an unpaved section of North 69th Street.

Piles for the expansion are also being driven. PKG is using helical piles, or corkscrew-shaped piles, to support the new structure, which work better for the soft soils in Grand Forks. The same types of piles were used in the Altru Hospital project, since they work better than traditional piles in the soil around here. Unlike traditional piles, the corkscrew shape of helical piles help limit the potential issues of the piles twisting out or the hole getting too big and therefore unstable for the pile.

"This system is faster and takes a fourth of the time," Pfgnsten said. "The deeper you go the worse (the material gets)."

The piles have to be driven 135 feet down to the glacial till layer to support the structure.



a 60% increase compared to today. Since the facility was opened more than 20 years ago, not only has the city added 10,000 residents but it has also added service to the city of East Grand Forks.

Grand Forks and East Grand Forks have been sharing wastewater facilities since October 2017, when an interconnect project began. East Grand Forks contributes about 600,000 - 700,000 gallons of wastewater a day; the rest of the 8.4 million gallons are a combination of Grand Forks residential and industrial output.

The project is split into two phases. Phase one includes updates and repairs to the existing facility. Many of those upgrades deal with access and safety improvements that the facility currently uses and includes improvements to staircases and electrical equipment. During phase one, preparation of the foundation for the expansion will also occur.

Also being upgraded inside the facility during phase one are some of the valves and machinery. Many of the components and machinery in the facility are nearing the end of their working

dating," said Madison Alberts, the PKG Contracting project manager. "It's the same process that Fargo is using for their new (soybean crushing facility)."

The city is working with PKG Contracting to construct this project. PKG is based in Fargo and has worked on projects like the new Pierre, South Dakota, water treatment plant, Williston's water treatment plant and Fargo's wastewater treatment facility's improvements.

Right now, the most significant sign of construction on the site is the construction of a new south access road. Currently, the only access to the facility is along the north side of the facility, which can have access issues during the winter. The current access road also wasn't designed for the traffic the facility construction will bring.

"We want to limit disruption to the plant; the least disruption the better," said PKG President Darin Pfgnsten said. "The goal is to get excavation started so that we are ready next summer for concrete work."

The new south access will connect on 27th Avenue North, which is a paved stretch of road. The only entrance right now is

That is the equivalent of a 12-and-a-half-story building, but below ground. If the piles weren't driven that deep, the building would sink and become unlevel because of the weight not just of the structure itself, but of the wastewater too. In September, the Grand Forks City Council approved amendments to the construction contract to allow for a sped-up timeline, allowing construction to start earlier than was previously expected. This means that instead of the creation of a new south access and pile driving, which would've taken place in the spring, can take place now and then the next phase of construction can take place in the spring.

Phase one will cost \$9.8 million, which is funded with a combination of ARPA Funds and funding through the North Dakota Clean Water Revolving Fund. Phase two has a total estimated cost of \$77.6 million; the Grand Forks City Council approved \$8.4 million so far for that phase. Phase two will also use the Clean Water State Revolving Fund.

Federal transmission line valued at \$1.3 billion announced



On October 30, President Biden announced a \$1.3 billion program that will go toward building three new interstate transmission lines to move clean energy to end users in different parts of the United States.

The first project, called the Twin States Clean Energy Link, will allow clean Canadian hydro-power-generated electricity to reach New England. The Cross Tie Project will connect Utah and Nevada, allowing clean energy generated in California to reach customers in the Interior West.

The third project, called the Southline Project, will deliver wind power from New Mexico to Arizona's large cities. After Southline is built, the electrical grids of El Paso, Texas and Tucson, Arizona will also be connected for the first time.

The projects will allow clean energy to get from where it is produced to where it can be used most effectively. All of the projects are slated for completion in the next eight years.

Training Center field rebuild

A group of member utilities came together on October 2-4 to assist with the training field rebuild at the MMUA Training Center in Marshall.

Participating utilities included Anoka, Austin, Delano, Elk River,

Fairmont, Marshall, Moorhead, and Rochester.

The redesign is intended to make the training field more modern and representative of a typical municipal utility's current operations.



Preparing for 2024

Continued from page 1

expanding and not improving at the utility level in the same way they may be in other fields. "Forever chemicals" such as PFAS and bonding issues also generated a lot of discussion.

The next step in MMUA's legislative development process occurred on Tuesday, December 5, 2023, when the MMUA

Board of Directors debated the issues, offered additional items to discuss, and ultimately set a general priority guide for staff to follow when needed to allocate limited resources.

A more comprehensive list of issues and MMUA's position on them will appear in the January edition of the *Resource*.

Baltimore's polluting wastewater treatment plants on the hook for fines, repairs

On November 2, the City of Baltimore signed a consent decree on two of the city's wastewater treatment plants, agreeing to pay a fine of \$4.75 million and to make repairs to the plants.

The two plants are the Back River Wastewater Treatment Plant in Baltimore County, and the Patapsco Wastewater Treatment Plant in South Baltimore. The facilities opened in 1911 and 1940, respectively. The Back River and Patapsco River are both tributaries of Chesapeake Bay.

These rivers became nutrient-rich and full of pollutants as the wastewater plants failed to meet their treatment requirements.

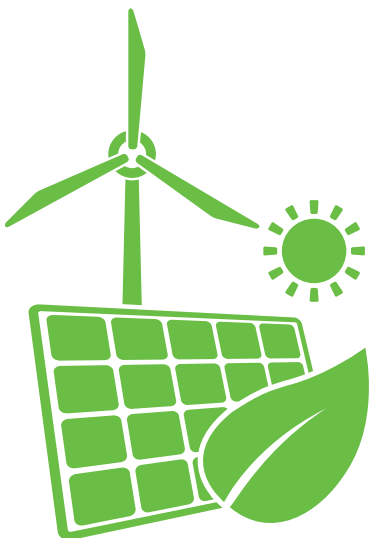


The most violations occurred in 2021 and 2022.

As a result, a third-party engineering firm will monitor both plants as repairs begin. The

City of Baltimore will be required to make repairs, as well as issue progress reports and meet with the community on their work.

Colorado on track for targeted 100 percent reduction in power generation carbon emissions by 2040



The Colorado Energy Office, which is part of Colorado's state government, released a report in early November that illustrates the rapid growth of renewable energy, as well as its price competitiveness in the free market.

The report estimated that by 2040, Colorado would be able to cut power plant emissions by 98.5 percent, compared to 2005 levels, without any new government policies or technological breakthroughs. The Colorado Energy Office engaged in this work to make sure that the state's 100 percent renewable energy by 2040 goals were within reach without governmental policies, programs that would increase consumer costs, or new energy innovations.

Colorado passed climate legislation in 2019 that set whole-economy emissions targets for the state. The law set reduction targets of at least 26 percent by 2025, 50 percent by 2030, and 90 percent by 2050, all below 2005 levels.

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Minnesota's IOU gas providers ask for rate increases around 10 percent

On November 1, Minnesota natural gas providers CenterPoint Energy and Xcel Energy filed their requested rate increases with the Minnesota Public Utilities Commission (MPUC).

10%

CenterPoint's request was for a 6.5-percent increase in 2024 and a 3.7-percent increase in 2025, for a total of 10.2 percent. Xcel asked for an increase of 9.6 percent in 2024.

The companies also submitted interim rate hikes for consideration by the MPUC. CenterPoint's 2024 interim rate increase would be 5.3 percent in 2024 and approxi-

mately 2.4 percent in 2025. Xcel's interim rate increase would be 8.3 percent in 2024.

Both companies noted the impact of capital investments and inflation on their operating costs to support their requests for the large increases.

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Stellantis joint venture plans may bring affordable Chinese EVs to American shores

Stellantis, the multinational automaker that controls the former Chrysler Corporation in the United States, has announced a joint venture (JV) with Chinese electric automaker Leapmotor.

The new JV, Leapmotor International, was announced on October 26 simultaneously with news that Stellantis had invested \$1.6 billion to buy a 20-percent stake in Leapmotor. As a result, Stellantis will control 51 percent of Leapmotor International, with Leapmotor controlling 49 percent.

Leapmotor International is important to Stellantis' strategy,

as the JV will have the sole rights to manufacture, export, and sell the electric Leapmotor internationally. The JV is hoping to achieve 500,000 sales outside of China by 2030. This means that Stellantis, which sells vehicles globally, will likely sell affordable Leapmotor vehicles in Europe and the Americas.

The cheapest car currently sold by Leapmotor is the T03, which retails at \$10,900 in China. This attractive price point means the race may be on in the West to market and sell electric vehicles that, like the Model T, can truly reach the masses.

Tesla creates Puerto Rico-based virtual power plant



Years of underinvestment and natural disasters have caused Puerto Rico to struggle with its power grid.

Now, Tesla hopes to change that by rolling out a virtual power plant (VPP) on the island commonwealth to help provide power when people need it the most.

On November 2, Tesla announced the Puerto Rico VPP was live, and that it would operate in partnership with solar companies Sunova and Sunrun. Using Tesla's Powerwalls, which are home battery storage systems, more than 75,000 Puerto Rican Powerwall owners can connect to the grid and discharge their batteries

when power is needed.

Tesla estimates the new VPP could provide up to 300 megawatts, potentially providing significant backup power to a grid that desperately needs it.



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Wisconsin's WEC Energy Group and Wisconsin Public Service utilities will exit coal power generation by 2030



On October 31, WEC Energy Group of Milwaukee, Wisconsin, announced in an earnings call that the parent company of We Energies and Wisconsin Public Service would complete its phaseout of coal as a power source by the end of 2032.

Coal will only be used as a backup fuel source by the beginning of 2030. WEC Energy Group had originally planned to use coal through 2035.

On the call, WEC also said the firm plans to invest in 3,800 megawatts of new renewable generation capacity between 2024 and 2028 and invest an additional \$800 million in liquefied natural gas capacity.

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Minor nuclear incident occurs at ruined Fukushima Nuclear Power Plant



On October 25, four workers trying to release radioactive wastewater from Japan's Fukushima Nuclear Power Plant were contaminated while cleaning pipes at the plant.

Two workers were splashed with radioactive water from a loose hose, while two others

were contaminated cleaning up the spill.

Two of the workers were taken to the hospital, with their contamination levels being in a range considered "safe." The two workers planned to stay at the hospital for about two weeks so their condition can be monitored.

Fukushima's release of radioactive wastewater into the sea has been controversial around the world since it began. Countries like China and North Korea have protested the releases, while international regulators have called the releases safe.

UAW settlement with General Motors includes \$2 billion in electric vehicle investments

When General Motors (GM) and the United Auto Workers (UAW) struck a tentative deal on October 30, bringing to an end six weeks of strike activity, the agreement included \$2 billion in electric vehicle (EV) manufacturing investments.

Approximately \$1.25 billion will be invested in the Lansing Grand River Assembly and Stamping Plant in Lansing, Michigan. Another \$300 million will be invested in the Tonawanda Engine Plant in Buffalo, New York, and \$391 million will be invested at the Fairfax Assembly and Stamping Plant in Kansas City, Kansas.

GM may build a lower-cost



version of the current Chevrolet Bolt EUV at the Fairfax plant. Chevrolet's Bolt EV and EUV are currently the lowest-priced EVs on the American market.



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North Branch dissolves utilities commission

On November 7, North Branch voters voted to eliminate the North Branch Utilities Commission and transfer oversight of the water utility to the North Branch City Council.

On the question of "Shall the Public Utilities Commission be abolished?" 607 people voted yes, with 288 voting no. On the question of "Shall the public utilities commission transfer water utility to the Council," 575 people voted yes, while 318 people voted no.

The vote follows the previous sale of North Branch Water & Light's electrical assets to East Central Energy on February 3. The contracts for the sale were approved 3-2 by the North Branch City Council.

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ALP Utilities is upgrading its electric and water meters system-wide in Alexandria. Work began the week of November 12.



On November 9, the **Detroit Lakes** City Council and staff participated in a walk-through of the \$7.7 million City Hall remodel project. The majority of the work is being paid for through the **Detroit Lakes Public Utility** and city liquor funds. The project is expected to be completed by early- to mid-2024.

Hutchinson Utilities was mentioned in the *Hutchinson Leader* on November 22 for its efforts to encourage distributed generation from local solar system owners.



The bell tower on the historic Blue Earth County Courthouse in **Mankato** was illuminated green on November 6 as part of *Operation Green Light (OGL)*. OGL is a nationwide effort to support military veterans. On November 21, employees held an open house at the Blue Earth County Public Works Building in Mankato for long-term transportation planning. The effort is designed to develop a future plan for roads, sidewalks, trails, and bridges in the county.



**MINNESOTA STATE UNIVERSITY
MOORHEAD**

Minnesota State University Moorhead dedicated a monument to Felix Battles on campus on November 4. Battles was a former slave who served in the Civil War, and later made his way to Moorhead, where he became one of the city's first barbers.

Moorhead's Romkey Park is the recipient of a \$5 million grant from the Department of the Interior. Funded through the Outdoor Recreation Legacy Partnership program, the grant

will allow for the construction of a new swimming pool to replace the current 1958 pool. Funds will also go toward new playgrounds, sports courts, a soccer field, a sledding hill, and a sustainable food forest.



According to a November 1 article in *The Journal*, **New Ulm's** water consumption dropped roughly 6 percent from 2014 to 2023.

The South Point Apartment project broke ground on October 26 in **New York Mills**. The new project will have 60 market-rate apartments, which will increase housing in the area. The apartment project is expected to be completed by the winter of 2024.



The City Council in **Randall** voted unanimously on November 8 to approve the purchase of new seasonal banners for the city. The council selected a banner design with the words "Welcome to Randall" on it. They will arrive sometime in December.



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The *Irish Independent* reported on October 29 that with current prices and subsidies, the average Irish household can recoup the costs of a standard 12-panel home solar system in six years.



Massachusetts Institute of Technology

ABC News reported on October 31 that the Massachusetts Institute of Technology (MIT) is offering a first-of-its-kind course that will teach students how to be mediators in conflicts over clean energy projects. Real-world situations will be an important part of the curriculum.

Switzerland, which decided to exit nuclear power in 2017, is now going to maintain its nuclear power plants until 2040. The move comes due to concerns about electricity shortages as the European continent transitions to green energy.

Saudi Energy Minister Prince Abdulaziz bin Salman said in early November that the recent drop in oil prices globally was due to speculation and not due to any change in market fundamentals.



TotalEnergies

On November 13, French energy giant TotalEnergies acquired three gas-fired power plants with a total output of 1.5 gigawatts from TexGen. The purchase price was \$635 million. The three plants are near Houston and Dallas.

On November 14, the German Ministry for Economic Affairs and Climate Protection said the German government would backstop Siemens Energy with \$8 billion in taxpayer funds. Siemens Energy is a major German-based maker of wind turbines, and it has faced issues with manufacturing some of its models. The financial assistance will help Siemens Energy make it through a difficult year in which it lost \$4.9 billion so the firm can deliver \$119 billion in future orders.

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Treatment Plant Operator magazine reported on November 16 that a man fell into a tank at a water treatment plant in Cleveland, Texas on November 14. The Porter and Montgomery, Texas fire departments responded and removed the man from the tank using a rescue truck and ladder truck. His condition is unknown at this time.

For the first time in decades, Iran's net electricity exports reached zero. The change can be attributed to the effect of foreign sanctions, a rapid rise in domestic electricity consumption, and failure to reach generation growth targets.

The British Government announced on November 22 that the country would be hastening the process of connecting new power projects to the country's power grid.

On November 27, a senior energy official in Mozambique announced the country would pursue an ambitious energy transition plan aimed at raising about \$80 billion in foreign investments. Near-term goals for the country include increasing hydropower production by 2,000 megawatts.

iea International Energy Agency

The International Energy Agency said in late November that fossil fuel companies are investing twice as much in oil and gas as they should to avoid the global temperature rise of 1.5 degrees Celsius scientists say would cause irreversible harm to the planet.

Google announced on November 28 that the company Fervo had begun producing carbon-free electricity from its Nevada geothermal pilot plant. The electricity will partially go to power Google data centers. The plant has three geothermal wells and is sending 3.5 megawatts of power to the grid.

On November 25, the Aliquippa, Pennsylvania Municipal Water Authority announced that one of their booster stations had been hacked by an Iranian-backed cyber group called Cyber Avengers. The station monitors and regulates pressure for two townships. An alarm went off immediately, and the station was disabled to prevent impacts to the water supply.

Arizona moves toward using treated wastewater to supply drinking water

On November 6, the Arizona Department of Environmental Quality (ADEQ) released a roadmap for a process called Advanced Water Purification (AWP).

AWP will use a variety of methods to turn wastewater into drinking water.

The roadmap and the idea of implementing AWP in Arizona's cities comes with a public comment period which will extend from November 2 to December 2.

According to the ADEQ, "AWP uses safe and proven technologies and has been successfully implemented in Colorado, Texas, California, and other communities worldwide. Many of the technologies used in AWP are the same as those commonly used in processing strictly



regulated products for eating and drinking, like baby food or bottled water."

AWP usually involves three processes: microfiltration, reverse osmosis, and ultraviolet light/advanced oxidation. AWP is a way to speed up filtration processes so clean water can be

produced at a higher rate.

Arizona's growing water needs, coupled with the ongoing drought, require significant changes to ensure clean, safe drinking water will be available for its population. It is possible full adoption of AWP could occur as early as late 2024.

Second set of Gulf of Mexico wind development areas designated

On October 27, the Biden Administration, through the Bureau of Ocean Energy Management (BOEM), designated four areas in the Gulf of Mexico for the future construction of wind turbines.

The four areas include 495,000 acres located 47 miles off of the coast of Texas that could create enough wind power for 2.1 million homes; 119,000 acres located 61 miles off of the Texas coast that could create enough

wind power for 387,000 homes; 91,000 acres located 53 miles off of the Louisiana coast that could create enough wind power for 242,000 homes; and 57,000 acres located off the Louisiana coast that could create enough wind power for 242,000 homes.

The next step for the development of these sites is issuing a notice of a proposed lease sale, followed by a 60-day comment period.

Supercritical carbon dioxide could help electrical power production efficiency

Officials in San Antonio, Texas held a ribbon-cutting ceremony on October 27 to celebrate the opening of the Supercritical Transformational Electric Power (STEP) pilot plant.

The plant is an initiative of the Southwest Research Institute, GTI Energy, GE Vernova, and the United States Department of Energy. It uses supercritical carbon dioxide to generate electricity more efficiently than using water as the thermal medium.

Supercritical carbon dioxide is viewed as an improvement on steam for power generation. This form of carbon dioxide is heated to a high temperature and increases efficiency in power generation because it has better

thermodynamic properties than water. The properties of supercritical carbon dioxide also allow for the miniaturization of power infrastructure. San Antonio's new pilot plant has a turbine that is about the size of a desk and can power up to 10,000 homes. If successful, this approach could radically lower the construction costs of new power plants, as well as aiding in efficient plant operation.

The ripple effects of supercritical carbon dioxide in every area of power production will be analyzed by scientists at the pilot to determine the extent to which this novel approach to generation can inform the construction of future power infrastructure.

First American closed system to create, store, and burn hydrogen planned

The first system to follow hydrogen throughout its use cycle, from creation to combustion, will break ground soon at the Duke Energy DeBary solar plant in Volusia County, Florida.

This will be the first American system of this type.

At the plant, 74.5 megawatts (MW) of solar power will be used to power two 1-MW electrolyzers to produce hydrogen. After being stored, the hydrogen will then be burned in a turbine that can run on various blends of natural gas and hydrogen, including 100 percent hydrogen.



Construction is expected to begin by the end of the year and be completed in 2024. Duke

Energy, Sargent and Lundy, and General Electric Vernova are partners on the project.

Upcoming Events

Transformer School and Pre-Conference

January 23-26
MMUA Training Center

The combination of classroom and hands-on instruction at this school is designed to increase understanding of the inner workings of a transformer, appropriate installations, and applications for maximum reliability. More information at mmua.org/event/transformer-2024.

Physical Security Threats and Preparation Workshop

January 30—New Ulm
January 31—Brainerd
February 1—Plymouth

Review physical and cyber security essentials, discuss threat assessments, and learn about the latest trends in protecting your utility's infrastructure. Learn more and register by visiting mmua.org/events/calendar and selecting one of the three offered workshops.

Meter School and Pre-Conference

February 6-9
MMUA Training Center

Meter School is an opportunity to obtain hands-on technical electric metering training. Basic/intermediate and advanced tracks are available. A pre-conference seminar is also held in conjunction with the school. Register online at mmua.org/event/meter-2024.

Emergency Preparedness and Restoration Conference

February 21-22
Holiday Inn, St. Cloud

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