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Hutchinson, large corporate customers change with the times

by Steve Downer

Electricity has long been the lifeblood of modern life and commerce. That blood is increasingly green.

Locally-owned municipal electric utilities, never immune from larger trends and pressures, are part of that electric supply transition.

Municipal utilities have always been sensitive to needs and desires of their largest customers. Some of these customers are part of large corporations, with big-city boardrooms. And those far-away boardroom decisions affect local utilities.

For example, when 3M announced in 2019 a corporate goal of sourcing 100 percent renewable electricity for its worldwide operations, the power supply mix at its St. Paul suburban Maplewood headquarters made the headlines.

But four of the company's five plants in Minnesota are served by municipal electric utilities: Alexandria, Fairmont, Hutchinson and New Ulm (the other is in Cottage Grove).

While municipal utilities deliver much electricity to 3M in Minnesota, the corporation's standards aren't specific to Minnesota, or even the U.S.—they are global.

The Hutchinson Utilities Commission (HUC) has long served 3M locally. Another of HUC's corporate customers is Uponor North America, which has aggressively pursued 100 percent renewable energy supply for its multi-national operations.

Describing itself as "A global pioneer in intelligent plumbing and climate solutions," Uponor says it is "making a difference in the defining issues of our time: conserving water and energy, supporting the future of skilled labor, and creating healthier places to live and work."

HUC had long worked diligently to conserve energy (it does not provide water service), relies on and supports a skilled labor force, and is entirely invested in serving a healthy community. That made helping its

Hutchinson: see page 9



A greater reliance on renewable resources has coincided with improvements at HUC's Plant No. 1. The power plant now contains three state-of-the-art reciprocating internal combustion engine generators. Two yellow Caterpillar engines are the newest additions to the plant. This picture was taken from atop the Wartsilla engine generator set.

Not content with status as broadband 'donut hole,' Madison mounts ongoing effort to improve service

by Steve Downer

When it comes to broadband internet service in Minnesota, there is often more to it than meets the eye.

Take the state's broadband service and speed maps, for instance. The maps contain what industry insiders term 'donut holes.' These areas, often rural cities, are deemed to have broadband service because a wireless or satellite provider claims to offer broadband service at certain speeds, or there are legacy wired-service providers.

Paradoxically, that can lead to a provider obtaining grants to bolster service in a rural area, while leaving the population center limping along with outdated speeds.

That's the situation the City of Madison found itself in five years ago.

A concerted effort by the city, however, and a hodge-podge of moves by various broadband service providers is lifting the city from the broadband backwaters.

It hasn't been easy, however, and the work isn't done.

According to the National Telecommunications and Information Administration, since 2010 tens of millions in federal grants have been directed toward broadband development in Minnesota, including toward broadband infrastructure projects within the state.

The state of Minnesota in 2014 founded the Office of Broadband Development and launched the

Border to Border Broadband Development Grant Program. The program has appropriated millions of dollars of grant money to fund the expansion of broadband service to areas of Minnesota that are "unserved or underserved." (MMUA routinely supports this program in the Legislature. In the 2019 legislative session, \$20 million was appropriated for each of the next two years.)

Other funding sources have also been used.

With a feasibility study in hand, Lac Qui Parle County and Farmers Mutual Telephone Company received a \$9.6 million American Recovery and Reinvestment Act (ARRA) award in 2010. That

Madison: see page 8 please

MMUA resumes in-person training at certain member sites

Effective January 15, MMUA has revised its policy regarding in-person training. The revision was made in light of requests from members and new guidance for indoor seated venues released Jan. 7 by the State of Minnesota. The state guidance stipulates that:

- In-person meetings and training sessions involving workers are allowed, but must be limited to as few workers as possible, and must not exceed 25

workers at one time when held indoors.

In addition:

- Workers who can work from home must continue to do so.

- Meetings and training sessions must be held virtually whenever possible.

In light of this new guidance, a key question to be considered is whether particular training sessions should be in-person or virtual. The following considerations bear on this question.

MMUA's training programs are nearly all safety related, so it is important that trainees have a thorough understanding and a high level of retention of the material. Experience has shown that in-person training produces a greater level of comprehension and a higher level of retention than virtual training.

Lack of in-person training can increase the risk of accidents

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MP announces 'vision' to deliver 100 percent carbon-free energy by 2050

Editor's note: The following is largely a media release from Minnesota Power. The article contains some additional information to lend perspective to the announcement.

Minnesota Power, an ALLETE company, announced Jan. 12 its vision to deliver 100 percent carbon-free energy to customers by 2050, continuing its commitment to climate, customers and communities through its Energy-Forward strategy.

Minnesota Power's vision for a carbon-free future builds on its recent achievement of now providing 50 percent renewable energy to its customers. In its upcoming Integrated Resource Plan (IRP), the company will lay out bold next steps in its clean-energy transition over the next 15 years, reflecting plans to expand wind and solar resources, achieve coal-free operations at its facilities by 2035 and invest in a resilient and flexible transmission and distribution grid. The IRP will be submitted to the Minne-

sota Public Utilities Commission (MPUC) on Feb. 1.

"We are proud to be the first Minnesota utility to provide 50 percent renewable energy, but as we said when we reached this exciting milestone in December, our transformation to a sustainable energy future is not yet complete," said ALLETE President and CEO Bethany Owen. "As a clean energy leader, we are meeting the challenge of climate change with a reliable energy supply while keeping costs affordable for customers in this region."

In the IRP, Minnesota Power will identify plans to increase its renewable energy supply to 70 percent by 2030 and achieve a coal-free energy supply by 2035. These steps include:

- Adding an estimated 400 new megawatts of wind and solar energy. Retiring the 335-megawatt Boswell Energy Center Unit 3 by 2030.

- Transforming Minnesota Power's Boswell Energy Center Unit 4 (468MWs) to coal-

free operation by 2035.

- Investing in a modern, flexible transmission and distribution grid.

Minnesota Power has set a target to achieve an 80 percent reduction in carbon emissions by 2035 compared to 2005 levels, meeting the state's goal for greenhouse gas reductions 15 years ahead of schedule. Like other area utilities, Minnesota Power's plan will recognize that advances in technology will play a significant role in completing its transition to a carbon-free energy supply, reliably and affordably. The IRP filing will acknowledge the need for this flexibility.

When the IRP is submitted, the MPUC will begin a regulatory process that provides for input from customers, organizations and communities. Minnesota Power spent the past 12 months in discussions with stakeholders that helped inform the details of its IRP, including the goal of delivering 100 percent carbon-free energy by 2050.

A final decision on the IRP is expected later in 2021. As the company achieves the benchmarks outlined in the IRP, it will continue to work with community and environmental stakeholders, local businesses, consumer advocates and other interested organizations on additional strategies for reaching the 2050 carbon-free energy goal reliably, safely and affordably.

In recent years, Minnesota Power has transformed its energy supply from more than a 95 percent reliance on coal to become a leader in the nation's clean-energy transformation.

For example, since 2013, the company has closed or converted seven of its nine coal-fired units and added nearly 900 megawatts of renewable energy sources. Additionally, Minnesota Power has been a leader in energy conservation, surpassing the state's conservation goals each year for the past decade.

"For Minnesota Power, this plan is about more than achieving the most significant sustainability goal in our long history—it is about becoming 100 percent carbon-free the right way," Owen said. "Our diverse customer base relies on us to continue to provide reliable and affordable energy. We also believe it is critically important that our transition to carbon-free energy takes into account the needs of our employees and the residents of communities that have hosted our generation

plants. By embracing this vision, Minnesota Power and our employees will continue to support the quality of life that has made our residents, businesses and community organizations choose this region as their home."

Minnesota Power provides electric service within a 26,000-square-mile area in northeastern Minnesota, supporting comfort, security and quality of life for 145,000 customers, 15 municipalities and some of the largest industrial customers in the United States. WPPI Energy is a 20 percent owner of Boswell Energy Center Unit 4.

Plan has critics

The announcement didn't please everybody. The Iron Mining Association of Minnesota has pointed out that spending on energy infrastructure could lead to higher power bills for the industry.

The utility is also under criticism and legal challenge for its proposal to build the \$700 million Nemadji Trail Energy Center, a natural gas-fired power plant in Superior, Wisconsin.

Environmentalists criticize the proposal as an expansion of fossil fuel use. Industrial customers don't want it to raise their rates.

The utility says it needs the plant to meet the region's growing electricity needs, demand for clean energy, and to ensure power 24 hours a day year-round.



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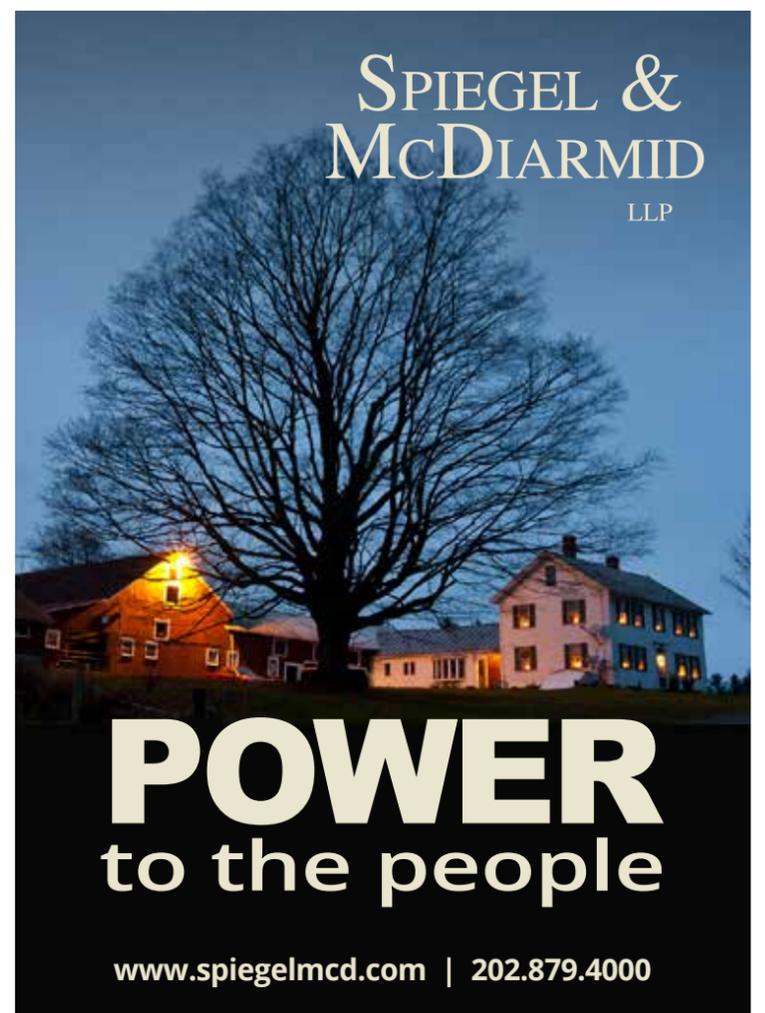
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Sufficient backup generation needed as our electricity supply transitions

by Jack Kegel

MMUA Chief Executive Officer

I was planning to write about the revolution our industry is undergoing as coal plants are being phased out after more than a century of reliance on them as our primary generating resource. But that almost seems like old news after the events of this week.

President Biden has now given us a new challenge – “to achieve a carbon pollution-free power sector by 2035.” And almost in sync with that news, General Motors announced plans to exclusively offer electric vehicles by 2035, ending production of its cars, trucks and SUVs with diesel- and gasoline-powered engines.

It looks like the future is coming more quickly than we thought! There’s a lot to like about that future. Over the next decade or so, our electric system will become increasingly cleaner and largely carbon free. In addition to transforming how we provide electricity, a low-carbon grid will be the key to decarbonizing the transportation sector as more and more cars and trucks are powered by electricity rather than gasoline or diesel fuel. Energy-intensive industries will become cleaner as the electricity they use becomes more and more carbon-free.

But there’s a lot to worry about, as well. As we look ahead to a bulk power system in the Upper Midwest almost exclusively reliant on wind and solar, we need to keep in mind that the Midcontinent Independent System Operator (MISO)’s recent ‘renewable integration impact assessment’ found that going beyond 40 percent renewable penetration will be increasingly challenging and could require additional transmission.

When it comes to designing, permitting, and building large transmission projects, 2035 is the day after tomorrow. We’ll need more transmission to make a carbon-free grid viable in the MISO North region, so we had better get moving on that quickly.

When your primary sources of energy are intermittent, it becomes a challenge to meet industry standards for capacity – the ability to produce a specific amount of energy at a specific time. (And as electric vehicles become more prevalent, we’ll need additional capacity to support a much higher incidence of DC fast charging.) Let’s look at a couple of situations that illustrate the need for capacity

resources to back up intermittent generation.

First, picture a very hot summer afternoon in July or August. This is typically the time of peak demand on our electric system. MISO data shows that wind generation typically operates at only a small fraction of its nameplate capacity at these times. Wind power contributes only a very small percentage of total generation in the peak hour each summer. We need another power source that can step in when demand is high and wind power production is low.

Now let’s look at an even more troubling situation – one that we all remember. It’s mid- to late January in Minnesota, and a polar vortex is passing through. As the sun goes down, the temperature drops to 25 below zero or lower throughout the state. Wind generation throughout the region shuts itself down to prevent damage due to the extreme cold. Solar arrays aren’t producing either during the long, frigid 14-hour

night. We need generating resources that can step in and keep our system running during a lengthy period when wind and solar generation are not up to the job.

The primary options for capacity to firm up a system reliant on wind and solar are natural gas generation and battery backup systems. Gas generation is available, off-the-shelf technology. It’s low-cost, reliable, relatively clean, and can quickly respond to changes in load and availability of resources.

And in a renewables-based energy system, gas generation wouldn’t run continuously, like a coal plant. It would only step in when necessary to firm up interruptible generation and maintain system stability. Rochester Public Utilities’ resource plan shows that gas generation would be needed to back up an energy supply based on renewables only about 5 percent of the time – a little over 400 hours per year.

The other option for capacity is battery backup. The

technology holds promise as a long-term solution, but it is still in the early stages of development. The primary issues to be overcome are cost and duration. Costs are coming down, but at this point the impact on rates from a large-scale implementation would be prohibitive.

And costs aside, the duration of power support available from battery storage installations remains too short to be useful beyond a few hours. MISO will accredit it for only four hours, certainly not enough to get through a polar vortex night or other extended outage. According to a 2020 EIA report on battery storage, there was only 58 MWh of large-scale battery storage in the entire MISO region in 2018. This tells us that battery storage is a long way from being able to step in as the primary capacity backup for a renewables-based electric grid. Whether it can make that leap by 2035 seems questionable.

If the goal of a 100 per-

cent carbon-free power sector by 2035 is too high a bar to reach, we can probably come pretty close as we wait for battery backup technology to mature. If our engineers can solve the problems inherent in operating a system that relies primarily on renewables, and if we can make the necessary upgrades to our transmission system, and if we can rely on gas generation for capacity until battery technology is ready to do the job, we could see a system in 15 years that is perhaps 90 percent renewable, with greenhouse gas emissions reduced by about 90 percent.

That would be quite an accomplishment. Rather than absorbing the exponentially greater cost of squeezing that last 10 percent of carbon from the electric system, perhaps those dollars would be better spent in other sectors to achieve greater carbon reductions at a lower cost. Let’s not let perfect be the enemy of really good.

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Timeline shortened for demolition of WMU's decommissioned plant

Editor's note: The information in the following article was contained in a Dec. 21 report from the West Central Tribune.

When Willmar Municipal Utilities (WMU) shut down its downtown power plant in June it expected to have a few years to determine the building's fate.

After receipt of a consultant's environmental studies report, however, the timeline has been shortened.

Hazardous material in the plant, including asbestos and lead paint, are expected to deteriorate in the unheated, uninsulated building. That could result in higher cleanup and demolition costs.

The estimated price tag to demolish the plant and clear the site is \$2.75 million, with most of that cost being for asbestos abatement. WMU has budgeted \$5 for demolition, but an additional expense will be removing the substa-



photo courtesy of Erica Dischino, West Central Tribune

An obsolete, unused General Electric steam turbine in the Willmar Municipal Utilities power plant, located directly north of the utility headquarters on U.S. Hwy. 12 in the city.

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tion adjacent to the plant.

The final disposition of the power plant building rests with the city council. A work session between the utilities commission and the council was held Feb. 3 to discuss the issue. Some had discussed using the building for housing, or as a commercial space.

The hazardous material removal will change the fundamental look of the power plant, removing many of the features that made it an interesting local landmark, it was noted in a December West Central Tribune article. In addition, the costs to re-

purpose the building appear exorbitant.

No serious offers about purchasing or renovating the plant have been made, and it appears destined for demolition. Without a buyer, WMU currently plans to demolish the building by summer 2022.

Moorhead Mayor Johnathan Judd has been appointed by Gov. Tim Walz as district court judge in Minnesota's Seventh Judicial District.

Along with serving as mayor, Judd is director of equity and inclusion at Minnesota State Community and Technical College, and an adjunct instructor at Minnesota State University-Moorhead.

He previously served as a Seventh Judicial District Assistant Public Defender, an assistant Clay County attorney and in his own private practice.

Faced with a seven percent increase in wholesale costs, the City of Pierz increased its electrical rate by five percent and increased the base rate by \$2 a month. The base rate is designed to pay for infrastructure needed to deliver service and the first 50 kilowatts of electricity.

The increase was recommended by the city's Electric Committee.

Any possible further changes await the receipt of a rate study.

There will be no increase in electric, water, gas, district energy and wastewater rates in New Ulm for 2021. The last increase in electric rates was in April 2012.

A cost of service study

is underway for water and wastewater.

Austin Utilities announced Kim Duncomb retired Jan. 31 after 20 years with Austin Utilities. Duncomb was AU's Employee Relations Director. She began her career with AU as the Human Resource Manager in a shared position between the City of Austin and Austin Utilities. Among her duties was the administration of contracts and benefits for three unions as well as a companywide safety program.

Dan Ulland is the new Employee Relations Director. He brings over 30 years of human resources experience. He is a graduate of the University of Minnesota Carlson School of Management and has earned the Certified Employee Benefits Specialist designation awarded from the Wharton School of Business, University of Pennsylvania.

The Minnesota Public Utilities Commission Jan. 8 held a prehearing tele-conference on the electric service area complaint by Red River Valley Cooperative Power

Around the State

Association against the City of Barnesville. The docket number is 20-770.

Fitch Ratings has assigned a 'AA' rating to revenue bonds issued by the city of Rochester on behalf of Rochester Public Utilities (RPU).

Three refunding bonds were upgraded from AA- to AA.

The upgrade, said Fitch, reflects RPU's sustained financial performance and continued deleveraging.

Moody's also completed a periodic review of RPU, which did not involve a rating committee. Moody's rates RPU Aa3. The periodic review noted, among other items, the utility's local rate setting authority and that rates are set at levels necessary to cover operating and maintenance costs and 120 percent of debt service.

Flint Hills Resources is considering a 30-megawatt solar development on land it owns adjacent to its Pine Bend refinery in Rosemount. The company said it would build the solar plant to lower energy costs and has reportedly requested bids from select solar companies.

The development would be located west of the refinery on 200 to 300 acres.

The refinery is currently served by Xcel Energy.

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Municipal utilities are generally small compared to other utilities and often rely, to varying degrees, on business partners.

Many of these businesses have joined MMUA as Associate Members.

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- Two meeting registrations at either the Summer Conference or T&O Conference
- A variety of other acknowledgements throughout the year, at various MMUA events and in other media.

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For more information, go to the Sponsors/Become a Sponsor link on our website, or call Steve Downer at 763-746-0702. Questions regarding meetings should be directed to Rita Kelly at 763-746-0707. Late sign-ups welcomed!

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Gov. Walz reiterates call for 100 percent clean electricity by the year 2040

With the Legislature in session, Gov. Tim Walz and Lieutenant Governor Peggy Flanagan Jan. 21 reiterated a call, first made in 2019, that Minnesota move to provide 100 percent clean energy in the state's electricity sector by 2040.

"The time to fight climate change is now," said Governor Walz.

"We must take immediate action to protect our earth for future generations," said Lt. Gov. Flanagan.

"Climate change is impacting our state right now, from our health to our farms to our traditions. Minnesota must take needed action to transition swiftly to 100 percent clean energy," said DFL Rep. Jamie Long.

The policymakers noted that Xcel Energy and Minnesota Power, Minnesota's two largest public utilities, have publicly committed to generate 100 percent of its electricity from clean energy by 2050. More than 100 major global

companies have also pledged to meet their energy needs with 100 percent clean energy by 2050 or sooner, with Minnesota's own 3M and Target making this commitment.

Fresh Energy and the Center for Energy and Environment were quoted in the Governor's media release lauding the proposal, which includes four parts:

- 100 Percent Clean Energy by 2040. This standard would require all electric utilities in Minnesota to use only carbon-free energy resources by 2040, while setting interim

goals along the way.

- Clean Energy First. This policy would strengthen an existing renewable energy preference in Minnesota law, and it would allow for fossil fuel-based power only if needed to ensure reliable, affordable electricity.

- Energy Optimization. This proposal would raise Minnesota's Energy Efficiency Resource Standard for investor-owned electric utilities and expand the Conservation Improvement Program. It would target more energy-saving assistance for

low-income households.

- Carbon Reduction Goals for Existing Buildings. This proposal would set a state goal of cutting greenhouse gas emissions from existing buildings in half by 2035.

By the end of 2017, 25 percent of the electricity generated in Minnesota came from renewable sources. Electricity produced in the state from coal declined to 39 percent in 2017 from 59 percent in 2007. As of 2016, greenhouse gas pollution from electricity had already declined about 29 percent since 2005.

NextEra Energy Marketing is a wholesale power supplier responsible for the electricity and fuel management for all of NextEra Energy Resources' generation fleet, which includes the largest renewable energy portfolio in North America.

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Solar and wind dominate capacity additions nationwide

Solar and wind power installations will dominate new capacity additions in 2021, according to the Energy Information Administration (EIA).

Developers and power plant owners plan to build 39.7 gigawatts (GW) of generating capacity this year. Solar leads the way with 15.4 GW of utility scale installations and wind with 12.2 GW.

EIA also reported 6.6 GW of natural gas-fired plants that are expected to come online, with 3.9 GW combined-cycle generators. Most of the additions are planned for Texas, Ohio, and Pennsylvania.

More than half of the new solar capacity is planned for Texas, Nevada, California, and North Carolina.

EIA expects another 4.1 GW of small-scale solar photovoltaic capacity to enter service in 2021.

The wind capacity additions represent a sharp decline from the 21 GW of wind power that came online last year.

New battery energy storage capacity is expected to more

than quadruple to 4.3 GW. Storage capacity is increasingly bundled with renewable capacity.

The first new nuclear power

station in 30 years, the 2,200-MW Vogtle plant in Georgia, will account for 3 percent of the total capacity expected online in 2021.

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MPUC fines Xcel \$1 million for distributed generation interconnection delays

Following complaints from solar developers, the Minnesota Public Utilities Commission Jan. 21 fined Xcel Energy \$1 million for delays in getting rooftop solar projects connected to the utility's distribution system.

According to regulatory documents, 129 complaints were filed, including 128 from All Energy Solar. Complaints stated that Xcel Energy failed to meet timeframes established in the Minnesota Distributed Energy Resources Interconnection Plan (MN DIP) for interconnection review and processing.

Xcel supported removing rooftop solar installer complaints from the company's Quality Service Plan (QSP) tariff definition of customer

complaints, because the complaints were not brought by a "customer" as defined by the MN DIP.

The QSP resulted from a 2002 complaint focusing on whether Xcel Energy had accurately reported service outages on service quality reports. Following an audit, the MPUC in 2004 allowed Xcel to submit new QSP tariffs and required a settlement wherein Xcel paid customers that had suffered outages. The new QSP standards, which strengthened standards and increased penalties, were accepted in 2004.

The penalty for exceeding the QSP's thresholds is \$1 million per Xcel's Rate Book.

The Department of Commerce agreed with Xcel that

the complaints should not count toward the QSP tariff's Customer Complaint metric. The historical intent of the QSP tariff does not support inclusion of complaints about the interconnection process, especially when submitted by an installer, not the customer, said Xcel. The Department further suggested that financial harm to the customer, not the installer, is a consideration and concluded such harm has not been demonstrated sufficiently in the record.

Commenters in the record support the 129 complaints counting toward the QSP tariff's Customer Complaint metric. Commenters included Minnesota Solar Energy Industries Association; three solar installers (All Energy Solar, Novel Energy Solutions, and Sundial Solar Energy); the Cities of Minneapolis and Saint Paul; and Interstate Renewable Energy Council (IREC, Environmental Law & Policy Center, Fresh Energy, and Vote Solar). Several commenters argued the complaints should count because solar installers are representatives of interconnection customers, and interconnection is a service pro-

vided by Xcel Energy. Several commenters challenged the inclusion of financial harm as a consideration for inclusion in the Customer Complaint metric; others highlighted financial harms to the customers, including lost production and tax credits. Many commenters argued Xcel Energy continues to unnecessarily delay the interconnection pro-

cess and is not being held accountable for the timeframes established in the MN DIP.

Xcel Energy interconnected 1,257 solar facilities in 2019. At that time, Xcel had a cumulative total of 6,055 currently connected facilities. The complaints were the equivalent of about 10 percent of Xcel's 2019 interconnections.

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Madison:

continued from front page

'shovel-ready' project brought Fiber to the Home (FTTH) to most of the county.

But not the county seat of Madison.

Leaving out some cities, under the rubrics of the grant process, increased the chances of funding. Thus, Madison was left with old copper communications infrastructure while the county was soon awash in fiber.

The people in Madison noticed. They complained. So did businesses. That led the City of Madison to get involved. Broadband service became a city priority.

City Manager Val Halverson was new to the job but jumped in with both feet.

The city worked with the Upper Minnesota Valley Regional Development Commission (RDC) to gather survey information. Because the city was defined as "served" (albeit poorly), there was no grant money available, at the time, to help improve service.

The city also set to work with incumbent providers Frontier and MediaCom, to move Madison up the corpo-



Madison City Manager Valerie Halverson.

rate investment ladder.

The city also entered into discussions with Farmers Mutual, which had built fiber throughout much of the rest of the county. While those discussions were amicable, the telephone cooperative wanted a million dollars from the city before moving forward. With other private providers serving the city, local policymakers balked at choosing winners and losers. Those talks stalled.

The city, which had the advantage of already operating a municipal electric utility, in 2016 studied providing broadband service itself. It partnered with the county Economic Development Au-



The Lac qui Parle County courthouse is located at the end of Madison's main downtown thoroughfare.



Madison is home to several fine public buildings, including city hall, which is near the county courthouse and across the street from the Carnegie library.

thority in a feasibility study.

The survey found that 95 percent of Madison residents had some form of internet connection. However, the survey also identified service gaps and unmet needs. Residents ranked reliability as the most important aspect of service, followed by connection speed and price. Small and medium-sized businesses needed better service.

There was also significant growth potential in this rural county: More than half of respondents' employers allow telework, and more than one-fourth of responding households teleworked. (This need for robust residential service has only increased with the pandemic.)

In the end, the investment needed for a city-owned system was prohibitive. And to their credit, private companies improved their service. MediaCom invested in upgrades, including some fiber. The city still receives an occasional complaint, but the company has been responsive, Halverson said.

Farmers Mutual last year extended fiber to serve Main Street, including city hall and the hospital, and customers along the way. (In 2017 Farmers received a \$760,501 state grant to expand fiber service to the City of Watson and southwest Lac qui Parle County.) To what extent Farmers will expand into the rest of Madison, or when, is unclear.

And MVTV Wireless, member-owned cooperative from Granite Falls, has expanded service to include more than 25,000 square miles of western Minnesota, including Madison. That service was bolstered by a 2015 state grant of \$808,080. (MVTV Wireless is an MMUA Associate Member.)

In terms of improved broadband service, Madison has come a long in a few years. While it is not exactly where it wants to be, there is hope

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Hutchinson

continued from front page

large customers satisfy their energy supply goals an easy decision.

Long accustomed to providing a reliable source of electricity at a competitive price, changing economics have allowed the utility to supply 100 percent renewable energy to all of its customers. The HUC board, late last year, unanimously approved the move.

HUC's total energy supply was already 71 percent carbon-free based upon energy generated from wind, solar, nuclear, and other carbon-free energy sources. To offset the remaining 29 percent of energy coming from carbon-based power resources, HUC will purchase Renewable Energy Credits (RECs) from its supplemental energy provider, Missouri River Energy Services (MRES). A REC reflects the positive environmental attributes of 1,000 kilowatt hours (kWh) of renewable and carbon-free electrical generation.

With an increasing abundance of solar and wind energy, the price of the RECs has dropped significantly in the last year, noted HUC General Manager Jeremy Carter. "This allows HUC to purchase RECs to be 100 percent carbon-free without affecting electric retail rates."

HUC understands the importance of being a part of reducing the global carbon footprint in an economical fashion, Carter said, and will continue to evaluate the MRES REC program on an annual basis, "to ensure the framework of the program continues to be a viable option for Hutchinson Utilities and its electric customers."

HUC receives 75 percent of its wholesale power from MRES. It purchases 20 percent directly from the Midcontinent Independent System Operator (MISO) market. The utility's locally-owned and operated generation, from two municipal power plants, provides a small, but very important, percentage of

the electricity used in the municipal service territory.

Hutchinson is also home to the largest landfill solar project in Minnesota. The city-owned 400-kilowatt array (partially funded by Xcel Energy) is tied directly to the city wastewater treatment plant. The 2015 project was the first of its kind in the state and is projected to supply up to 15 percent of the wastewater plant's electrical needs.

Solar generation provides a very small percentage of the community's electric supply, but it is a big example of an increasingly diversified power supply mix. Under HUC consideration is a potential 766-kilowatt direct-current solar system at a city industrial park. The potential solar array turn-key project would be used to help promote a local Economic Development Authority incubator building and provide a competitive solar array rate to the City of Hutchinson.

While the cost of solar is becoming more cost competitive, Carter noted that its capacity factor in Minnesota ranges from 12 to 15 percent. It can't be relied on all the time.

With several large manufacturers, a robust commercial sector, and a hospital on its system, Carter said "reliability is big for us."

To ensure reliability, including voltage control, HUC can call on its local generators, which is used when called upon by the Midcontinent Independent System Operator, or as a hedge against high market prices.

With a growing abundance of wind energy and lower than normal natural gas prices, electric market prices have been low and HUC generation hasn't had to run as much the last two years. But HUC has been in the electric business since 1936. It knows things change.

Even as the utility has moved to embrace renewable energy, Carter said HUC "firmly believe it still has to have these generators to supplement" intermittent renewable resources and hedge against spikes in the market.



Hutchinson Utilities Commission's Plant No. 1 occupies a prominent place in the city. It is situated north of downtown at the intersection of state Hwys. 15 and 7.



HUC's Plant No. 1 has seen numerous changes over the years. The combustion turbine pictured at left is no longer in service, but utility staff continue to make a host of improvements to the facility. This work is crucial to allow for timely upgrades to the facility, which ensures a reliable, affordable supply of power to the utility's customers.

photos by Steve Downer

Hutchinson Utilities Commission power plants enhance reliability and act as market hedge

HUC operates two power plants.

Plant 1 is prominently located at the intersections of state Hwys. 15 and 7 in Hutchinson. It is the only municipal plant in the state to contain the most recent type of large, medium-speed engines from both Wartsilla and Caterpillar. Plant 1 currently runs five reciprocating internal combustion engine (RICE) generators.

- Engine 3 (Dual Fuel) 4 megawatts (MW)
- Engine 4 (Dual Fuel) 4 MW
- Engine 5, (Natural Gas) 9.341 MW
- Engine 6 (Natural Gas) 9.75 MW
- Engine 7 (Natural Gas) 9.75 MW

The V-20 cylinder Caterpillar natural gas-fired engines (units 6 & 7) are spark ignited, turbocharged and aftercooled. They produce 12,900 horsepower apiece and

are mated to generators with a nominal capacity of 9.75 megawatts (MW) each.

The generator sets, which went online in 2018, offer fast start and the ability to run in partial loads with high fuel efficiency. They also come equipped with emission control devices, which enable them to meet stringent EPA regulations.

The HUC installation was the third project using the medium speed generator sets in the United States.

Wartsilla, in 2012 supplied a 20-cylinder Wartsilla 34SG engine to Plant No. 1. The engine has an electrical output of 9.3 MW. This engine operates on natural gas and it includes a selective catalytic reduction (SCR) and oxidation catalyst system to reduce emissions.

The new engines provide maximum flexibility in operation with five-minute start-up capability and superior effi-

ciency at part-load operation. They are expected to benefit the Hutchinson community for 40-50 years.

Plant No. 2

Plant 2 is close to the utility headquarters on the city's eastern edge.

The facility includes a GE LM 6000 42-MW combustion turbine restricted to combusting natural gas and a GE Frame 5 22-MW simple cycle combustion turbine restricted to combusting natural gas and one steam boiler that combusts natural gas.

HUC uses water injection to control NOX emissions from the two turbines. The LM-6000 operated in combined cycle mode uses a Del-tak heat recovery steam boiler to power an 11 MW steam turbine/generator to produce an additional 11 MW of green power.



completed project photo, City of Hutchinson

A solar array at the city wastewater treatment plant supplies approximately 15 percent of the facility energy.

California agencies release final analysis of last summer's rotating outages

Three California regulatory agencies Jan. 13 issued a Final Root Cause Analysis which identified three major factors contributing to Aug. 14 and 15, 2020 rotating electricity outages. These factors, according to the report, included:

- The climate change-induced extreme heat wave across the western United States resulted in demand for electricity exceeding existing electricity resource adequacy (RA) and planning targets.

- In transitioning to a reliable, clean, and affordable resource mix, resource planning targets have not kept pace to ensure sufficient resources

that can be relied upon to meet demand in the early evening hours. This made balancing demand and supply more challenging during the extreme heat wave.

- Some practices in the day-ahead energy market worsened the supply challenges under highly stressed conditions.

Although Aug. 14 and 15 are the primary focus of this Final Analysis because the rotating outages occurred during those days, the report noted a statewide effort including significant consumer conservation helped maintain electric service on Aug. 17-19, which were projected to have

much higher supply shortfalls.

The three agencies releasing the report were the California Independent System Operator (CAISO), the California Public Utilities Commission (CPUC), and the California Energy Commission (CEC). The rotating outages were ordered by CAISO.

Major Factors Leading to Outages

The report blamed a climate change-induced extreme heat wave across the western United States, which resulted in demand for electricity exceeding existing electricity resource adequacy (RA) and planning targets.

In addition, this climate change-induced extreme heat wave—a 1-in-30 year weather event—extended across the western United States. The resulting demand for electricity exceeded the existing electricity resource planning targets. Resources in neighboring areas were also strained.

In transitioning to a “reliable, clean, and affordable” resource mix, resource planning targets have not kept pace to ensure sufficient resources that can be relied upon to meet demand in the early evening hours.

The rotating outages occurred as solar generation declined in the late afternoon at a faster rate than demand decreased. Changes in the resource mix and timing of the “net peak” have increased the challenge of maintaining system reliability. This challenge is amplified during an extreme heat wave.

The regulatory agencies have examined the impacts of significant renewable penetration on the grid. However, they noted additional work is needed to ensure that sufficient resources are available to serve load during the net peak period and other potential periods of system strain.

Energy market practices contributed to the inability to obtain or prioritize energy to serve CAISO load in the day-ahead market. The practices included under-scheduling of demand in the day-ahead market by load serving entities or their scheduling coordinators, and convergence bidding, a form of financial energy trading used to converge day-ahead and real-time pricing.

Current Actions to Prepare for Summer 2021

A number of actions are being taken to prepare for this summer.

The CPUC opened an

Emergency Reliability rule-making to procure additional resources to meet demand including proposals for additional resources that can be available during the net demand peak period (i.e., the hours past the gross peak when solar production is very low or zero).

The CPUC is tracking progress on generation and battery storage projects that are currently under construction in California to ensure there are no CPUC-related regulatory barriers.

The CAISO, CPUC, and

CEC are planning to enhance Flex Alerts to maximize consumer conservation and other demand-side efforts during extreme heat events.

Mid-term actions

In the mid-term, for 2022 through 2025, the CAISO, CPUC, and CEC will continue to work toward:

- planning and operational improvements for the performance of different resource types (such as batteries, imports, demand response, and

California: see facing page

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California

continued from facing page

so forth);

- improvements to accelerate the deployment and integration of demand-side (customer) resources; and

- consideration of generation and transmission build-outs to evaluate options and constraints under the state's goal of 100 percent renewable energy by 2045.

This planning will also account for the pending retirements of some existing natural gas units and the Diablo Canyon nuclear power plant.

For the longer term, CAISO, CPUC, and CEC and other regional stakeholders "are working to establish a mod-

ernized, integrated approach to forecasting, resource planning and RA targets, to better plan and account for the transitioning electricity resource mix necessary to meet clean energy goals."

Summary of Performance of Different Types of Resources

- Natural gas – Under very high temperatures, ambient derates are not uncommon for the natural gas fleet, and high temperatures reduce the efficiency of these resources. Subsequently, the CPUC issued a ruling intended to get the most out of the existing gas fleet.

- CAISO relied on imports that did not have a contract-based obligation to offer into the market. The CPUC made

rule changes to the RA program and may consider additional changes.

- Hydro and pumped storage – RA hydro resources provided above their RA amounts and various hydro resources across the state managed their pumping and usage schedules to improve grid reliability.

- Solar and wind – The reliability value of intermittent resources is still over-estimated during the net peak hour.

- Demand response – While a significant portion of emergency demand response programs provided load reductions when emergencies were called, the total amount did not approach the amount of demand response credited against RA requirements.

- Battery storage – It is difficult to draw specific conclusions about fleet performance from the approximately 200

MW of RA battery storage resources in the CAISO market (too small a sample size).

CAISO, CPUC and CEC in an introductory letter said their actions "are intended to ensure that California's tran-

sition to a reliable, clean, and affordable energy system is sustained and accelerated. This is an imperative – for our citizens, communities, economy, and environment."

Nuclear, coal lead generation retirements in 2021

The U.S. Energy Information Administration's (EIA) on Jan. 12 said that 9.1 gigawatts (GW) of electric generating capacity are scheduled to retire in 2021 and that nuclear generating capacity will account for the largest share of total capacity retirements (56 percent), followed by coal (30 percent).

EIA said that these retire-

ments will come primarily from older units, noting that the capacity-weighted average age of retiring coal units is more than 51 years old.

In another energy-related note, the EIA reported Jan 13 that the United States exported more crude oil and petroleum products last year than it imported, for the first time in more than 70 years.



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Lennis 'Red' Arndt, 72

LENNIS "RED" ARNDT, age 72, of Luverne, died Thursday, January 7, 2021, at Ava's Hospice House in Sioux Falls, S.D.

Arndt served on the MMUA board of directors and was MMUA president in 2001-02.

He was born May 1, 1948, in Springfield and graduated from Springfield High School in 1966. He also attended Worthington Junior College.

Red started working for Springfield Public Utilities in 1967 as a power lineman and later line foreman. He was on the Springfield Fire Department during which time he served as the fire chief for three years. He served on Springfield's Planning & Zoning Commission for five years and on the Board of Education at Springfield Public Schools for three years.

He moved to Fairfax, where he was the city manager from 1986 to 1989. He managed the electric, water, and wastewater utilities along with other city services and facilities. Red moved to Luverne in 1989 to be the city's utility superintendent. In 1990, Red was instrumental in the design and construction of the Lewis & Clark Regional Water System, serving in many vital capacities including board chairman from 2006 until his death.

Red leaves behind many family and friends. A time of fellowship was held Jan. 15 in Luverne. A memorial service will be at Grace Lutheran Church at a later date. Red's remains were laid to rest in Springfield.

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State's largest natural gas distribution company granted 4.7 percent increase

The Minnesota Public Utilities Commission Jan. 14 approved a rate increase of \$38.5 million, or 4.7 percent, for CenterPoint Energy.

According to regulatory

documents, CenterPoint on Sept. 26, 2019, filed a request for a general increase in its natural gas rates. Based on a rate of return on common equity of 10.15%, the Com-

pany requested an increase over existing rates of approximately \$62.0 million, or 6.8%.

The Commission ordered an interim rate increase, subject to refund, of 5.8%, which went into effect Jan. 1, 2020.

Parties to the docket engaged in mediation with an

administrative law judge and reached a settlement on all contested issues, with the exception of the City of Minneapolis's proposed Tariff-on-Bill (TOB) program.

The City of Minneapolis subsequently filed a stipulation between it and the

company. The stipulation resolved the dispute over the TOB program design and memorialized the agreement as to the features of an appropriate pilot project.

The Rate Case Settlement resolved all issues between all parties.

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Training

continued from front page

and injuries.

Safety standards are performative in nature, and the instructor typically needs to assess that students are able to perform required skills or actions according to the appropriate standards. This is very difficult, if not impossi-

ble, to do in a virtual training environment.

Often the best way to ensure both comprehension and retention is for the instructor to have students perform required skills or actions in a real world setting and observe their performance. This is typically difficult or impossible to do in a virtual setting. In many situations the op-

portunity to ask questions of the instructor, either during the training session or in a one-on-one conversation with the instructor, provides students with a greater level of comprehension. An in-person training session facilitates these kinds of learning experiences.

MMUA onsite training is done under the terms of the individual city or utility's Pandemic Preparedness Plan. If the member has an appropriate facility and protocols in place for social distancing, mask wearing, and sanitizing, MMUA will conduct in-person training in those instances in which the member's management determines that the value to be gained for the organization from an in-person training session outweighs any potential risks.

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HeatShare, municipal utilities move into 39th year of fruitful partnership

HeatShare offers help to needy.

Since 1982, HeatShare and many of the municipal electric and gas utilities of Minnesota have worked closely together.

HeatShare provides emergency assistance with heating and utility bills. It is a voluntary, nongovernmental program of The Salvation Army.

HeatShare helps warm the lives of the elderly, disabled

community.

Administrative costs of the program are covered through utility corporate gifts and by The Salvation Army.

The program is guided by an Advisory Board. The board includes representatives from

MMUA, investor-owned utilities and state customer assistance programs.

Since 1982, HeatShare has provided families throughout Minnesota with millions of dollars in emergency energy assistance.

HeatShare has undergone a number of changes over the years. The program has a new coordinator, Ana Gonzalez. She will be reaching out to municipal utilities across the

state in the days ahead.

Those interested can make an online donation to HeatShare at www.thesalvationarmy.com or call 1-800-842-7279 for more information.



and others who have nowhere else to turn. It is a one-time, last resort for many who have no other resources available to see them through a tough time.

Financial support is provided by customers voluntarily contributing through their monthly utility bills or by donations sent to The Salvation Army. Donations go directly to help people in need in your



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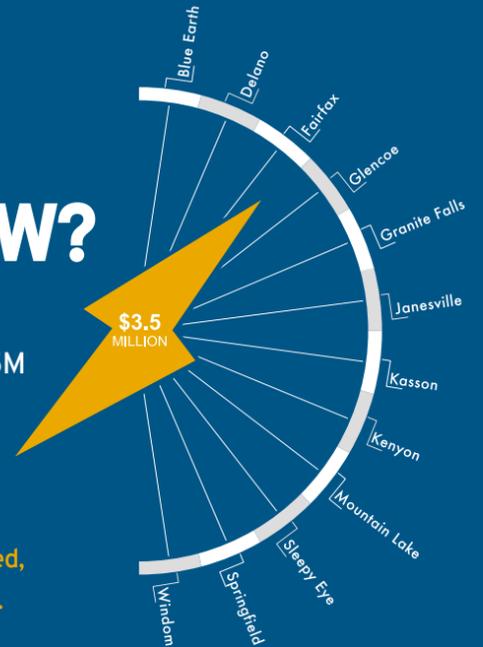
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#10-1224 (2016-12)

The Douglass Township (Michigan) Planning Commission on Jan. 20 discussed a wind energy ordinance. According to local media reports, two hours into the three-hour meeting, a local resident used the Zoom chat feature to encourage her fellow attendees to interrupt the meeting with public comments, which resulted in a chaotic exchange and township officials repeatedly muting the Zoom attendees. A chance for public comment was provided at the end of the meeting.

The Commission, on a 4-3 vote, recommended to the township board a six-month moratorium on issuance of wind permits.

The Monroe (Illinois) County Board Jan. 19 adopted wind and solar energy zoning codes to best reflect, according to local media reports, safe and efficient growth of the systems.

Wind code changes include increased setback from structures, forbidding shadow flicker on neighboring properties and public roads, seismic testing requirements within 10 miles of a known cave system in karst areas and noise limitations.

Solar code changes prohibit glare on adjacent roads or property.

According to local media reports, residents who live in the Worthwhile wind and solar project's planned area, in northeast Winnebago County (Iowa) have raised quality of life and environmental concerns, and are asking the county Board of Supervisors to put a pause on the project while making changes to setback provisions and noise limits.

The 154.8 megawatt (MW) Tatanka Ridge Wind Farm was commissioned on Jan. 5. The facility's 56 wind turbines are located in Deuel County, S.D., northeast of Brookings. The facility is owned by Tatanka Ridge Wind, LLC, which is jointly owned by Avangrid Renewables (15 percent) and the Wisconsin-based WEC Energy Group (85 percent).

Dairyland Power Cooperative has a power purchase agreement with Tatanka Ridge Wind, LLC, for 51.6 MW of renewable energy. Dairyland, of La Crosse,

see facing page please

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Wis., provides the wholesale electrical requirements for 24 distribution cooperatives and 17 municipal utilities.

Tatanka Ridge encompasses approximately 18,000 acres of primarily corn and soybean farms and cattle ranches, leased from over 100 landowners.

An explosion at an oil tank battery near New Town, N.D., sent 14 tanks up in flames and caused spills. No injuries were reported in the Jan. 18 blaze. The fire was allowed to burn out in a few hours. The cause of the explosion was not determined as of this writing.

A bill has been introduced in the Nebraska legislature that would forbid “a public power district, public irrigation district or public power and irrigation district” from constructing an electric transmission line at least 200 miles long through Jan. 1, 2023.

The bill, if enacted, would affect plans by Nebraska Public Power District (NPPD) to build a 225-mile long line through the ecologically-sensitive Nebraska Sandhills. The North Platte *Telegraph* reported Jan. 14 that the line would facilitate wind energy projects.

The paper also reported a federal judge had overturned an “incidental take” permit for the American burying beetle that NPPD had received for the project from the U.S. Fish and Wildlife Service.

The Gage County (Nebraska) Board has voted 5-2 to extend a moratorium on wind and solar energy project permit applications, through July 15th. The moratorium, reported the Nebraska News Channel, had been set to expire Jan. 15.

Last year, the Gage County Board approved increasing the setback for wind turbines from homes to one mile, after considerable feedback from rural residents. The moratorium extension gives more time for the county’s planning and zoning commission to discuss potential wind energy regulation changes.

The Madison (Iowa) County Board of Supervisors Dec. 22 passed an ordinance that prohibits installation of wind projects within 1.5 miles of non-participating landowners, limits the height of turbines to less than 500 feet, imposes strict noise limits, and eliminates property-tax breaks.

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A member of the County Board was reportedly quoted in *Forbes* magazine as saying the provisions would stop

wind project development in the county.

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1 www.bls.gov/oes/current/oes499051.htm | 2 www.bls.gov/oes/2017/may/oes499052.htm
3 www.bls.gov/oes/2017/may/oes472152.htm

MMUA adapts to the situation; holds virtual Technical & Operation Conference

In a familiar refrain as the COVID-19 pandemic response grinds on, MMUA held a 'virtual' Technical & Operations Conference Jan. 26-28.

While we would have preferred to meet together, MMUA was glad to offer programming similar to an in-person conference.

That programming started Tuesday morning with an important safety message titled *The True Cost of Distractions — A Traumatic Event Detailed From an Incident Survivor*, by Lee Shelby. He shared his personal story of a debilitating injury to raise awareness and educate employees, in an effort to mitigate distractions and reduce injuries.

That important safety message was followed with a technical topic: *FirstNet — Built with AT&T*, presented by Rus Poser and Brian Rolph, AT&T Public Safety Solutions. FirstNet is

an independent government authority established by Congress to build and deploy a nationwide broadband network dedicated to First Responders. This presentation discussed how this 24/7/365 solution for voice, text and data can benefit your utility.

Programming ended that morning with a look at the Minnesota distributed generation Technical Specifications Manual Update, by Bob Jagusch, MMUA director of engineering and policy analysis.

Wednesday morning's scheduled speaker had promised to offer help to cope in a disrupted workplace, but in a bit irony had to drop out suddenly. Filling in admirably was Kim Becking, who earned rave reviews for her insight into how to deal with an ever-changing high-stress world.

Last year we learned that adapting to rapid-fire change is essential for

future success. Leaders, more than ever, need new adaptive tools to overcome these challenges and be successful in a virtual climate.

MMUA favorite Kit Welchlin, Welchlin Communication Strategies, talked Thursday on *Lessons Learned by COVID-19: The Good, The Bad, and The Ugly*. Welchlin noted that the pandemic has touched everyone personally, professionally, emotionally, and socially. It certainly has affected the way we go about our daily lives. It probably has caused us to recalibrate our work and life balance, too. However, it may also have inspired us to think differently about our work and how we interact with our coworkers and our fellow citizens. It has compelled us to recognize and develop new methods.

Among other things, attendees learned how to:

- Learn how to recover and build resilience
- Recognize the value of perspective-taking, empathy, and contingency plans

The morning, and meeting, concluded with an Issues Round-Up led by MMUA Staff.

MMUA would like to thank our Conference Sponsors:

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- Ziegler Power Systems

Upcoming Events

There is hope for a relatively normal year in 2021, with more known about COVID-19 and the rollout of vaccines. We do not yet know the impact of the pandemic and state-imposed restrictions going forward, but we are moving ahead with our meeting/training schedules. Some meetings and training are better held in person, and the deeper into the schedule we look, the more positive we are that these get-togethers will occur as scheduled.

Emergency Preparedness & Restoration Conference

March 16-17, River's Edge Convention Center, St. Cloud

Training, exercising and planning provides an opportunity to collaborate—whether it's with your utility or local or statewide responders. These activities can help you identify shortcomings, anticipate problems, and proactively address potential consequences that an emergency may bring about.

Join other city and utility professionals at this conference and engage in open-forum and roundtable discussions, share ideas and gain valuable insight to improve your effectiveness in a crisis, and collaborate with MMUA to help improve consistency across the membership.

Register by Feb. 18 for best rate. Deadline to register is Feb. 28.

Substation School

April 6-8, Anoka

In addition to classroom instruction on a variety of substation-related topics, participants will also tour two of Anoka Municipal Utilities' substations, plus Federal® Cartridge (tentative).



Who Should Attend?

This School can benefit anyone who works in a substation environment or those interested in learning more. Topics and presenters include:

Substation Maintenance and Inspections

Paul Schlies, Energis High Voltage Resources

The industry's best practices on a variety of operational concepts and maintenance issues.

Proper Switching Techniques

Jamie Sieren, Power System Engineering

Gain a better understanding of the steps that need to be taken, within your substation, when dealing with switching procedures.

Your Substation: The Importance of Understanding Your Equipment

Dave Krause, Krause Power Engineering, LLC

Increase your understanding of the major systems and their associate components typically found in your substations.

Tours – Enterprise and Garfield Substations

Following a safety briefing, we'll travel to two of Anoka Municipal Utilities' substations to learn about some recently completed updates.

The Ins and Outs of a Portable Power Substation

Learn what goes into a mobile substation and the benefits of portability or as a temporary or backup power solution.

Register by March 2 for best rate.

Generation School

April 20-22, Princeton, Elk River and various locations

Along with instruction from knowledgeable speakers, participants receive hands-on instruction on either Fairbanks Morse or Cooper Bessemer engine sets, on a variety of topics.



Classroom instruction

on April 20 and April 22 will be held at the Mille Lacs Historical Society, adjacent to the Princeton Public Utilities. Following training on April 20, attendees will tour Connexus Energy's Ramsey Renewable Resource Station and Elk River's Waste Reclamation (landfill gas generation) Plant.

Hands-on instruction on April 21 takes place at the following locations:

- Fairbanks Morse - Princeton Power Plant
- Cooper Bessemer - Elk River Power Plant

Bussing provided for tours. Register before March 19 for best rate!

Virtual Regional Meetings postponed

MMUA board and staff last year set a goal of holding a series of regional meetings in 2021. MMUA President Mark Nibaur, general manager of Austin Utilities, and MMUA Executive Director Jack Kegel are planning a whirlwind 'Zoom' tour around the state. Meetings previously planned for February have been postponed until further notice.