

WATTS *Current*

April 2021

For Our Members

The Next Greatest Thing

by Sarah Heggen, CIPCO

There are a few names that rise to the top when tracing the roots of CIPCO (1946-2021).

One of the first is Edgar D. Beach, the general manager of Maquoketa Valley Electric Cooperative, who first raised his concern about the co-op's ability to meet the increasing electricity demand of the growing REC membership. The rural electric industry was in a boom period in 1945, not only as soldiers returned home from war, but also as RECs across the country diligently worked to bring farms into the electric age, connecting new members who could finally celebrate the "day the lights came on".

"By the middle 1940s, we had a major power problem on our hands," Beach later recalled. "We were getting most of our power from Iowa Electric Light and Power, but this firm was hard-pressed to meet the demands on its generating equipment. There had been a sharp increase in the use of electricity during World War II, and we figured it would get even greater after the war."

Under Beach's direction, the idea to organize a generation and transmission cooperative and seek loans for a much-needed new generation plant and transmission lines gained traction. He proposed that instead of the new G&T operating its own generating facility, the job would be turned over to Iowa Electric Light and Power, with an Operating and Transmission (O&T) agreement in place between the entities.

Beginning Sept. 9, 1946, representatives from the original eight electric cooperatives, the Rural Electrification Administration (REA)



Edgar Beach, First MVEC Manager

and Iowa Electric held meetings and worked long hours to hammer out plans and specifications for the new G&T. One month later, on Oct. 8, 96 people representing eight distribution cooperatives met in Marshalltown to approve the formation and name of Central Iowa Power Cooperative. Before the month was out, the first meeting of incorporators was held in Cedar Rapids, designating the first CIPCO board members as: Ross Cherry, Buchanan Co. REC;

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J.E. Storm, Guthrie Co. REC; Frank Frederick, Linn County REC; W. A. Armbrecht, Marshall County REC; Ora Hall, Greene County REC; Fay Wilcox, T.I.P. REC; Oren Thompson, Benton Co. Electric Cooperative Assn. (elected vice president); and John Cousin, Maquoketa Valley Electric Cooperative (elected president).

Edgar Deuchar Beach (1889-1970) was instrumental in the formation of MVEC, and then served as the co-op’s first manager from its incorporation in 1936 until his retirement Dec. 31, 1959. His career there was preceded by two other successful careers – first as a professor of music and a farm manager. It was a teaching position at Cornell College in Mount Vernon that brought him from his birthplace in Ohio to Iowa the first time and where he met his future wife, Elsa. Following service in the army during World War I, Beach took teaching positions in Kansas and South Dakota before moving back to Iowa, landing in Anamosa with Elsa in 1929, where the couple took over operation of the family farm northeast of town.

In a profile of Beach upon his retirement, he told *The Gazette*, “The organization of CIPCO was the greatest thing that ever happened in the rural electrification program in this area. Member cooperatives are getting their power from CIPCO at 3 to 4 mills per kWh less than could be bought any place else, even including the so-called generating cooperatives.”

Heat Plus Rate Reminder

The Heat Plus rate ends with energy used through May 31, 2021. It is important that you do not turn off power to these meters because the Cooperative still needs to be able to read them each month. The Heat Plus rate will begin again October 1, 2021.

Bylaws Available

Copies of the Bylaws of Maquoketa Valley Electric Cooperative are available at the Cooperative’s office. If you would like a copy of the Bylaws, please pick one up, or contact us to have one mailed to you.

SCADA & Power Quality - Checking Under The Hood

When something isn’t operating correctly in your vehicle there is a good chance that a warning light will advise you to service your engine. If you have experienced this before, perhaps you popped open the hood to scope out the problem or took the vehicle to a mechanic to investigate the issue. Now, imagine for a moment that your automobile did not notify you when there was a problem, but instead, your vehicle simply stopped functioning without warning. Not only would this be inconvenient and unsafe, it would be costly, as it is often easier to perform maintenance during the initial appearance of an issue than it is to try fixing something that is completely broken.

What does your automobile have to do with MVEC? Well, the service engine light on your vehicle functions in a similar manner to the systems that communicate with your cooperative about electrical equipment. Instead of check engine lights, MVEC has a SCADA, or supervisory control and data acquisition system that allows our technicians to communicate in real time with control devices in the field from our office. The SCADA system sends alerts, similar to how your vehicle notifies you when equipment issues are detected. This allows our technicians to monitor the health of the electrical system so they can keep small problems from becoming large issues that may jeopardize your access to power.



Operations Center

Dan Schulte, Director of Operations, has worked for MVEC since 1988. He said the technology plays an important role in the process of delivering and restoring power. “I would say the biggest thing it




does is reduce outage length as well as the number of outages,” Schulte said. “ It makes restoration of outages easier.” He also noted that, because SCADA systems can be controlled and monitored from the office, it enhances the safety of linemen by eliminating the need for them to go out in the field to change equipment settings that can now be adjusted from the safety of the Cooperative’s Operations Center.

So, if SCADA serves as the check engine light, who is the power system’s mechanic? Well, Dean Koopmann’s title might not be Mechanic, but his actual role – Technical Services Manager – does involve similar problem-solving skills. Koopmann, who has been with MVEC for over 30 years, directs a team that utilizes special equipment to perform power quality investigations for problems related to the supply of voltage/power to our members. Investigations may include troubleshooting low- or high-voltage concerns, power outages, line blinks, power line noise and radio interference, flickering lights or other power-related issues. “With over 17,000 permanently mounted remote end-of-line voltage monitoring devices providing feedback we can collect data on how well our system is performing”, said Koopmann who also keeps tabs on critical power supply parameters to help ensure good quality power is provided to our members.

Much like auto mechanics might be called upon with inquiries about noisy car engines or vehicle malfunctioning, MVEC’s Member Advocate, Al Schilling, may receive calls from members with questions regarding power quality issues. Once MVEC is made aware of an electrical disturbance like a voltage fluctuation or blinks in a member’s home or business, the Engineering and Operations departments investigate what is causing the problem so corrective actions can be taken. In the end, Schilling is responsible for helping members understand the causes of power disruptions and working to resolve them. “ I’m always here for our members,” Schilling said. “ And if I can turn a problem into a solution for our members, I’ve done a good deed.”

If you’ve ever looked under the hood of your vehicle and thought the engine was complicated, imagine a network of 37 substations, more than 3,200 miles of line and countless other pieces of equipment across a 9-county area. Fortunately, MVEC has the technology and communications systems and staff in place to monitor and maintain the health of this complex system so you can perform the essential tasks that require electricity in your day-to-day life. In the end, that’s what we’re here for – serving you.



RECare

**You Care, We Care,
RECare, a way for
members to help members**

MVEC’s RECare program allows members to contribute to a fund that assists low-income members with weatherization to help improve their heating and cooling costs or supplement energy assistance. Funds collected are distributed by local community action agencies.

Yes, I care and want to contribute.

I will make a one-time contribution to RECare. My check is closed.

I will contribute \$_____ per month to RECare.

I understand that this amount will be automatically added to my monthly electric bill. (Even one dollar shows you care.) Monthly pledges may be cancelled at any time by notifying MVEC in writing.

Name: _____

Address: _____


City: _____

State: _____ Zip: _____

Account Number: _____

Email: _____

Please mail to MVEC or include with your electric bill payment.



**Maquoketa Valley
Electric Cooperative**

109 N. Huber Street, Anamosa IA 52205



Broadband - The Next Greatest Thing

by CEO Jeremy Richert

When MVEC was formed in 1935 most rural Iowans were living in darkness and drudgery; carrying water and wood daily created a ceaseless cycle of labor. Electricity, 'The Next Greatest Thing', began with President Franklin D. Roosevelt's creation of the Rural Electrification Administration in 1935. (Learn more history by reading this month's cover story, The Next Greatest Thing.)

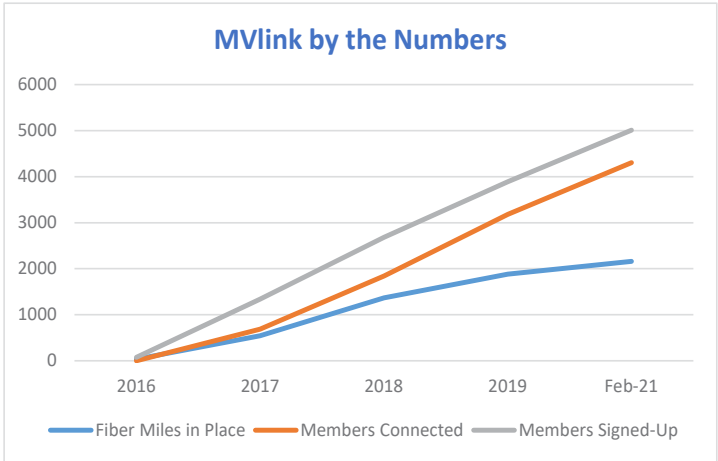
Fast forward to 2016 when MVEC's leaders used the same bold vision and determination to move forward with a fiber optic network that would not only transform the electric grid into a fully functioning smart grid but also be capable of providing gigabit internet service to our membership. When our rural members were forced to resort to expensive mobile hot spots or less than adequate hardwired services, our Board of Directors and management team knew it was time for us to once again step up and meet a need by creating a robust, future-proof internet service and The Next Greatest Thing.

This month we are celebrating five years since the decision was made to launch MVlink. We have 5,000 members signed up to take service, and the number grows daily. We are proud to offer an internet and telephone option using the industry's gold standard of a direct fiber connection.

In addition to our members enjoying exceptional broadband service, MVEC and its members also benefit through improved connectivity. The modern electric grid requires the ability to communicate in real-time between equipment on the electric distribution system and the Cooperative's office to troubleshoot equipment and monitor the performance of our 3,200 mile electric grid. This enhanced smart grid capability helps us to operate our system more efficiently on a day to day basis and

gathers information that allows us to control equipment remotely and respond

better to outages in order to shorten outage time. Our fiber optic backhaul is currently connected to 35 of our 37 substations and we expect the final two to be connected by June.



The past five years have flown by for your Cooperative employees. We have learned, and continue to learn, so much about the fiber internet world. While we know the fiber cable we have attached to our network is future ready, we continue working to ensure our networking equipment, the in-home/business equipment, and our back-haul providers can provide continuous delivery of unprecedented speeds to meet the expectations of you, our members.

The economic benefits of a broadband system also must be recognized. MVEC hired several fiber contractor firms who have provided as many as 75

2016

- April** - Board approves \$65 million smart grid to the home project
- May** - Fiber design begins in Phase I
- August** - Branded smart grid project as MVlink
- November** - Fiber network construction begins

2017

- January** - First 2 fiber employees hired
- February** - First MVlink connection
- June** - First telephone connection
- June** - A Durango area member was first to take 1 Gb MVlink service
- July** - Phase II of fiber construction begins in Stone City area

2018

- April** - A Peosta area member became the 1000th MVlink connection
- July** - Over 1,000 miles of fiber installed



individuals helping our team at any given point. These contractors are living and working in our service area, providing a boost to area hotels, rental properties, restaurants, grocery and convenience stores. We wish to thank NRTC, Smart Communication Systems and Corridor Network Construction for their continued design and construction efforts that have helped us build this network. When we initiated this project we were told aggressive industry standards suggested construction of 250 miles in a year. With these contractors, we far exceeded the standard each year, with our most productive year resulting in over 800 new miles added.

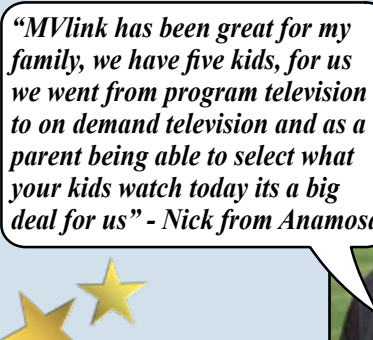
MVEC has also hired ten new employees to work specifically with MVlink and all or a portion of the workload for several other employees is now dedicated to MVlink service. MVlink's impact has, and will continue to boost our area's economy as more and more members recognize the many benefits of fiber internet and telephone services. We are proud to be able to offer our membership the highest internet speeds available on the market.

While we can't yet bring you all together to celebrate this milestone, we invite you to share a message about MVlink on our Facebook page, or send an email to fiber@mvec.coop, or even include a note with a future

payment about how MVlink has helped you connect to the world. We look forward to documenting this historic venture. Thank you for trusting us to meet your needs today and for many years to come.



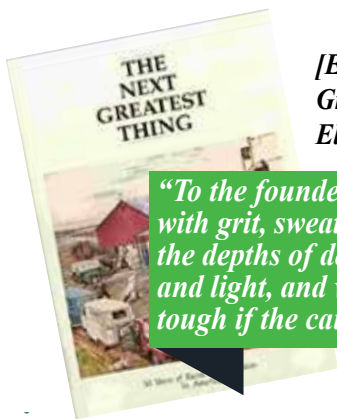
"We choose MVlink because fiber optic is the gold standard, in my opinion, of internet connection and we have not been disappointed since we have had it online, it has been rock solid" - Vic from Anamosa



"MVlink has been great for my family, we have five kids, for us we went from program television to on demand television and as a parent being able to select what your kids watch today its a big deal for us" - Nick from Anamosa

- Mary from Durango

Having MVlink fiber optic has been wonderful! It has been very reliable. We had our grandkids here with their remote learning, and many tablets working at the same time with no issues at all. We also have our home phone thru the fiber optic line and have had no problems with that either. It is very dependable and I am very happy with it all!



[Excerpt from The Next Greatest Thing, 50 Years of Rural Electrification in America]

"To the founders and pioneers of rural electrification, who - with grit, sweat and vision - transformed rural America from the depths of despair and darkness to the splendor of hope and light, and who serve as our reminder that no job is too tough if the cause is just and the people are determined."

2019

September - 26 of the Cooperative's 37 substations connected to the smart grid

May - Added more protection devices to our electric grid, allowing greater flexibility to remotely monitor and control the system for further improvements to redundancy and reliability

2020

May - Revised and implemented new pricing packages

July - Over 2,000 miles of fiber installed and 4,000 MVlink members connected

December - Added a third network provider for greater upstream reliability

2021

February
5,010 members signed-up;
2,160 miles of fiber constructed

March - Ability to offer businesses unified VoIP communications





TECH LINK

WiFi And Out Buildings

Why doesn't my WiFi work in some of my out buildings?

When you're on a wireless network and things are slow or even not working at all, you might be out of Wi-Fi range or may notice poor signal strength.

Many of our members want to enjoy wireless internet out in their barn or machine shed, or maybe they need internet service to connect cameras on a separate garage or building. This can be accomplished, however it typically requires higher-end equipment along with equipment that is designed to be used in outdoor or harsh environments. We recently talked with a member using our ONT (Modem/Router) in their home and needing the ability to monitor livestock in the barn. Mvlink was providing a strong enough signal to reach the barn but they also had to have a WiFi extender in the barn to be able to pick up the signal from the house and recreate the signal in the barn to allow several wireless cameras to be online and accessible. The extender was necessary because the barn had sheet metal on the outside and was blocking the homes' ONT signal from reaching all of the cameras. These home wireless extenders can work but they are not really designed to be used in the extreme hot and cold temperatures that most barns or outbuildings may have. They are meant more for temperature-controlled environments like a home or small business. During our call with the member, we determined one camera was near a window in the barn and was still able to pick up the signal from the house, but two other cameras further inside the barn could not get a WiFi signal due to the metal siding on the outside of the barn. The owner did have an extender, but the extreme temps over time had caused it to fail. These scenarios are often best resolved by a professional who can assist with purchasing the proper equipment designed for the circumstance. At some point, any device can fail, but it is less likely when the proper equipment is matched to the environment. In some situations, an external antenna for outside the home or barn, or both, might be necessary to get a stronger signal to each location; especially for farther distances. Remember, the signal will always travel further with fewer obstacles preventing it from getting there. It may also be helpful to understand the difference between directional antennas and omnidirectional antennas. A directional antenna can send a signal in the direction you want it to go; whereas an omnidirectional antenna will send the signal in a circular pattern, creating wasted signals sent in directions in which you don't want or need WiFi.

All materials can have an impact on WiFi signals, however those that seem to cause the most problems are more dense materials like brick and concrete as well as reflective materials like metal or mirrors.

For the best connection and dependability, consider extending an Ethernet cable between buildings that are less than 300 feet apart. If that is not possible, then look for the right wireless equipment for your situation.

WIFI TERMINOLOGY

Wi-Fi Range - A standard home network using one wireless router can serve a single-family home, but often not more.

Factors Influencing Range - There are three main factors that influence your Wi-Fi range: the access point or router itself, the structure you're in, and the wireless standard you're using.

Access Point or Router - The Wi-Fi signal range of any given access point varies significantly from device to device.

Type of Structure or Building - Physical obstructions in homes, such as brick walls and metal frames or siding, can reduce the range of a Wi-Fi network by 25 percent or more.

A Wi-Fi signal weakens every time it encounters an obstruction, which happens a lot indoors, thanks to walls, floors, and even the electronic interference caused by appliances.

Wireless Standard - The wireless standard you're using has a direct effect on your wireless signal range and strength.



Wi-Fi Signals Don't Like Physical Barriers

Therefore, the best position for any router, extender, or other wireless access point, is:

- CENTRALLY AS POSSIBLE
- HIGH UP
- NOT BEHIND OR UNDERNEATH ANYTHING



MVEC Escapes Rolling Black Outs In February

Maquoketa Valley Electric Cooperative was spared in February from controlled interruptions seen across much of the middle U.S in the Southwest Power Pool (SPP) and throughout Texas. The February 15th and 16th snow and ice storm across the southern plains hampered transmission of power, only to be followed by days of well-below normal temperatures that sent energy demand skyrocketing. Meanwhile, generation of all kinds across that region was crippled by the cold, having been built for a climate that typically experiences its energy peaks on hot summer days.

Many electric utilities across the country are members of one of nine regional transmission organizations (RTOs) and independent system operators (ISOs), also referred to as power pools. These federally regulated entities work on a regional scale to coordinate, control and monitor supply and demand on the electric grid. RTOs do not own the power grid, but they do work as “air-traffic controllers” of the grid to ensure reliable supplies of power, adequate transmission infrastructure and competitive wholesale electricity prices on behalf of their members. Most Iowa electric utilities are members of one of two RTOs: Southwest Power Pool (SPP) and Midcontinent Independent System Operator (MISO). MVEC is located within the MISO footprint and was not impacted by the polar vortex, but there were several cooperatives in western and north central Iowa that were forced to implement load control measures as a result of generation shortages within the SPP region.

SPP issued an unprecedented Emergency Energy Alert (EEA) Level 2 and Level 3 orders to its member utilities across several states on the 15th and 16th of February, calling for high levels of electric load reduction/curtailment to match available supply. With the extremely frigid weather that impacted large regions of the nation during this time period, electric demand (mostly due to electric heat) reached historic highs. To put it simply, there was not enough available generation/supply to meet this exceptionally high electric demand.

With almost no advance warning the SPP directed its member utilities to shed electric load in a controlled process as part of its EEA orders. SPP issued the orders to prevent a damaging system-wide blackout which would have taken days to recover from. EEA Level 3 orders are extremely rare and are only implemented when absolutely necessary. In fact, these were the first Level 2 and Level 3 orders issued in the organization’s history.

While MVEC members were not impacted by the rolling blackouts associated with February’s polar vortex, the Cooperative does work with MVEC’s power supplier, Central Iowa Power Cooperative (CIPCO), on how to respond in the rare event the MISO grid were to ever experience a similar problem. We hope to never encounter a similar grid disturbance but the utilities within the MISO region are prepared to respond as needed in an effort to avoid a major blackout occurring across the Midwest.



Watts The Answer?

1. The SCADA system sends _____, similar to how your vehicle notifies you when equipment issues are detected.
2. ...our Board of Directors and management team knew it was time for us to once again step up and meet a need by creating a robust, _____ internet service and The Next Greatest Thing.
3. Wi-Fi Signals Don’t Like Physical _____.

Mail your answers in with your energy bill, or email them to efletcher@mvec.coop

Two winners will each receive a \$10.00 credit on their energy bills.

Please complete the following:

Name

Address

February winners:

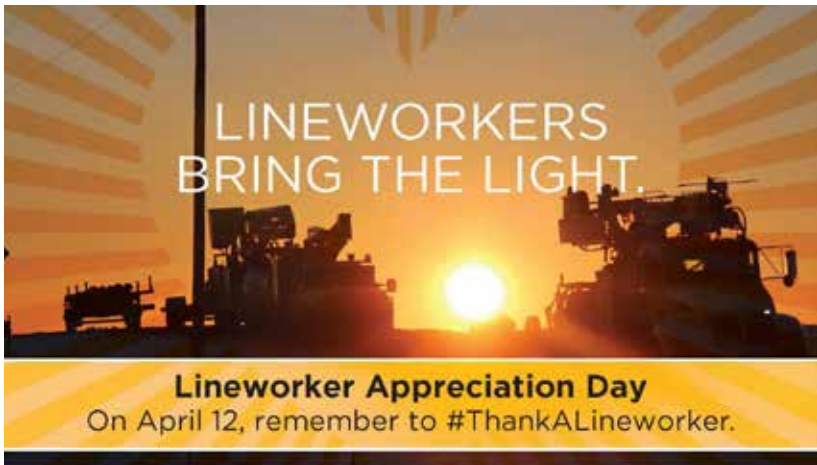
Dennis Knipper, Greeley

Roger Brehm, Earlville



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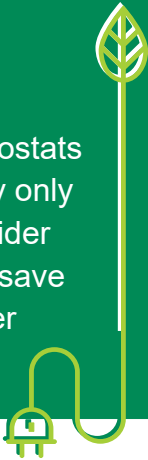
PRSRT STD
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PAID
Cedar Rapids, IA
Permit 174



Energy Efficiency

Tip of the Month

Some manufacturers set water heater thermostats at 140 degrees, but most households usually only require them to be set at 120 degrees. Consider lowering your water heater's temperature to save energy and slow mineral buildup in the heater and pipes.




Source: www.energy.gov



Understanding Your Electric Bill

ON-PEAK hours are 4 p.m. - 9 p.m.
OFF-PEAK hours are
Midnight - 4 p.m. and 9 p.m. - Midnight
These times are in effect every day.

Watts Current

is published monthly for members of Maquoketa Valley Electric Cooperative.
A Touchstone Energy® Cooperative 

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Printed by Julin Printing Company
Monticello, IA

